

**CROWN SYDNEY HOTEL RESORT**

**STATE SIGNIFICANT DEVELOPMENT APPLICATION**

**SSD 6957**

**BARANGAROO DESIGN ADVISORY PANEL**

**FINAL REPORT**

**18<sup>th</sup> November 2015**

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**STATE SIGNIFICANT DEVELOPMENT APPLICATION**  
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## EXECUTIVE SUMMARY

The Barangaroo Design Advisory Panel (the Panel) is an expert and impartial panel commissioned by the NSW Department of Planning and Environment to review the State Significant Development Application SSD 6957 for the Crown Sydney Hotel Resort.

The Panel considers that the application will meet a high degree of design excellence subject to addressing the issues and recommendations of this report, as summarised in Section 4.

## 1 INTRODUCTION

### 1.1 THE PANEL AND THE SCOPE OF THIS REPORT

The NSW Department of Planning and Environment (the 'DPE') has commissioned independent, expert design advice through appointment of a Barangaroo Design Advisory Panel (the 'Panel') to assess the architectural design, sustainability and public domain impacts of the State Significant Development Application SSD 15\_6957, Crown Sydney Hotel Resort.

The Panel comprises of the NSW Government Architect Mr. Peter Poulet (Chair), Ms. Meredith Sussex AM and Ms. Shelley Penn.

The review commenced on the 13<sup>th</sup> August, 2015 with the DPE's issue of the Environmental Impact Statement Report (EIS) documents. The Panel provided a *Preliminary Review Report* to the DPE on 7<sup>th</sup> September, 2015.

In undertaking this review, the Panel had the following material available:

- The Modification 8 (MOD 8) Barangaroo Design Advisory Panel Final Report (MOD 8 BDAP), issued on October 27<sup>th</sup> 2015.
- Publicly exhibited State Significant Development (SSD) Application documents;
- Submissions received by the DPE from the public, elected representatives, government agencies and local Councils to date (the Submissions).
- The Response to Submissions Report, received on 23<sup>rd</sup> October, 2015.

A Draft Report was issued to the DPE for review on 13<sup>th</sup> November, 2015.

The Panel's DPE Terms of Reference are to prepare a detailed report for the application that:

- considers architectural design, materials and detailing appropriate to the building type and its location;
- considers the form of the building and its impacts on the public domain;
- considers sustainable design principles in terms of sunlight, wind, natural ventilation, reflectivity, and safety and security; and
- advises whether the building exhibits a high degree of design excellence having regard to the above matters and makes recommendations (if required) on how to improve design outcomes.

## **1.2 THE CONTEXT OF THIS REPORT**

The current approved Concept Plan for Barangaroo South is Modification 7 (MOD 7). This SSD application has been made in reference to the MOD 8 Concept Plan, which is currently under consideration by the DPE. In assessing the MOD 8 Concept Plan proposal, the DPE requested this Panel (the Barangaroo Design Advisory Panel) provide a report assessing its impacts on built form and public domain. The MOD 8 Barangaroo Design Advisory Panel Final Report (the MOD 8 BDAP Report) was issued on October 27<sup>th</sup> 2015. It made twenty recommendations, many of which are of relevance to this SSD application.<sup>1</sup>

The Panel notes that MOD 8 is currently under consideration and not approved. This review has therefore been requested outside of the context of a relevant and approved Concept Plan. The premise of this review has therefore been to assess the proposed design in the context of the MOD 8 BDAP Report recommendations.

The Panel also notes that in assessing the MOD 8 proposal, it was provided with additional information in the form of design drawings for the proposed buildings. Thus, whilst recommendations were made on the basis of the Concept Plan, they were informed by an understanding of the potential architectural outcomes of the proposed envelopes.

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<sup>1</sup> For a summary of the Recommendations, refer p49 of the MOD 8 Barangaroo Design Advisory Panel Final Report, Oct, 2015

### 1.3 DESIGN EXCELLENCE

The Panel has been asked to advise whether the building exhibits a “high degree of design excellence”. In order to provide this advice, the Panel has adopted the description of design excellence provided by the proponent in their EIS section 5.3 Design Excellence. This is pursuant to Clause 19, Part 12 of Schedule 3 of the Major Development SEPP and DGR 4 - Urban Design and Built Form:

*In considering whether the proposed building exhibits design excellence, the consent authority must have regard to the following matters:*

- a) whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved;*
- b) whether the form and external appearance of the building will improve the quality and amenity of the public domain;*
- c) whether the building 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; and*
- d) if a design competition is required to be held in relation to the building, as referred to in subclause (3), the results of the competition.<sup>2</sup>*

As outlined in the EIS application, a design competition was conducted for the building, however as this took place independently of the Major Development SEPP process (subclause (3)), the Panel will review the building design on the basis of items a, b and c only. This is in alignment with the DPE Terms of Reference for this review.

### 1.4 NOMENCLATURE

Names for streets and open spaces have changed many times over the course of the Barangaroo project. The names used in this report will follow those outlined in the MOD 8 BDAP Report, which followed the most current nomenclature at the time. The Panel notes that the SSD application refers to Barangaroo Avenue as Lime Street. This appears to be an accidental insertion of an older name. This report uses Barangaroo Avenue, as per the MOD 8 BDAP Report .

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<sup>2</sup> From Crown Sydney Hotel Resort EIS, July 2015

## **1.5 PUBLIC BENEFIT**

Any assessment of built form and public domain must place at its centre the notion of public benefit – that for a development to be viable it must provide a net improvement in the lives of the people it affects. Public benefits include the economic benefits to state and local economies, but are not limited to this. Barangaroo will impact Sydney and its identity in numerous ways. Its legacy will be enduring and it is imperative that the abiding public benefit arising from the project is embodied in the built form and public domain.

## **1.6 SUBMISSIONS**

The Terms of Reference of this Report included review of submissions received by the DPE from the public, elected representatives, government agencies and local Councils.

The Department received a total of 30 public submissions comprising 20 submissions in the form of objections, nine submissions in support and one submission making comments. This included submissions from the following special interest groups and organisations:

- Alex Greenwich MP
- Irene Doutney (Greens Councillor, City of Sydney)
- National Trust
- Urban Taskforce

The primary areas of concern were:

- Inappropriate height
- Adverse traffic impacts
- Loss of public realm / open space
- Overshadowing of Pyrmont, water and public domain/spaces
- Obstruction of Sydney Observatory sightlines
- Excessive car parking provision
- Inconsistent with the original masterplan for the site
- One casino is enough for Sydney
- Adverse wind impacts
- Submitted prior to determination of MOD8
- Objections relating to Modification 8 of Concept Approval
- Adverse impact on views to and from the city and Opera House
- Podium is poorly activated

Submissions in support concerned:

- Support tourism and employment
- Good / landmark design
- Employment opportunities for indigenous youth
- Address chronic hotel room shortage in Sydney
- Appropriate height and modern design

## 2 ASSESSMENT OF PROPOSAL



Figure 1 - Barangaroo, indicating North, Central and South precincts. From the RSHP Masterplan, MOD 8 EAR, 2015

### 2.1 FORM OF THE BUILDING AND ITS IMPACTS ON THE PUBLIC DOMAIN

*It is the Panel's view that any built form of this type in this location must be a work of exceptional architectural quality...The design of such a building should enhance iconic views, the aesthetic identity of the city and the quality and amenity of the public domain at ground level.<sup>3</sup>*

#### 2.1.1 BUILT FORM

Key recommendations from the MOD 8 BDAP Report of relevance to this built form review are as follows:

1. The podium footprint, scale and height of Block Y (the Crown Sydney Hotel Resort) is adjusted to retain a single and continuous, waterfront public domain linking Waterman's Quay in the south to the Central Parklands and Northern Cove;
2. Review the bulk and scale of the Block Y tower (both upper and lower elements), with the aim of reducing visual bulk and overshadowing impacts, refining its proportions, and ensuring that the building (tower and podium) is read as a single integrated object in an urban landscape setting;
3. That no branding signage be located on the tower, or at any location on the building above the podium;
4. Where height is a characteristic of the tower design, public access to views from upper levels should be considered;

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<sup>3</sup> MOD 8 Barangaroo Design Advisory Panel Final Report, Oct, 2015.



8. That the promenade adjacent to Block Y (both west and south) be significantly more generous, such that it reads and functions as a continuation of the Central Parklands linking to Waterman's Cove, rather than as a thoroughfare;
9. Detail design of the promenade, in particular licensed areas, to promote visual and physical connectivity and legibility as a generous and inclusive public space;
14. Adjustments to the podium and tower of Block Y as referred to in earlier recommendations should reduce overshadowing impacts on Waterman's Quay, the Promenade and Hickson Park;
15. Public permeability through all building envelopes, in particular podium forms;
16. Maximise active interfaces of buildings to streets to encourage diversity and public access.

## CONSIDERATION

### The Podium

In assessing the envelope form of the podium, the Panel concluded that the combined effect of its proposed location and bulk was not conducive to the achievement of coherent waterfront open space and effective site arrangement.

The Panel acknowledges the modulation and sculpting of the podium form indicated in the design drawings, and the provision of generous through site links. The Architectural Design Statement (ADS) provided as part of the EIS notes that these links will be open 24 hours / 7 days; this is supported by the Panel. The location of active uses along ground plane facades in the form of restaurants, bars and retail is also supported.

The Panel remains concerned that whilst these adjustments to the form, height and permeability of the podium represent an improvement to the envelope diagrams, they do not wholly meet the objectives of Recommendation 1 of the MOD 8 BDAP Report – *to retain a single and continuous, waterfront public domain linking Waterman's Quay in the south to the Central Parklands and Northern Cove*; or that of Recommendation 8; *That the promenade adjacent to Block Y (both west and south) be significantly more generous, such that it reads and functions as a continuation of the Central Parklands linking to Waterman's Cove, rather than as a thoroughfare*. (This recommendation is further discussed in Section 2.1.3). Additionally it is the Panel's view that the relationship between the podium and tower requires further design resolution in order to achieve a proportionally refined whole. This is discussed further below.

Still of concern are the licensed terraces to the west and south. Notwithstanding some formal articulation, these retain the setbacks nominated in the MOD 8 proposal and follow the design

intent indicated in drawings provided to the Panel in the Response to Submissions Report for MOD 8.

*This is exacerbated by the current proposed design of the promenade (provided through the Response to Submissions) , which isolates the licensed areas from the public thoroughfare through the use of plantings, wind and sun shades, changes in level and building envelope cantilevers.<sup>4</sup>*

The licensed areas are located on public land zoned RE1 Public Domain. It is the Panel's view that the design of these areas should be legible as public and accessible space. The current design drawings indicate terraces that are part of the private development and which are licensed, creating a defined edge between licensed and public zones. This will have the effect of limiting public use. They also convey a sense of exclusivity which is not appropriate to support effective publicly accessible through-site links.

It is the Panel's view that a more generous and inclusive public domain and public interface is required. This could be developed in conjunction with further reductions and adjustments to the bulk, form and location of the podium in order to meet the objectives of the MOD 8 BDAP Report recommendations, and in support of a more refined and resolved relationship between the podium and tower.

Issues of pedestrian amenity and vehicle access are discussed in Section 2.1.2.

## **The Tower**

The Panel does not object to the height of the upper tower. As with the podium, the Panel acknowledges the reduced envelope and articulation of the tower form indicated in the design drawings, noting also the reduced over-shadowing impacts that this has enabled.

The Panel remains concerned at the impacts on cross site views created by the bulk of the lower tower section and podium combined. The proportions of the lower tower, along with the lack of differentiation in architectural form and expression between it and adjacent elements results in an exaggerated perception of bulk. The assembly as a whole – upper tower, lower tower and podium - lacks the simplicity, clarity and proportional slenderness promised by the concept sketches. This is of concern given the high visibility of the building, its prominence and its impact on iconic Sydney views.

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<sup>4</sup> MOD 8 Barangaroo Design Advisory Panel Final Report, Oct 2015.

## Iconic Design

The Panel does not consider the current design to be iconic in any way other than through its physical prominence.

To achieve a high degree of design excellence and to ensure that the building meets the expectations of the public, it is the Panel's view that refinement of the siting, form and expression of the tower and podium should be undertaken. Furthermore access to the upper levels of the tower should be provided to the general public (not limited to hotel guests), as is common to iconic tower buildings worldwide.

## Signage

Extensive signage has been proposed for the building as outlined in the Architectural Design Statement. These include Crown logo and text signs of 4.8m x 5.9m to the top of the podium and Crown logo only signs of 6.7m x 5.3m to the top of the upper tower. Montages of the building indicate that the signs will be highly prominent. The Panel re-iterates its view from the MOD 8 BDAP Report that signage to the upper levels of the building (above podium level) is inappropriate and unnecessary as the intended iconic nature of the building will ensure that it acts as its own sign.

## RECOMMENDATIONS

The Panel recommends:

1. Podium
  - Further adjustment of the building footprint to create a more generous public domain along the foreshore and to meet the objectives of the MOD 8 BDAP Report recommendations;
  - Design of licensed areas in RE1 zones should be legible as public and accessible space.
2. Podium / Tower relationship
  - Greater clarity and design resolution between upper and lower towers and the podium, and refinement of the forms & proportions to achieve greater slenderness in the tower - in support of the original architects vision of a *“sculptural form that will rise up the skyline like a habitable piece of artwork;”*

### 3. Signage

- That no branding signage be located on the tower, or at any location on the building above the podium;

### 4. Public access

- Provision of public access (not limited to hotel guests), to the building and views, in particular at upper levels, befitting an iconic tower building.

## 2.1.2 OPEN SPACE AND THE PUBLIC DOMAIN

Key recommendations from the MOD 8 report of significance to this open space and public domain review are as follows:

7. Reconsideration of the arrangement of Hickson Park to ensure a strong and coherent relationship to the Central Parklands and the sequence of public open spaces on the site as a whole, including a clear view and safe public pedestrian access from Hickson Road to the waterfront via Hickson Park without unnecessary conflict with vehicles;
8. That the promenade adjacent to Block Y (both west and south) be significantly more generous, such that it reads and functions as a continuation of the Central Parklands linking to Waterman's Cove, rather than as a thoroughfare;
9. Detail design of the promenade, in particular licensed areas, to promote visual and physical connectivity and legibility as a generous and inclusive public space;
11. The boardwalk should not be included in site area calculations or in overall calculations of dimension, such as for the width of the promenade or set back to building envelopes;
12. In all instances planting beds must be adequate to support mature large scale trees for precinct amenity. This is of particular importance for areas located above basement parking;
17. The design of the street network, parking and delivery vehicle access points and the porte-cochère of Block Y should minimise pedestrian / vehicular conflicts;
18. Encouragement of cycling as a mode of transport. All internal streets should be accessible to bicycle riders, including foreshore paths, with a requirement for minimization of conflict between pedestrians and cyclists. Confirm and justify the location and scale of end-of-trip facilities and bike parking.

## CONSIDERATION

The primary concern addressed by the recommendations above is the impact of the Crown Sydney Resort Hotel on the public domain. Articulation of the podium form as indicated in the

Architectural Design Statement drawings goes some way to addressing recommendations 8 and 9. Further adjustments as outlined in Section 2.1.1 are required in order to fully meet the objectives of these recommendations.

## **Promenade**

Landscape plans provided in the Architectural Design Statement indicate a double row of trees along the promenade to the west and a single row to the north and south. There is currently no provision of public seating indicated for this area, nor articulation of the foreshore wall (detail of the boardwalk design was not provided with the SSD application). In the Panel's view activation of this space should be part of the much larger Central Parklands and include public seating, changes in level along the foreshore edge, and potentially food and beverage offerings catering to a broader range of clientele.

## **Vehicle access and relationship of the building to Hickson Park and the Central Parklands**

The Panel acknowledges the articulation of the northern façade at ground level, in particular the introduction of active uses to the north-west corner. The location of the porte cochère remains consistent with the drawings provided to the Panel in the Response to Submissions Report for MOD 8 and as such remains a concern to the Panel in regards to associated vehicle / pedestrian conflict. Whilst façade articulation goes some way to improving the visual and physical link between Hickson Park and the foreshore / Central Parklands, the Panel notes that the array of glass fins enclosing the porte cochère to the east, along with the impacts of vehicle movements, will impede pedestrian thoroughfare through this space. The location of planting indicated in the landscape plan and renderings of the porte cochère further reduce physical permeability through this space. The Panel notes that the public realm plan provided with the SSD application indicates a reduced block footprint for Barangaroo Central buildings to improve these links<sup>5</sup>. This is in contradiction with the current development blocks indicated for Barangaroo Central by the Barangaroo Development Authority (BDA) and available on their website. It is the Panel's view that a coordinated and site wide approach is necessary to provide an integrated public domain. Greater public access along the northern façade is required to ensure an appropriate relationship of the building to the Central Parklands.

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<sup>5</sup> Refer p 44 of the Architectural Design Statement

### **Rooftop private open spaces**

The location and design of rooftop private open spaces for hotel and apartment use appear to be well considered and generous. Greater public access to these and / or other spaces within the building is supported by the Panel.

### **RECOMMENDATIONS**

The Panel recommends:

5. Promenade
  - Activation and amplification of the promenade including public seating, changes in level along the foreshore edge, and potentially food and beverage offerings catering to a broader range of clientele.
6. Porte Cochère / Hickson Park / Central Parklands relationship
  - Reassessment of the location of the porte cochère and northern façade in order to support a strong, coherent and pedestrian safe relationship between Hickson Park, the Central Parklands and the foreshore;
  - Greater public access along the northern façade to ensure an appropriate relationship of the building to the Central Parklands, Barangaroo's most significant open space.

## **2.2 ARCHITECTURAL DESIGN, MATERIALS AND DETAILING**

### **CONSIDERATION**

#### **The Podium**

Broad commentary and recommendations on the built form of the podium are provided in Section 2.1.1. Further detail is provided below.

The ground floor of the podium is porous with a number of generous through-site links that traverse a centrally located hotel and residential lobby. Building edges have a predominance of active uses including bars, restaurants and retail. There is a large porte cochère and a service / parking entry ramp, both located on Barangaroo Avenue on the eastern façade. The facades of the podium are glazed and curved in both plan and section with a mix of curtain wall glazing and

glass balustrades to upper terraces. Upper levels are fitted with a stone 'veil' intended to unify the various façade typologies and uses beyond.

At ground level a series of canopies provide shade and rain protection to footpaths and licensed areas beneath. The design of the canopies appears to vary; solid canopies are proposed to Barangaroo Avenue and the porte cochère, canopies over licensed areas to the north, west and south are glazed with a fritted glass and employ a series of layers of structure and soffit in a 'voronoi' pattern intended to create a dappled light reminiscent of a canopy of trees. Steps, ramps, planters and balustrades, along with wind and sun protection in the form of perforated louvred blinds, are proposed for the terraces, which are discussed in detail in Section 2.1.1.

Landscaping proposed for the terrace areas and around entries to the through site links is differentiated from surrounding landscapes through paving and the selection of plant species. Whilst variation across the precinct is encouraged, this degree of differentiation is seen by the Panel to emphasise exclusivity. There is scope for a greater integration of landscape, particularly at podium entry points to support the perception of public accessibility.

At the porte cochère a series of glass blades are intended to define the east and north facades whilst allowing for views to the park beyond, and some physical permeability to the north.

The Architectural drawings and renderings of the podium indicate cladding overlaid by a decorative screen 'veil'. The curved articulation of the facades in conjunction with the various veil types help to reduce the visual mass of the podium whilst providing unity. Detailing of the veil and choice of material will be critical to the success of this element. Preliminary façade 'veil' studies and mock ups are reassuring in this regard, however the Panel notes a discrepancy within the Architectural Design Statement with both 'stone composite' and 'white Brazilian granite' noted as materials for the veil. Material intentions for this important element should be confirmed. Material qualities of soffits and solid surfaces beyond the veil, particularly to terraces and the porte cochère are currently indicated in white. These surfaces will be highly visible. The coordination of services in these areas is critical and their material and colour represent an opportunity not yet explored.

Whilst the glazed fins to the porte cochère are supported by the Panel, particularly the openness to the park to the north, the lack of physical connection between Hickson Park and the Central Parklands demarcated by the podium envelope remains problematic – refer Section 2.1.1 for further detail.

Whilst the inclusion of 24 hour access through-site links is supported by the Panel, the sense of public accessibility to these spaces is reduced by the privatization and sense of exclusivity of

surrounding uses. As with the licensed terraces, through site links should be designed to be legible as public and accessible.

Other internal spaces and program areas appear to have a degree of drama and sectional interaction provided by the lobby void and associated circulation. This element is supported by the Panel.

## **The Tower**

Broad commentary and recommendations on the built form of the tower is provided in Section 2.1.1. Further detail is provided below.

*The response to the site has been to create a sculptural form that will rise up the skyline like a habitable piece of artwork, contrasting with the many rectangular forms which create the backdrop to the harbour.*

*A 271m high tower, clad in a light silvery veil of glass with differing levels of transparency, will create a striking image against the sky. Its curved geometry emanates from a concept of three petal forms that twist and rise together, one tailing off and spreading out to form the main hotel accommodation with the whole composition visually grounded by a curvilinear four storey podium.<sup>6</sup>*

As discussed in Section 2.1.1 the tower is formed by two elements, a taller, twisting and tapering tower to RL 271m and a lower bulkier tower described as a 'petal' pulled away from the main tower. These meet the podium at RL 40. At one point at the northern end of the western façade, the tower 'comes to ground' in the form of a curved, glazed wedge. Functionally the upper tower typically houses the apartments and the lower tower the hotel rooms.

The tower has a central core with columns that rotate in plan to carry the twist in form. It has a glazed façade with a number of façade types. At upper levels recessed balconies with glazed balustrades are provided to the apartments and larger hotel 'villa' rooms.

The façade is made up of three basic types with some additional variations;

- A staggered rectilinear type, which accommodates the recessed balconies;
- A triangulated ('diagrid') accommodating areas with maximum curvature in the façade;
- A regular rectilinear façade type with glass fins to provide 'a degree of shading control' and reduced glare, this type is used in the lower tower / hotel section;

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<sup>6</sup> Architectural Concept, Crown Sydney Hotel Resort Architectural Design Statement, June 2015.



In addition to these façade unit variations, the Architectural Design Statement describes the use of a range of glass types from opaque to transparent. An indication of the arrangement of these types can be seen in the close up renderings of the façade types provided in Section 7.4 of the ADS<sup>7</sup>. Glazing generally is described as “reflective high performance double glazing”.

The extent of solid and transparent panels within the façade has not been confirmed and will be subject to BASIX and BCA Part J compliance. Rendered views of the façade are inconsistent in this regard. Some present a mottled façade of white and grey-ish transparent paneling, others a singular smooth pale reflective skin. Nevertheless both are pale in colour, a quality key to the designers stated aspirations for the project, yet at odds with the dark, highly reflective glazing sample indicated in the Façade Materiality section of the Architectural Design Statement, and the high reflectivity sought through the Arup Reflectivity Study. In this context the Panel notes the dark glass of the recently completed commercial towers at Barangaroo South. In order to attain design excellence and the iconic status sought, the façade of the Crown Sydney Hotel Resort must meet the aspirations of the designers for “*a light silvery veil of glass*” and the renderings that support this.

Whilst hand sketches of operable window opening types are provided in the Apartment Design section of the Architectural Design Statement, these have not yet been incorporated into general façade drawings or renderings. It has therefore not been possible for the Panel to assess the impact this operability will have on the façade.

Integration and coordination of the façade design including selection of glazing, operable openings and the extent and arrangement of clear and opaque façade paneling is seen as critical to achieving the vision for the tower façade as a *light silvery veil of glass with differing levels of transparency*. This must also be coordinated with glass selection in regards to heat load, transparency and reflectivity, all discussed further in Section 2.3.

## **Hotel design**

Planning of the hotel rooms and shared facilities is generous as appropriate to a six star resort development. Hotel floor lift lobbies have glazing and views but lack natural light or aspect at the ends of corridors, this is seen as desirable. The northern corridor is viewed as excessive in length and should be reviewed. Provision of natural light and outlook and / or spatial diversity along the route should be explored.

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<sup>7</sup> Refer pages 94 / 95 of the Architectural Design Statement.

## Apartment design

In general the apartments are large and have multiple orientations. All apartments have at least one balcony space. This is supported. The Panel has concerns in regards to the proposed depth of apartments which in many instances do not meet the maximum of 8 metres from a window in an open plan setting stipulated by the Apartment Design Guide. The EIS notes this non-compliance and provides a justification on the basis of provision of high amenity as follows:

- *The rear of the open plan living areas range between 9m and 10.5m from a window, therefore only marginally exceeding the requirement;*
- *All apartments that do not meet the Rule of Thumb are north facing and as such receive extensive solar access throughout the day thus ensuring they are well lit by natural light despite being more than 8m from a window.*
- *The facades of the apartments incorporate a significant amount of glazing that is above and beyond that typically provided in a residential flat development. The use of such materials helps to maximise the apartment's ability to capture natural light.*
- *All apartments have multiple frontages facing different directions and therefore receive a significant amount of natural cross ventilation.*<sup>8</sup>

The Panel notes the following in regards to this justification:

- 10.5m is considered significantly beyond the 8 metre limit;
- A number of the non-compliant apartments face south and south east (not north) – refer for example the Type B apartment on level 34;
- Ratio of glazing to solid panels, the transparency of the nominated glazing and their arrangement has not been confirmed;
- Functioning of natural ventilation is not resolved.

The Panel understands and accepts that as a luxury development it is in the best interests of Crown to provide a very high level of amenity to these apartments. We note however that no sun shading is proposed to apartment facades and that the actual ratio of glazed to solid paneling of each apartment is not yet resolved. Further that it is the intention of the proponent to use a consistent glazing type for the tower (refer ESD report). This will mean that south facing and north facing glazing is identical, despite the very different sun and heat loads they carry. In the Panel's view the design of the facade requires further study to understand the impact of solid paneling on

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<sup>8</sup> Crown Sydney Hotel Resort EIS, July 2015.

the façade composition and on the quantity of sunlight within apartments, especially those with deeper floorplates.

The Panel is also concerned that many of the balconies indicated may not meet minimum sizes (notwithstanding EIS confirmation that sizes are compliant) and that there is insufficient wind protection to ensure usability. Open balconies to residential developments at this height are highly challenging. Provision of a 1.4m balustrade as currently proposed is unlikely to support the active use of these balcony spaces at upper levels, in addition wind pressure will require the use of specialised window and door hardware. Provision of a generous and useable outdoor space is considered desirable and in the interests of Crown and its customers.

The Panel recommends further detailed study of the wind impacts on balconies and operable façade elements generally to ensure usability of outdoor spaces and the usability and functionality of natural ventilation within apartments. This should include the location and type of all operable openings, partitions and air flow mapping.

## RECOMMENDATIONS

The Panel recommends:

### 7. Podium

- The Panel supports the architectural approach taken to the podium design in terms of materiality and detail. Earlier recommendations in regards to bulk, form and location, and the design of licensed terraces should be addressed;
- Whilst variation across the precinct is encouraged, landscape treatments including the selection of paving and plant species should better integrate with surrounding landscaping to support the perception of public accessibility;

### 8. Tower

- Coordination of operable façade elements required for natural ventilation, and of the mix, type and arrangement of opaque to clear façade panels to ensure that these create a cohesive whole contributing to the vision for the tower façade as a *light silvery veil of glass with differing levels of transparency*;
- Selection of glazing of all types to ensure delivery of a pale glass façade as presented in renderings;

9. Hotel

- Review the arrangement of hotel rooms to enable a glazed view to the ends of each hotel corridor, and a reduction in length or increased amenity to corridors, as befitting a six star resort;

10. Apartments

Review of apartment design including layout and façade coordination to prove performance in line with the ADG in regards to apartment depth, sunlight and natural ventilation.

## 2.3 SUSTAINABLE DESIGN

### CONSIDERATION

*The scale of the Barangaroo project and its impact on the city demand an advanced and ambitious approach to sustainable design.<sup>9</sup>*

The Panel supports the ambitions of the wider Barangaroo project in regards to site wide ESD initiatives. Site specific initiatives such as 6 Star Green Star Custom rating of the integrated resort development and NABERS rating of the hotel are also supported.

### Sunlight

The Panel notes that the façade treatment proposed for the upper tower (primarily apartments) does not include sun shading. The lower tower has some limited sun shading primarily focussed on the reduction of environmental reflectivity (discussed below). Results of modelling described in the Arup ESD report suggest that high performance double glazing along with the introduction of some opaque insulated panels (in place of clear glazing) will allow the facade to comply with BASIX residential standards and BCA Part J. Coordination and integration of these different façade material types is required to ensure that the aesthetic intentions of the design are retained. This is of primary importance given the impact on iconic views of the tower form, and the stated desire to build an ‘iconic’ building. Impact on the light and amenity of apartments internally is also a concern. Whilst the proposed use of a consistent glazing type for the tower (and other façade

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<sup>9</sup> MOD 8 Barangaroo Design Advisory Panel Final Report, Oct, 2015.

elements legible as a single form) will lead to challenges in terms of compliance this is supported by the Panel for the consistency it will provide to the three dimensional form.

## **Wind**

Wind impacts on pedestrians at the ground plane are described in the Pedestrian Wind Study by RWDI. According to the report wind levels will be acceptable to pedestrians subject to adopting a revised landscaping strategy with increased tree and understory planting to the north of the development within the Central Parklands. The Panel supports this outcome subject to confirmation that coordination between precincts will ensure that this planting is delivered at a size and within a time frame appropriate to the opening of the building and adjacent spaces to the public.

No wind assessment was undertaken of apartment balconies or operable windows to apartments. Discussion of potential wind impacts to balcony spaces and apartments are discussed in Section 2.2 above.

## **Natural Ventilation**

The majority of the development is intended to be fully air conditioned. Design of the apartments is intended to allow for natural ventilation as required by the Apartment Design Guide (ADG). As no detail has been provided on the location or size of openings to apartments it has not been possible to assess the functioning of the natural ventilation proposed. Many of the apartments appear unlikely to achieve the necessary standard due to the depth of floorplates (beyond ADG guidelines) and location of partitions. Further design resolution is required that brings together the impacts of wind at high levels, and the location, sizes and detailing of operable openings. As with the mix of opaque and clear paneling described above, the design and arrangement of these elements must be coordinated with the overall aesthetic intentions of the façade to ensure a resolved and coherent whole.

## **Reflectivity**

The Façade Materiality section of the Architectural Design Report describes the selection of glazing as intended to give the building a *'high degree of reflectivity, allowing its appearance to change with the differing times of day, reflecting sky and water'*. Photographs of mock up glazing panels indicate a fairly dark coloured, highly reflective glass. This appears at odds with the *"light silvery veil of glass with differing levels of transparency"* described in the concept statement.

A study of the reflectivity of the upper and lower tower façades has been provided in the Arup Reflectivity Study. This concludes that with the introduction of vertical fins to the lower tower any reflectivity issues that could be a safety concern to drivers can be managed. The report further proposes that reflectivity up to 32% can be safely considered for the upper tower (above the City of Sydney 20% limit).

The Panel supports an increase in reflectivity, subject to safety. The Panel remains concerned that further design coordination and integration is required to ensure a cohesive façade appropriate to the building type and location and meeting the aesthetic ambitions of the design.

### **Safety and Security**

The Panel supports the view presented in the application and CPTED Report that the development will provide a high level of safety to surrounding areas through natural surveillance. Where CCTV has been recommended this must be integrated within the design of the façade and/or landscape, not applied as an after-thought.

The Panel is concerned that the current design of licensed terraces will require that they be closed off to the public during out-of-business hours. As per earlier recommendations, the design of licensed areas on public land should be legible as public and accessible space. This should be the case 24 hours a day.

### **RECOMMENDATIONS**

The Panel recommends:

#### **11. Glazing**

- Use of a consistent glazing type for the tower (and other façade elements legible as a single form) to ensure consistency across the three dimensional form;

#### **12. Wind**

- Adoption of a landscaping strategy with increased tree and understory planting to the north of the development within the Central Parklands to ensure appropriate wind levels, and subject to confirmation that coordination between precincts will ensure that this planting is delivered at a size and within a time frame appropriate to the opening of the Crown Sydney Hotel Resort and adjacent spaces to the public;

- Wind assessment of apartment balconies, doors and operable windows to ensure usability and the practical functioning of natural ventilation within apartments, and of external areas.

### 3 DESIGN EXCELLENCE

The Panel considers that the application will meet a high degree of design excellence subject to addressing the issues and recommendations of this report.

The Panel notes and supports the Crown internal design review and competition process, as described in the EIS. Given the prominence of the building and surrounding public domain, and the desire for iconic status sought by the proponent, it is the Panel's view that the project will benefit from the implementation of an independent and transparent design review process, as per recommendation 20 of the MOD 8 BDAP Report:

*Recommendation 20: Establishment of an independent, transparent design review process for all buildings and public domain spaces over subsequent stages to ensure delivery of design excellence, and of an exceptional and exemplary work of architecture for Block Y (the Crown Sydney Hotel Resort) appropriate to an iconic building in a world heritage view setting.*

### 4 SUMMARY OF RECOMMENDATIONS

The following is a summary of the recommendations:

1. Podium
  - Further adjustment of the building footprint to create a more generous public domain along the foreshore and to meet the objectives of the MOD 8 BDAP Report recommendations;
  - Design of licensed areas in RE1 zones should be legible as public and accessible space;

2. Podium / Tower relationship

- Greater clarity and design resolution between upper and lower towers and the podium, and refinement of the forms & proportions to achieve greater slenderness in the tower - in support of the original architects vision of a *“sculptural form that will rise up the skyline like a habitable piece of artwork,”*

3. Signage

- That no branding signage be located on the tower, or at any location on the building above the podium;

4. Public access

- Provision of public access (not limited to hotel guests), to the building and views, in particular at upper levels, befitting an iconic tower building;

5. Promenade

- Activation and amplification of the promenade including public seating, changes in level along the foreshore edge, and potentially food and beverage offerings catering to a broader range of clientele;

6. Porte Cochère / Hickson Park / Central Parklands relationship

- Reassessment of the location of the porte cochère and northern façade in order to support a strong, coherent and pedestrian safe relationship between Hickson Park, the Central Parklands and the foreshore;
- Greater public access along the northern façade to ensure an appropriate relationship of the building to the Central Parklands, Barangaroo's most significant open space;

7. Podium

- The Panel supports the architectural approach taken to the podium design in terms of materiality and detail. Earlier recommendations in regards to bulk, form and location, and the design of licensed terraces, should be addressed;
- Whilst variation across the precinct is encouraged, landscape treatments including the selection of paving and plant species should better integrate with surrounding landscaping to support the perception of public accessibility;



#### 8. Tower

- Coordination of operable façade elements required for natural ventilation, and of the mix, type and arrangement of opaque to clear façade panels to ensure that these create a cohesive whole contributing to the vision for the tower façade as a *light silvery veil of glass with differing levels of transparency*;
- Selection of glazing of all types to ensure delivery of a pale glass façade as presented in renderings;

#### 9. Hotel

- Review the arrangement of hotel rooms to enable a glazed view to the ends of each hotel corridor, and a reduction in length or increased amenity to corridors, as befitting a six star resort;

#### 10. Apartments

- Review of apartment design including layout and façade coordination to prove performance in line with the ADG in regards to apartment depth, sunlight and natural ventilation;

#### 11. Glazing

- Use of a consistent glazing type for the tower (and other façade elements legible as a single form) to ensure consistency across the three dimensional form;

#### 12. Wind

- Adoption of a landscaping strategy with increased tree and understory planting to the north of the development within the Central Parklands to ensure appropriate wind levels, and subject to confirmation that coordination between precincts will ensure that this planting is delivered at a size and within a time frame appropriate to the opening of the Crown Sydney Hotel Resort and adjacent spaces to the public;
- Wind assessment of apartment balconies, doors and operable windows to ensure usability and the practical functioning of natural ventilation within apartments, and of external areas.