Response to Submissions and Amendments to Proposed Development

Sydney International Convention, Exhibition and Entertainment Precinct

The Haymarket

Submitted to Department of Planning & Infrastructure
On Behalf of Lend Lease (Haymarket) Pty Ltd

July 2013 ■ 12710

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JBA Urban Planning Consultants Pty Ltd operates under a Quality Management System. This report has been prepared and reviewed in accordance with that system. If the report is not signed below, it is a preliminary draft.

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Date 16/07/2013

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Date 16/07/2013

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Public exhibition occurred in accordance with the requirements of the *Environmental Planning and Assessment Act 1979*.

Over 104 submissions were received in response to the public exhibition of the EIS, including submissions made by government agencies and authorities, independent bodies and the general public, as follows:

- Government authorities and agencies - 8;
- Independent bodies – 5; and
- Members of the public – 91 plus a petition signed by approximately 600 residents of Haymarket.

The Department of Planning and Infrastructure has also prepared a letter setting out additional information or clarification required prior to the final assessment of the project.

The key issues raised in submissions (agency, independent bodies and the general public) can be broadly grouped into the following categories:

- Built form and urban design;
- Open space, public domain and pedestrian movement;
- Visual and view impacts;
- Traffic, parking, and transport;
- Stormwater and flooding;
- Groundwater;
- Noise impacts;
- Overshadowing;
- Social and community impacts; and
- Public benefit.

The proponent Lend Lease (Haymarket) Pty Ltd (Lend Lease) and its expert project team have considered all issues raised within the submissions made pursuant to the requirements of the *Environmental Planning and Assessment Act 1979*.

A considered and detailed response to all submissions made has been provided within this report at Section 2 and further expanded upon within the accompanying documentation.

In responding and addressing the range of matters raised by government agencies and authorities, independent bodies and the general public, Lend Lease has sought to refine the concept proposal. The refined proposal also captures changes made by the project team post exhibition and as a consequence of capturing aspects detailed within the Stage 2 SSDAs lodged for the North-West, South-West and Darling Drive (part) Plots.

The nature and range of changes made post public exhibition of the EIS cover elements relating to:

- Refinement of the site area,
- Parameter plan adjustments; and
- Development of ground plane/public domain connectivity and permeability improvements, including:
  - An enhancement of the north/south connections along Darling Drive resulting in a cycle / pedestrian shareway along its western edge to link the precinct and the student accommodation with the light rail stop at Tumbalong Place/Exhibition Stop;
  - Removal of the previously proposed pedestrian / vehicle shareway on Hay Street, and replacement with pedestrian priority space;
  - Introduction of a signalised pedestrian crossing across Darling Drive between Dickson's Lane and the Darling Drive plot (which includes the student accommodation building) in recognition of the desire line into the balance of the Haymarket; and
  - Formalisation of the important Macarthur Street east-west interim connection.

Details relating to the joint funding and development of essential community facilities (including a library, bike Hub, childcare centre and associated sustainable uses) as part of The Haymarket Concept Proposal have also been further progressed between Lend Lease and the City of Sydney Council post exhibition.

Section 3 and Section 4 and the accompanying documentation provide an analysis and assessment of the proposed changes and the refined project more broadly. In summary, the nature of the changes is considered to result in development that does not substantially differ from the original application that was publicly exhibited. Further, the refined proposal will deliver improvements with respect to pedestrian connectivity and safety, with all other environmental impacts of the amended development remaining consistent with the original application. Overall, the changes that have occurred, on balance, result in an improved outcome.

Final measures to mitigate the impacts associated with the refined proposal are detailed at Section 5.

In conclusion, the Haymarket Concept Proposal represents a major urban renewal project that will have significant and long lasting public benefits for Sydney and NSW more broadly. It will deliver Sydney with a new vibrant mixed use neighbourhood along with significant improvements to the public realm and pedestrian connectivity.

1.0 Introduction

An Environmental Impact Statement (EIS) in relation to a staged State Significant Development Application (SSDA) for a concept proposal for a new mixed use neighbourhood (referred to as 'The Haymarket') within the overall Sydney International, Convention, Exhibition and Entertainment Precinct (SICEEP) Project at Darling Harbour was publicly exhibited for a period of 45 days inclusive between 27 March 2013 and 10 May 2013 (SSDA 5878-2013).

In total, 104 submissions and a petition were received in response to the public exhibition of the EIS. This included submissions from government agencies and authorities, independent bodies and the general public, as follows:

- Government authorities and agencies – 8;
- Independent bodies – 5; and
- Members of the public – 91 plus a petition signed by approximately 600 residents of Haymarket.

The Department of Planning and Infrastructure has also prepared a letter setting out additional information or clarification required prior to final assessment of the project.

The proponent, Lend Lease (Haymarket) Pty Ltd and its specialist consultant team have reviewed and considered all issues raised.

This report, prepared by JBA on behalf of the proponent, sets out the responses to the issues raised in accordance with Clause 85A of the *Environmental Planning and Assessment Regulation 2000* (EP&A Reg), and details the final project design and final Mitigation Measures for which approval is now sought. The final project design includes amendments made by Lend Lease (Haymarket) Pty Ltd pursuant to Clause 55 of the EP&A Reg, including changes to address matters raised in the submissions.

The report provides a detailed response to all of the issues raised by the various government agencies, independent bodies and the general public. Whilst the submissions received from agencies have been addressed individually, the submissions made by independent bodies and the general public have been dealt with on an issue by issue basis. This approach has been adopted due to the significant amount of repetition in the submissions as many covered similar issues / concerns, and/or were based on pro-forma submissions.

The key issues raised in submissions (agency, independent bodies and the general public) can be broadly grouped into the following categories:

- Built form and urban design;
- Open space, public domain and pedestrian movement;
- Visual and view impacts;
- Traffic, parking, and transport;
- Stormwater and flooding;
- Groundwater;
- Noise impacts;
- Overshadowing;
- Social and community impacts; and
- Public benefit.

This report provides a detailed response to each of the above issues and outlines the proposed amendments to the exhibited Environmental Impact Statement. Where individual issues are not discussed in this report, a detailed response can be found in the tables at **Appendix A – Appendix G**.

Amendments to Proposed Development

To reflect the design changes that have been made to the proposed development following public exhibition of the proposal and for which approval is now sought, and to address issues raised in the submissions, a range of updated plans and documentation has been prepared.

The revised plans include Architectural Drawings prepared by Denton Corker Marshall, and Public Domain Concept Plan prepared by HASSALL. It is noted that not all of the originally submitted plans are proposed to be amended. A drawing schedule outlining the new amended plans for approval is provided at Section 3.

The following consultants' reports and supporting information has been updated or further supplements the material originally submitted in support of the EIS:

- Supplementary Design Report including Amended Parameter Plans and additional Shadow Study prepared by DCM;
- Supplementary Public Domain Concept Proposal prepared by Hassell;
- Updated Visual and View Impact Analysis prepared by JBA;
- Traffic and Transport Assessment Addendum Report prepared by Hyder;
- Flooding and Stormwater Addendum Report prepared by Hyder;
- Statement of Heritage Impact prepared by TKD Architects;
- Outline Interpretation Strategy prepared by TKD Architects;
- Noise and Vibration Assessment Addendum Report prepared by Renzo Tonin;
- Letter regarding Student Accommodation Benefits prepared by Urbanest;
- Letter regarding Crime Prevention Through Environmental Design prepared by Harris Crime; and
- Supplementary Groundwater and Dewatering Assessment prepared by Coffey.

The revised supporting documentation enables the Department to undertake an informed assessment of the amended proposal. The findings of the revised supporting consultant documentation are summarised at Section 4 of this report as relevant.

A final schedule of the mitigation measures proposed to mitigate the impacts associated with the proposed works is provided at Section 5.

This report should be read in conjunction with the EIS prepared by JBA, dated March 2013, as relevant.

Development Stages Status

Since the lodgement of the Haymarket Concept Proposal, Lend Lease has subsequently lodged three Stage 2 SSDAs in relation to the:

- Darling Drive (part) development plot (SSD 6010-2013) - construction and use of a residential building (student accommodation) and the provision of associated public domain works (refer to **Figure 1**);

Figure 1 - Artist's impression of proposed student accommodation building – Darling Drive Plot SSDA3

- South-West development plot (SSD 6011–2013) – construction and use a mixed use residential development and associated public domain works (refer to **Figure 2**); and

Figure 2 - Artist's impression of proposed South West Plot mixed use residential development SSDA5

- North-West development plot (SSD 6013–2013) - construction and use of a mixed use commercial development and public car park building and associated public domain works (refer to **Figure 3**).

Figure 3 - Artist's impression of proposed mixed use commercial and public car park building – North West Plot SSDA4

2.0 Key Issues and Proponent's Response

This section of the report provides a detailed response to the following key issues raised by the Department, government agencies and authorities, independent bodies and the general public during the public exhibition of the SSDA:

- Built form and urban design;
- Open space, public domain and pedestrian movement;
- Visual and view impacts;
- Traffic, parking, and transport;
- Stormwater and flooding;
- Groundwater;
- Noise impacts;
- Overshadowing;
- Social and community impacts; and
- Public benefit.

A response to each of the individual issues raised by the Department and submitters is provided in the tables at **Appendix A – Appendix G**.

An overview of the parties who made submissions, and their key issues/matters for consideration, is provided below.

Government Authorities and Agencies

As highlighted earlier in this report 8 submissions were received from government agencies and authorities in response to the exhibition of the EIS. Specifically, responses were received from:

- Transport for NSW (incorporates submissions from Roads and Maritime Services);
- NSW Environmental Protection Authority;
- Office of Environment and Heritage (Heritage Council);
- Sydney Harbour Foreshore Authority;
- Sydney Water;
- City of Sydney Council;
- Ausgrid; and
- Transgrid.

The application was also referred to Telstra, and the Office of Environment and Heritage (Indigenous Archaeology) and both agencies advised the Department that they would not be making a submission.

It is noted that the Sydney Harbour Foreshore Authority and Transgrid raised no objections and had no issues or comments with regards to the proposed development. Similarly, whilst the Heritage Branch of the Office of Environment and Heritage provided comments and a series of draft conditions, it did not raise any objection to the development on heritage grounds.

The Department of Planning and Infrastructure provided an overarching letter (as the assessment authority) summarising the key matters to be addressed and additional information to be provided. A response to the Department's letter is provided at **Appendix A**.

The remaining agencies and authorities made a variety of comments, and sought further clarification and information on a number of detailed technical matters as detailed throughout this section and further at **Appendix B – Appendix G**.

Independent Bodies

Five (5) submissions were received from the following independent bodies in response to public exhibition of the EIS:

- National Trust;
- Sydney Business Chamber;
- Tourism and Transport Forum Australia;
- Docomomo Australia; and
- Sydney Institute of TAFE.

The Sydney Business Chamber, Sydney Institute of TAFE and Tourism and Transport Forum Australia wrote in support of the proposal, noting that it will improve accessibility and economic growth.

The remaining two bodies raised concerns primarily relating to heritage and the impacts of the proposal on the Darling Harbour Rail Corridor. The submissions also reiterated a number of concerns relating to the architectural integrity of existing buildings on the SICEEP Site, which are not relevant to The Haymarket Concept Proposal.

Members of the Public

JBA has analysed the submissions received from the general public in response to the public exhibition. In summary:

- A total of 91 residential submissions and a petition were received. 84 submissions objected to the development, five supported the proposal and two were neutral / provided comment;
- The large majority of submissions came from residents or owners in the Peak Apartments. Many of the submissions received from these buildings comprised pro-forma submissions; and
- A petition was received signed by 600 residents of Haymarket.

Together these submissions raised a variety of issues including urban design and architectural merit, building form and bulk, overdevelopment, visual impacts, loss of views, traffic, parking, public transport, cycle and pedestrian issues, and amenity impacts associated with the development.

2.1 Built Form and Urban Design

2.1.1 Issue

The Department of Planning and Infrastructure (the Department) did not raise any issues with respect to the proposed building form or design of the scheme, and only requested clarification in relation to the 'Parameter Plans' and 'illustrative plans' with respect to the provision of two (2) additional plans as follows:

- An existing / proposed comparison plan showing: existing buildings, roads and spaces overlaid with the proposed building plots, roads and spaces; and
- An overall Concept Proposal plan showing: the information within the 'Parameter Plans' together with the proposed road, laneway, open space and pedestrian path layouts.

City of Sydney Council has made a number of recommendations with respect to the built form of The Haymarket concept proposal generally as follows:

- Redistribute the residential floor area to reduce the number of tall residential towers from four to three (deleting the western tower within the South West Plot), respect the Macarthur Street view corridor to the city and realignment of the block and set back towers a minimum of 5 metres from the podium edge;
- Reduce the height of the student accommodation towers to a maximum of 32-35 metres and reconfigure; avoid overshadowing of the Powerhouse Museum courtyard in winter before midday;
- Lowering of the raised podium edge around the new square to allow winter morning sun into the new square, with a corresponding increase in the street podium edge to accommodate redistributed floor space;
- Chamfering of building corners for 2.5 metres to improve visual safety and meeting CPTED principles, and chamfering of the northern corner of the South West Plot to enable a clear view into Dickson's Lane from the Boulevard;
- Skinning of exposed above ground carparking by floor space (preferable affordable housing product) or where not possible, green walls, public art or high quality architectural decorative features; and
- Provision of active ground floor uses through 'engineering out' flooding impacts, removal of access ramps, reconfiguration of vehicle accesses and building cores, relocation of ground floor car parking.

The Council has also requested that the proposed building envelopes be reduced in both height and plan or alternatively that the illustrative building outlines be approved with minor dimensioned articulation zones and conditioned setback dimensions for towers.

The general public raised a number of concerns in response to the proposed built form and urban design. Key concerns can generally be summarised as follows:

- Excessive bulk, height and scale of the development and number of towers, particularly in relation to the context of surrounding development;
- Angle and aspect of the towers, building depth and insufficient building separation resulting in view loss; and
- Proximity to neighbouring development.

2.1.2 Proponent's Response

In response to the issues raised, DCM has prepared a Supplementary Design Report (refer to **Appendix H**), including additional plans as requested by the Department, revised parameter blocks for the SW and NW Plots, and responding to the key design issues raised by the City of Sydney Council.

Each of the key matters outlined above are addressed in-turn below:

Redistribute the residential floor area to reduce the number of tall residential towers from four to three and set back towers a minimum of 5 metres from the podium edge

The INSW brief for The Haymarket is to create a vibrant, mixed-use inner city development that is compatible in terms of built form with the surrounding areas. The proposed density is appropriate given the site's proximity to education and employment centres, good connections to pedestrian and public transport networks and convenient access to open spaces, public amenity, education and entertainment precincts.

The Concept Proposal seeks to replicate the fine grain of the existing Haymarket and buildings have been located on the street edge to maintain the predominant 'street wall' character. This residential 'wall' incorporates breaks for the new street connections and is articulated in height to create a series of mid-rise and tower built forms in response to the urban context, and alleviate concerns around tower crowding (refer to **Figure 4**).

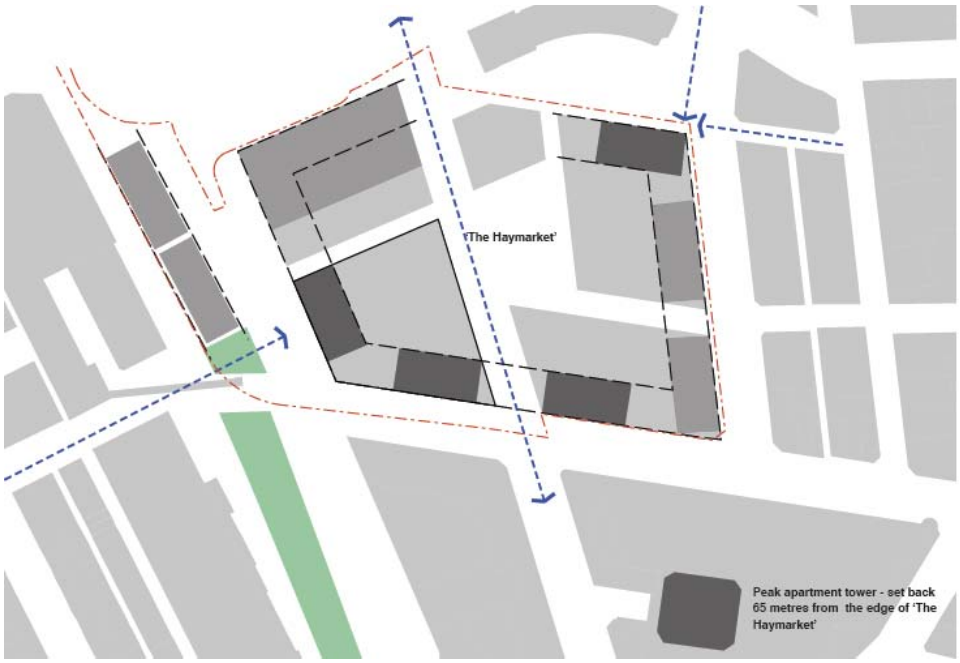

Figure 4 – Concept diagram showing residential 'wall' articulated to respond to urban context

Source: *DMC*

The number of towers proposed has resulted from a rigorous master planning process that has sought to achieve an outcome that is compatible with the existing Haymarket and the neighbouring CBD. The number of towers has been driven not only by commerciality and the demand for inner-city housing, but also by the appropriate ground plane solution, including street pattern and areas of open space. Further, four (4) towers of appropriate bulk and scale are preferred over three (3) towers of larger bulk and/ or height, which would likely result in increased visual impact and overshadowing.

The appropriateness of the proposed massing is further reinforced through a review of the floor space ratio controls that apply to surrounding land. In this regard surrounding land (to the east and south) under the *Sydney Local Environmental Plan 2012* has an established maximum floor space ratio control applying of up to 8:1. With the Haymarket Concept Proposal having an equivalent floor space ratio of approximately 5.2:1, it is evident that contextually the proposal is seeking to create a form and density of development that sits comfortably with existing and potential future adjacent development sites.

With George Street less than 200m to the east of The Haymarket site, and sitting in the backdrop of The Peak apartments, the University of Technology Sydney, and Frasers Central Park, there is also clear building form and height guidance that provides important context for the Concept Proposal (refer to **Figure 5**).

Figure 5 – The Haymarket and its City context

The proposed massing also takes into consideration recommendations for minimum separation between buildings to ensure good amenity, outlook and view sharing between existing and proposed buildings. By locating development around the site's perimeter, the separation between buildings has been maximised and the potential for visual dominance over the new central public square has been minimised.

The Parameter Plans and Design Guidelines encourage towers with small footprints, to maximise the opportunities for greater view sharing across the site. The height of the development also considers view sharing from adjacent high-rise developments within the immediate vicinity of the site, with the diversity in heights and tower placement generating an informal arrangement that is in keeping with the City skyline.

With respect to the proposed tower setbacks, the Concept Proposal proposes 'streets and buildings' rather than a 'tower and podia' composition of development. The proposed towers are setback as far as possible from the new square in order to minimise overshadowing and to achieve an appropriate relationship of built form to public space (refer to **Figure 6**). The generous existing street widths of 30 metres on Harbour Street, Hay Street and Darling Drive are considered suitable for accommodating hard edge, high rise development. In positioning the towers, it is also recognised that the Peak Apartment building (being one of the closest surrounding residential buildings to the site) is located centrally within its street block, ensuring appropriate separation distances is achieved between the towers (in excess of 65m).

Whilst the scale, size and separation of the towers provides the response to the City and building scale context, the human scale is evident in the articulation of these 'street walls.' At this level, the reading is primarily related to individual floors, providing a grain for users to engage with, understand and relate back to the larger building elements. This is articulated primarily through the grid, the balconies, windows and coloured infill panels, canopies, retail frontages and lobby entrances (to be detailed as part of future Stage 2 SSDAs).

All of the scales contribute to making The Haymarket a distinctive, integrated, lively and vibrant area that connects the precinct with the rest of Sydney. A setback or 're-entrant' between the podium and the tower creates a physical separation and allows the towers to appear to float above the 'street wall.' This allows for a continuous reading of the 'street wall' along the existing streets.

This separation is further reinforced by a change in materiality and / or expression from the human and street scale of the 'street wall' to that of the residential towers.

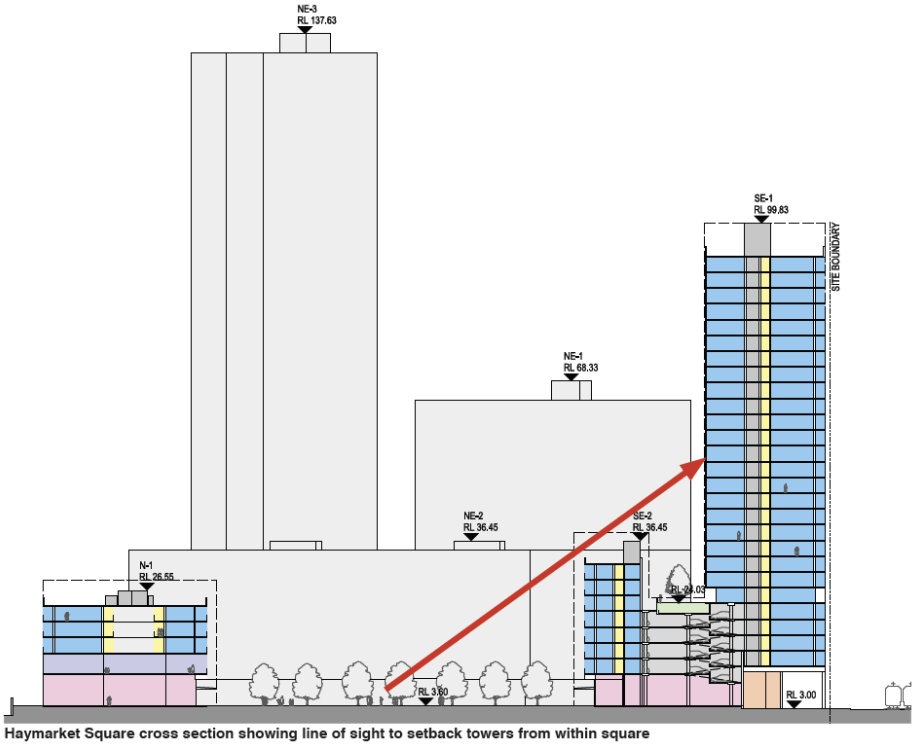

Figure 6 – Haymarket Square cross section showing line of sight to setback tower from within square

Source: *DCM*

Reduce the height of the student accommodation towers to a maximum of 32-35 metres and reconfigure; avoid overshadowing of the Powerhouse Museum courtyard in winter before midday

The student accommodation buildings provide a built edge along the western side of Darling Drive, visually defining the western edge of The Haymarket and the improved pedestrian linkages at Exhibition Place, Dickson's Lane and Macarthur Street (refer to **Figure 7**).

Under the Concept Proposal, the southern end of the student housing plot aligns with the Macarthur Street built edge to ensure good visual connectivity from Hay Street to the Powerhouse Museum. The northern end of the building is set back to maintain a line of sight to the Powerhouse Museum from Pier Street (refer to **Figure 7**). Further, a break between the two blocks and articulation of the eastern elevations provides relief and visual interest, and prevents a monolithic reading along the street wall.

The proposed building height is partly driven by plan constraints, with the plan area being constrained by the light rail corridor and Darling Drive on the western and eastern sides of the plot respectively. Further, contemporary and environmentally sensitive student accommodation design precludes deep plan buildings, with the narrower floor plates ensuring appropriate light penetration and natural ventilation. Given the plan constraints, the building height ensures the student accommodation achieves a critical mass which is, important in establishing a student precinct along Darling Drive.

The scale of the student accommodation is consistent with that proposed for The Haymarket residential buildings. The parameter plans allow a 20 storey maximum, which is in keeping with the scale of other new residential developments which are proposed for the local area.

The Illustrative Scheme reduces the building height on the northern building to reduce overshadowing impacts on the Powerhouse Museum courtyard. This massing will be confirmed during the Stage 2 SSDA for this building.

Figure 7 – Cross section through Powerhouse Museum and Darling Drive and SW Plots

Source: *DCM*

Finally, Urbanest has prepared a letter in support of the proposed student accommodation development (refer to **Appendix I**). The letter outlines the importance of student housing, and the demand for student accommodation in the locality, particularly considering its proximity to a number of Universities. Urbanest notes that there is currently a shortfall of approximately 5,000 student beds in the local area. The proposed development will not only assist in meeting a critical shortfall in affordable and safe student housing, but will also alleviate pressure on the private rental market.

Potential Overshadowing of the Powerhouse Museum courtyard is addressed at Section 2.8.

Deletion of the western tower within the South West Plot to respect the Macarthur Street view corridor to the city and realignment of the block

It is noted that Macarthur Street is not an identified or nominated view corridor or public domain vista in any planning controls or guidelines. The existing public domain view from Macarthur Street is towards the southern CBD skyline. The existing skyline and foreground view is of limited visual interest and does not provide for pedestrian visual connectivity to or through the existing SICEEP Site.

The Macarthur Street corridor is not a high intensity public domain corridor. Whilst it is used by pedestrians moving from the Darling Harbour precinct through to Pyrmont, the stronger pedestrian environment is via the raised walkway to the Powerhouse Museum forecourt.

Further, as pedestrians move through the corridor the views are obstructed in part by the raised pedestrian walkway to the Powerhouse Museum. It is not considered that these views are significant.

Notwithstanding the above, a study to review the orientation of the SW1 (The western tower) tower by 90^{o} was undertaken (in part following discussions with the Design Review Panel (DRP) in relation to SSDA5). In this scenario, the re-orientated tower remains located within the Macarthur Street alignment, limiting the additional long views when viewed from Macarthur Street. Further, in this orientation, the amenity of the SW1 residential units is significantly reduced primarily due to the proximity (8 metres) of the NW Plot commercial building and increased numbers of units with a predominantly southerly aspect.

Conversely, locating the SW1 tower on the Macarthur Street axis provides a landmark for pedestrians approaching the site from the west (refer to **Figure 8**). The DRP recommended that the SW1 tower address this axis similar to the student accommodation treatment of the Dickson's Lane termination. In response, SSDA5 includes a more active and articulated west elevation for SW1 (achieved through wrapping the core with residential apartments). This 12.5m x 2.5m projecting vertical bay aligns with the Macarthur Street axis. The Parameter Plans at **Appendix H** have been amended to accommodate this bay in The Haymarket Concept Proposal.

Figure 8 – SW1 relationship to Macarthur Street alignment

Source: *DCM*

Lowering of the raised podium edge around the new square to allow winter morning sun into the new square, with a corresponding increase in the street podium edge to accommodate redistributed floor space

The maximum building envelope proposed to the edge of the square allows for lift overruns and plant enclosure on the roof of these buildings. The Illustrative Scheme indicates a parapet height that is lower than the current maximum building envelope, with rooftop plant setback to minimise the visual impact (refer to **Figure 9**). This will reduce overshadowing of The Boulevard and Haymarket Square, and will maximise the amenity of these new public spaces.

It is noted that the North Plot building height needs to be sufficient to screen the Pier Street overpass from within Haymarket Square and to 'hold' the western edge of the 20 metre wide Boulevard.

With respect to sunlight access within the square, shadow studies were provided within The Haymarket SSDA 2 Design Report. These studies were based upon the maximum building envelope to model the worst case scenario. The diagrams show that there will be good sunlight access to parts of Haymarket Square and The Boulevard throughout the year.

These studies will be used to inform the retail brief, and to identify locations for alfresco dining.

Updated shadow studies have been included at **Appendix H** which show the difference between the maximum building envelope and an illustrative scheme massing. Further, SSDA5 has recently been submitted with the podium height (facing the square) being below the parameter plan.

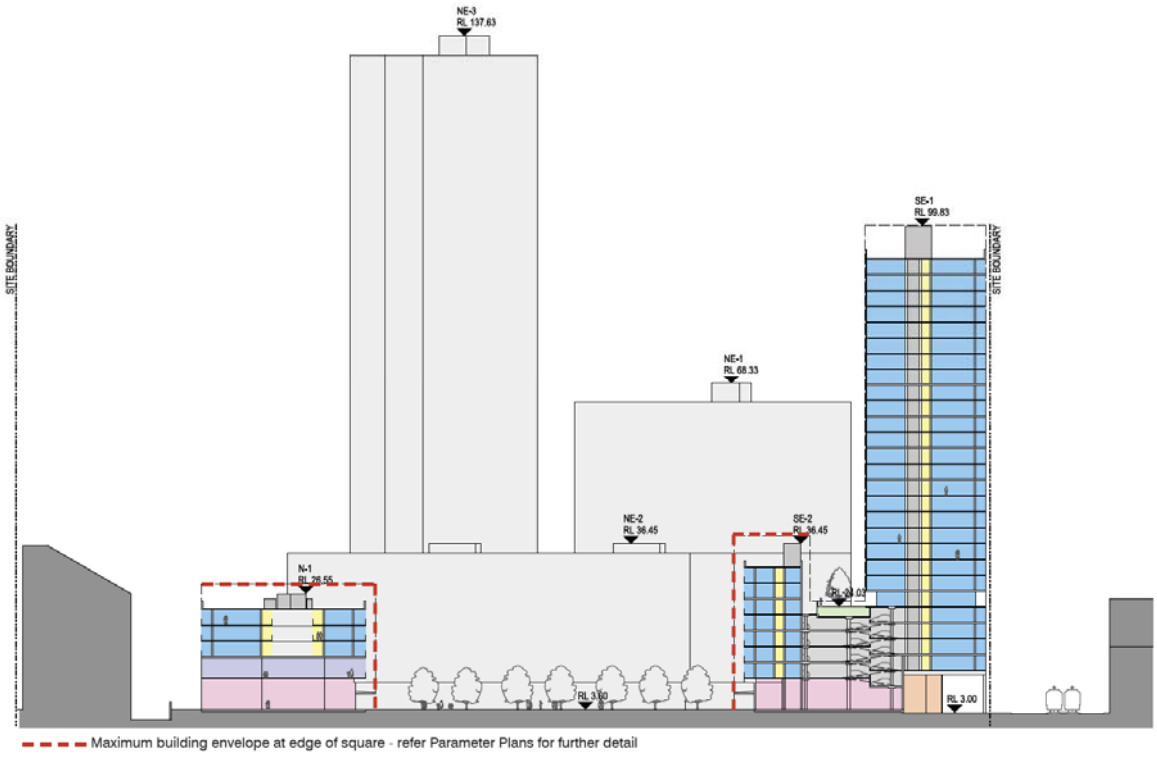

Figure 9 – Illustrative scheme partial section

Source: *DCM*

Chamfering of building corners for 2.5 metres to improve visual safety and meeting CPTED principles, and chamfering of the northern corner of the South West Plot to enable a clear view into Dickson's Lane from the Boulevard

It is noted that chamfered corners are usually adopted in dense, tight and congested urban settings where there are high footfalls and opportunities for people to linger. Being a pedestrian precinct, the Haymarket does not need to accommodate vehicle or high speed commuter cyclist sightlines, nor does it need to corral people at crossing points. The full width of the thoroughfare will be available for use by pedestrians and recreational cyclists, minimising the issue of pavement blind spots.

With respect to CPTED, corners to lanes and streets are either fully glazed retail shopfronts or residential lobbies which allow for full visual safety to the 2.5 metres required (and in most cases will provide a wider field of view). The increased site permeability will provide passers-by with choice, and the mix of uses and distribution of residential lobbies provides a level of passive surveillance and security. Harris Crime Prevention Services has undertaken an assessment of the proposal against Council's concerns (refer to **Appendix J**). Their consideration of this issue concludes that *"the definition and current building profiles adequately facilitate sight line surveillance"* and *"chamfering of building corners fronting The Boulevard and the Square including the northern corner of the South West Plot achieves no additional safety (security) benefits."*

Further, chamfered corners are not considered an optimal urban design outcome as they erode the strong street lines at ground level and risk making street openings appear too large and inconsistent with the character of the local street grain. Chamfers also reduce the length of street retail frontages and suggest corner entrances to these tenancies. Finally, chamfered corners typically become dark spaces as their increased depth below the generous canopy line and limit sunlight penetration.

Skinning of exposed above ground carparking by floor space (preferable affordable housing product) or where not possible, green walls, public art or high quality architectural decorative features;

Skinning of exposed above ground carparking has already been provided in the detailed Stage 2 SSDA for the SW podium which has been lodged (SSDA5). Whilst limited above ground parking is proposed in the Stage 2 SSDAs that have already been lodged, those that do incorporate it have been skinned with high quality architectural decorative features. Lend Lease will continue to skin above ground parking on other residential plots, however there is limited capacity to do so with the public car park.

Examples of screening for above ground parking are provided at **Figure 10**.

Figure 10 – Examples of car park screening

Source: *DCM*

Provision of active ground floor uses through engineering out flooding impacts, removal of access ramps, reconfiguration of vehicle accesses and building cores, relocation of ground floor car parking

The Haymarket Precinct is located within a flood catchment and basin. The overland flow paths which are used to transport stormwater to the Harbour during extreme weather have been managed between and around the existing buildings. Maintaining these corridors to ensure existing flood levels are not exacerbated has been carefully considered, and has been the subject of extensive investigation within The Haymarket Concept Proposal.

The ground plane of the SE Plot along Hay Street is recessed by 18 metres to avoid impeding on stormwater flow path along the street and impacting exiting properties upstream. Reducing plot depth or setting back the SE Plot to achieve this impacts the Little Hay Street connection and / or creates another large open space which competes with the new adjacent square.

Recessing only the ground plane ensures the continuity of the Hay Street street wall, and forms a new urban room on the edge of the development. To maximise retail frontage along Harbour Street the car park and services vehicle access is located in this space. A permeable screen (potential art screen) separates the cars and loading area from the covered space and reduces the perceived visual depth of this recessed ground plane.

More broadly, ground level retail spaces will be at street level where practicable. Where possible, changes in level will be consolidated or internalised within retail tenancies to minimise significant level changes within the public domain. Where level changes occur within the public realm, these elements have been designed to fully integrate and respond to the proposed use of the public realm space.

A set of flood sensitive design principles has been established to guide the detailed design development of the individual retail tenancies, which will be subject to future development approval. These principles have been established, in particular, to address potential flooding issues that may arise on the site. These design principles include flood mitigation and management techniques to ensure that the flooding risks are appropriately managed through design and operation of the retail spaces as opposed to raising the ground level above the public domain.

Public Comments

Several of the public's concerns have been addressed above. The remaining concerns around the aspect and orientation of the towers and building separation are addressed below and in further detail at **Appendix G** and **Appendix H**.

Aspect and Orientation

The Concept Proposal incorporates four (4) residential towers that sit above the street walls, and are set parallel to them (refer to **Figure 11**). On the south, towers are located on each side of the Boulevard axis to reinforce the link from the Quay Street direction. To the north a single tower sits parallel to Factory Lane, and to the east a single tower sits parallel to Darling Drive.

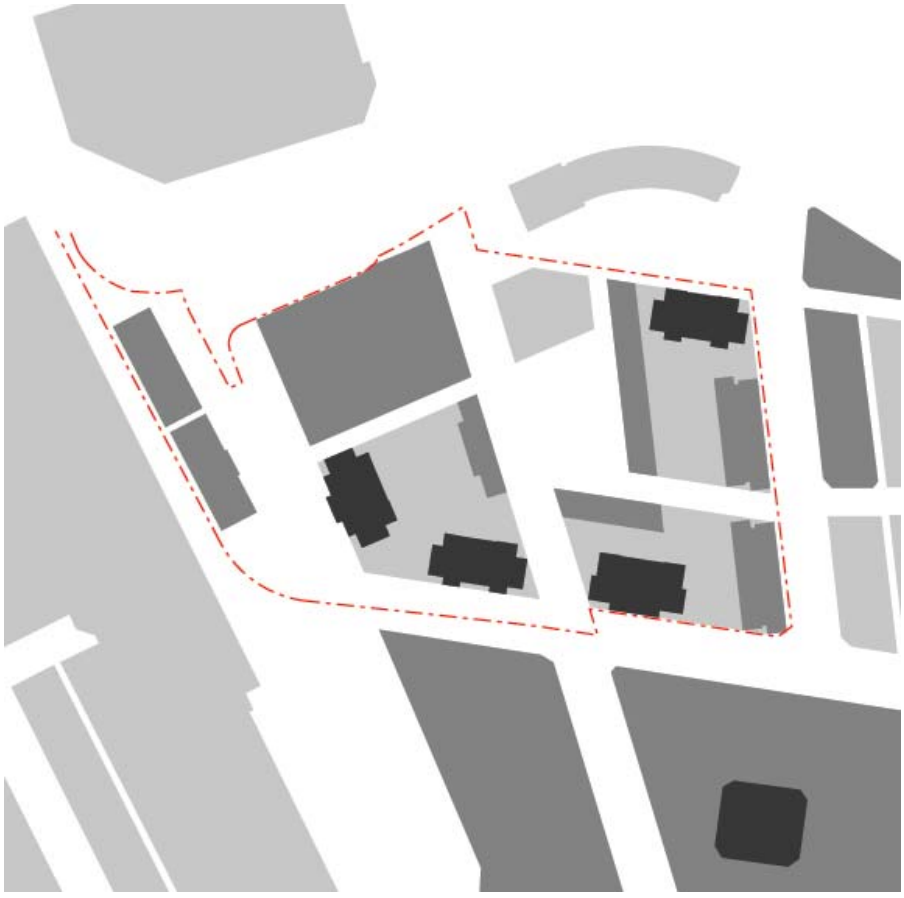

Figure 11 – The Haymarket tower arrangement and setting

These locations both reinforce the main street edges of the site, and maximise the distance between towers to allow views between them from surrounding tall buildings whilst not dominating the urban square.

Unlike the constancy of the surrounding urban wall which aims to bind the pedestrian scale fabric of the site, the towers are designed with different heights and architectural language to reflect the complexity and character of the larger city scale. Their number, dispersement and minimal individual footprint, maintains the slimmest possible skyline profile consistent with apartment design and views, and allows them to sit comfortably within the context of other existing towers nearby.

Separation

The Concept Proposal Parameter Plans have been carefully designed to allow for maximum tower separation. The philosophy of locating the towers on the perimeter street alignment allows for maximum separation between towers.

Tower separation adheres to the minimum separation distance of 24 metres for high-rise development. Where the towers of the SW Plot converge, the proximity is restricted to a minimum 18 metres by the Parameter Plans, however primary views within the illustrative scheme are oriented away from the adjacent tower to minimise overlooking.

The primary outlooks from habitable rooms and balconies of residential buildings within The Haymarket precinct comply with the Residential Flat Design code (RFDC) minimum requirements.

2.2 Open Space, Public Domain and Pedestrian Movement

2.2.1 Issue

The Department raised several issues regarding the proposed open space, public domain and pedestrian movement. Specific concerns include:

- Clarification as to what public domain treatments are proposed for the existing hard paved area south and west of The Pumphouse and the existing treed / grassed area including Memory Lines south of the Novotel, between the NW Block and Pier Street overpassed and for the area north of the W1 Block and to the west of Darling Drive;
- Confirmation of the amount of open space and various character areas, size of the existing northern and southern plazas and grassed area north of the Sydney Entertainment Centre (SEC);
- Clarification of where the elevated walkway from Harris Street / Powerhouse Museum will terminate; and
- Need for further information in relation to the proposed altered east west route from Harris / Macarthur Street, specifically the pedestrian transition and experience from the end of the elevated section through to the site and consideration of at grade pedestrian crossing over the light rail and Darling Drive.

The City of Sydney Council has made a number of recommendations with respect to open space, public domain and pedestrian movement generally as follows:

- Inclusion of interface streets (outside of the subject site) in the project scope, constructed to City standards;
- Provision of public art across the precinct and preparation of a Public Art Strategy;

- Inclusion of design and/or interpretative elements in the Public Domain Plan referencing Asian cultural heritage and continuing presence in the area;
- Continuation of Little Hay Street on axis into the new square;
- Encouragement of pedestrian primary via generous at grade footpaths, minimisation of driveway widths; and
- Provision of a formalised pedestrian crossing across Darling Drive directly west of Dickson's Lane to facilitate a safe and legible crossing to the student housing component.

In addition to the comments above, both the Department and Council raised several questions around the technical aspects and details of the proposal which are addressed at **Appendix A** and **Appendix B**.

Key issues relating to open space, public domain and pedestrian movement raised in public submissions include:

- Connection down Darling Drive should be an elegant urban street with spatial definition and active frontages;
- Loss of open space; and
- Public amenity and connectivity issues.

2.2.2 Proponent's Response

In response to the issues raised, HASSELL has prepared a Supplementary Public Domain Design Report (refer to **Appendix K**). The supplementary report provides a response to each of the key issues raised by the Department and Council together with presenting the refined Public Domain Concept Proposal (which has evolved in the main to address comments raised by submitters). Key aspects of the refined Public Domain Concept Proposal include:

- The new boundary which coordinates with the PPP core facilities under SSDA1 to the north, the interfaces with the light rail corridor and also reflects boundary amendments adjacent to the Novotel and Pumphouse;
- Further design resolution west of the boulevard reflecting design advancement as part of the Stage 2 SSDA3/4/5;
- An enhancement of the north/south connections along Darling Drive resulting in a cycle / pedestrian shareway along its western edge to link the precinct and the student accommodation with the light rail stop at Tumbalong Place/Exhibition Stop;
- Removal of the previously proposed pedestrian / vehicle shareway on Hay Street, and replacement with pedestrian priority space;
- Introduction of a signalised pedestrian crossing across Darling Drive between Dickson's Lane and the Darling Drive plot (which includes the student accommodation building) in recognition of the desire line into the balance of the Haymarket; and
- Formalisation of the important Macarthur Street east-west interim connection.

With these refinements, the Concept Proposal for the Haymarket will ensure that a high quality, legible, safe, equitable and desirable pedestrian and cyclist network is secured for the existing and future local community and visitors to the area more broadly.

Quantum of Open Space

Figure 12 confirms the extent of new open space to be provided across the various character areas. In summary:

- The Boulevard – 3,700m^2;
- Laneways – 1,580m^2;
- Haymarket Square – 2,600m^2;
- Hay Street – 1,080m^2; and
- Macarthur Place – 730m^2.

The sizes of the existing plaza spaces to the north and south of the SEC, as well as the grassed area north of the SEC (Memorial Park) have also been clarified, as follows:

- Northern plaza – 3,200m^2;
- Southern plaza – 4,250m^2; and
- Memorial Park – 1,150m^2.

In response to the public's concerns, these figures demonstrate the proposal will provide over 1,000m^2 of additional usable open space. Further, if Memorial Park was also included in the calculations, there would be over 2,000m2 of additional usable open space for existing and future residents and visitors to the area.

Figure 12 – Proposed public realm areas

Source: *HASSELL*

Public Domain

The issues raised relating to the proposed public domain design and treatment are addressed individually below:

Clarification as to what public domain treatments are proposed for the existing hard paved area south and west of The Pumphouse and the existing treed / grassed area including Memory Lines south of the Novatel, between the NW Block and Pier Street overpassed and for the area north of the W1 Block and to the west of Darling Drive

The proposed public domain treatment for the Pump House Plaza and Memorial Park and Pier Street Parking includes the following:

- **Pump House Plaza and Memorial Park** - The existing hard paved area south and west of The Pumphouse and the existing treed / grassed area including Memory Lines south of the Novotel are to be retained. Only minimal works are proposed as necessary to ensure levels transition and overload flow drainage are integrated with new works and to maximise east-west pedestrian permeability for the precinct.
- **Pier Street Parking** - The boundary lines have been consolidated in this zone such that the area in question now rests within the PPP. That said, the proposed diagonal line parking between the NW Block and the southern edge of the Pier Street overpass is intended for SHFA dedicated staff parking. Current SHFA parking under Pier Street is proposed to be relocated in order to facilitate the spatial requirements, for exhibition, vehicular turning and pedestrian sight lines.
- **North of the W1 Block and to the west of Darling Drive** - The area north of the W1 Block, and to the west of Darling Drive will be retained as landscape planted area. The area will be made good following construction of the shareway, any infrastructure and the W1 site, with new feature tree planting and understorey vegetation.

Provision of public art across the precinct and preparation of a Public Art Strategy

The importance of providing public art across the SICEEP site is acknowledged, especially in terms of its role in interpreting the historic land uses, themes and character of the site and surrounds. In this regard, TKD Architects have accordingly prepared a Heritage Interpretation Strategy for the SICEEP site (**Appendix R**).

The Heritage Interpretation Strategy covers the whole of the SICEEP site, and represents the first stage of the interpretation planning for the site. The second and third stages will comprise the preparation and implementation of the Interpretation Plan. The requirement to prepare and implement the Interpretation Plan (based on the Interpretation Strategy) is reflected in the mitigation measures at Section 5.

The scope of the Interpretation Strategy is to:

- Identify the themes and messages considered significant to the SICEEP site;
- Develop a conceptual approach to the interpretation of the SICEEP site, using a variety of means;
- Proposes location for specific interpretation to enhance the understanding of the heritage significance of the SICEEP site; and
- Recommend methods and media appropriate to the interpretation of the SICEEP site.

The Interpretation Strategy identifies a number of key themes for interpretation, including:

- The first people, and European settlement;
- The industrial revolution in Sydney;
- Innovations in refrigeration, galvanising and food processing;
- Darling Habour's ships, shipbuilding and wharves;
- How roads, rail and shipping connected Darling Harbour to the world;
- Jobs and working conditions during the industrial years;
- The poor living conditions around Darling Harbour, and the impact of the bubonic plague;
- How Darling Harbour changed during the world wars and the Great Depression; and
- Darling Harbour's transformation from port and industrial area to leisure and tourism precinct.

The Strategy outlines options for the interpretation of each of these themes, including:

- Installation of public art (as noted);
- Use of way finding media;
- Development of a naming strategy;
- Use of interpretive signs and installations; and
- Display of archaeological remains.

The second stages of the interpretation strategy will be developed concurrently with the design development and documentation of the public domain. A separate Interpretation Plan will be developed, as required by the Heritage Branch, for the PPP Site and The Haymarket respectively. The Interpretation Plan will be guided by the Heritage Interpretation Strategy at **Appendix R** to ensure that all opportunities for the site interpretation are explored and to ensure that it is fully integrated with the site's development.

Inclusion of design and / or interpretative elements in the Public Domain Plan referencing Asian cultural heritage and continuing presence in the area

Lend Lease appreciates Asian cultural heritage and it will be incorporated as part of the Interpretation Plan for the Site. References will also be made to Asian cultural heritage through the building design. Lend Lease will continue to seek to reflect the materiality of Chinatown into the proposed Haymarket buildings and the new network of laneways. **Figure 13** illustrates the planned future character of Dickson's Lane as detailed within SSDA4/5.

Figure 13 – Artist's impression of Dickson's Lane

Inclusion of interface streets in the project scope, constructed to City standards

All infrastructure and public domain works within the SICEEP site will be undertaken as part of the SICEEP project. Consultation with the City will be undertaken to ensure that the interfaces with areas external to the site are seamless and in line with the works planned by the City. In this regard Lend Lease agree that the upgrade of Hay Street and Harbour Streets is appropriate, and propose to undertake the following works (refer to **Figure 14**):

- Paving and tree planting to upgrade Hay Street outside of the site between the Boulevard and Harbour Street; and
- works to upgrade the western pedestrian pavement of Harbour Street to the kerb lin.

These above works whilst external to the subject site boundary are able to be secured through appropriate conditions of consent. They will be undertaken in a staged manner and will be coordinated with the staging of the development plots.

It is proposed that materials within the public domain areas of the SICEEP site will complement the City's standard palette of materials at the interfaces.

The areas embellished under Lend Lease's scope of works will include finishes that are complementary in material type and quality to that proposed or existing in the adjacent City of Sydney areas.

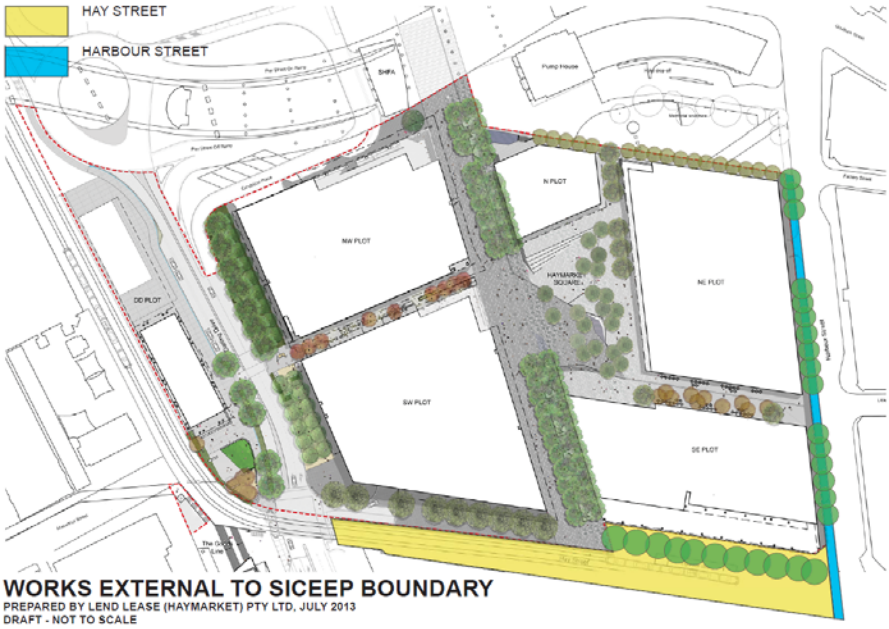

Figure 14 –Extent of offered external public domain works

Continuation of Little Hay Street on axis into the new square

Connectivity into wider urban context, including Chinatown, has been a key consideration in the development of the Concept Proposal. Continuity of street widths, fine-grain ground level retail uses and a consistency of landscape design and palette are all proposed to achieve a seamless integration.

The existing Little Hay Street alignment conflicts with the geometry of the predominant local street pattern. The Concept Proposal's continuation of Little Hay Street adopts the predominant grid, running parallel to the adjacent Hay Street and Factory Lane. It is noted that Sydney has a number of major streets that are non-linear. Goulburn and George Streets are two examples close to the site that are highly successful, highly pedestrianised, non-linear streets.

Further, the slight change in the geometry of Little Hay Street still affords a clear line of sight into Haymarket Square from Dixon Street (refer to **Figure 15**). It is a reasonably wide street, with the public domain seeking to create a more intimate environment to build upon the character of the Chinatown 'laneways'.

Cafe activity, terminating in a wider terrace at the south west corner of the square will be visible from Chinatown and Harbour Street.

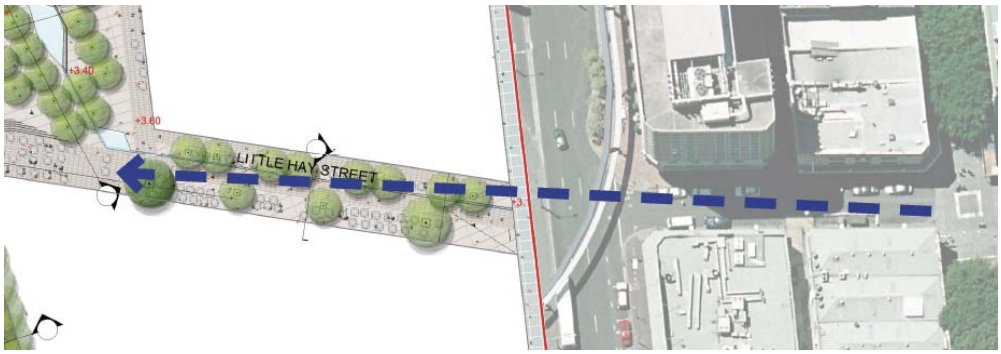

Figure 15 – Little Hay Street – with line of sight from Dixon Street into Haymarket Square

Connection down Darling Drive should be an elegant urban street with spatial definition and active frontages

The environment along Darling Drive will be substantially improved as a result of the development of the Haymarket precinct. For example:

- The built form along the eastern side of Darling Drive will create a street wall to define the public domain, with a landscaped verge and footpath along with active uses (including potential IQ hub) – refer to **Figure 16**;
- A new pedestrian and cyclist shareway along the western side of Darling Drive will link the precinct (including from The Goods Line) and the planned student accommodation with the light rail stop at Tumbalong Place/Exhibition Centre;
- Through the introduction of a new signalised pedestrian crossing along Darling Drive linking the Darling Drive plot (which includes the planned student accommodation) with Dickson's Lane and improving connection of a new east-west desire line into the Haymarket; and
- Providing for a lively and interesting western edge to Darling Drive through the planned student accommodation buildings and Macarthur Place (new Public Square at the termination of The Goods Line) – refer to **Figure 17**.

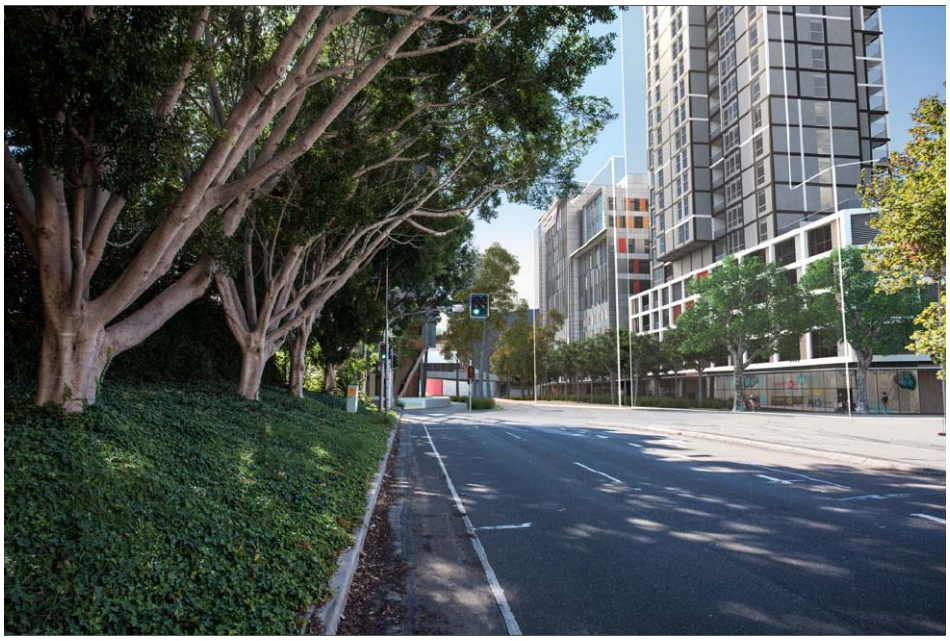

Figure 16 – Illustrative montage of South West Plot looking north along Darling Drive

Figure 17 – Illustrative montage of Darling Drive Plot/Student Accommodation looking north along Darling Drive

Pedestrian Movements

As outlined above, a number of comments were made regarding pedestrian movements. Each matter is addressed in-turn below, including details in which Concept Proposal has been amended to address these important considerations.

Clarification of where the elevated walkway from Harris Street / Powerhouse Museum will terminate and further details regarding the pedestrian transition and experience

It is recognised that this east-west link is a well-used pedestrian route, and as such is proposed to be retained, albeit in an amended form. It is equally recognised that the new works proposed around The Goods Line will improve at-grade access from the south, past UTS and assist with pedestrian permeability into the Haymarket precinct.

The concept proposes an interim solution to rearrange the lift and stair configuration in order to better integrate the termination of Macarthur Street with the Haymarket precinct and The Goods Line. In this concept (which has been formalised through the preparation of detailed plans by Aspect Studios and submitted as part of SSDA5 - provided for information within **Appendix K**), only part of the elevated walkway is demolished, maintaining a portion from the Powerhouse Museum to the new lift and stair (to be located within Railcorp land).

The proposed works incorporate both a 1:14 grade ramp and stairs down to Darling Drive where a new crossing provides pedestrian and cycle access into the broader Haymarket area and beyond to Darling Harbour.

Figures 18 and **19** illustrate the concept and relationship with surrounding key connections such as The Goods Line, Darling Drive, Hay Street and The Haymarket more broadly.

Figure 18 – Macarthur Street interim connection concept

Source: *HASSELL*

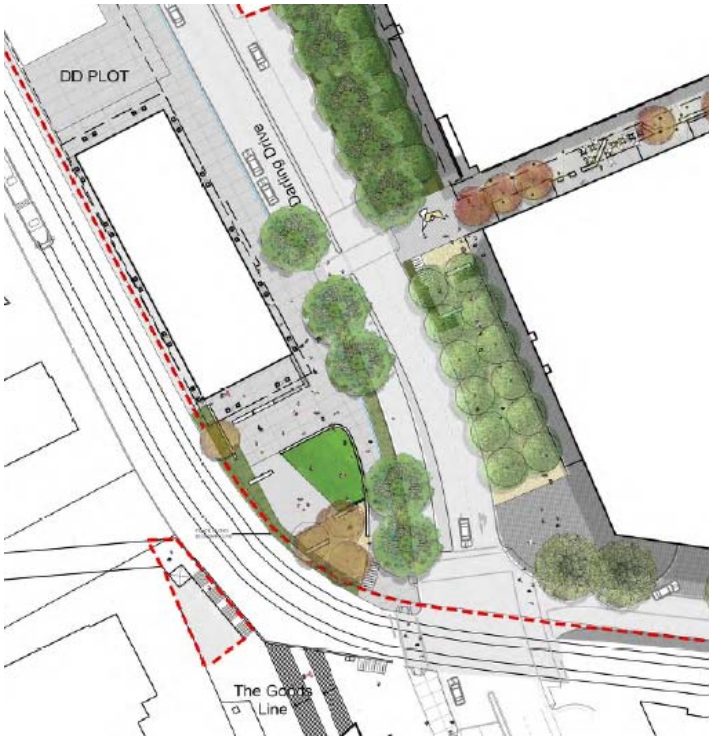

Figure 19 – Macarthur Street interim connection arrangement

Source: *HASSELL*

The interim solution is considered to deliver a range of benefits for connectivity within the locality, especially the important east-west connections. It is acknowledged that there may be an opportunity to amend the design of this junction in order to create a more level connection and without relying on the elevated walkway, however this will rely on the re-design of the area that is currently used by the Powerhouse Museum for loading and servicing. Notwithstanding this, Lend Lease and INSW are already in discussions with the key stakeholders and would welcome the opportunity to explore a solution for the at grade Macarthur Street connection further at the appropriate time.

Encouragement of pedestrian primacy via generous at grade footpaths, minimisation of driveway widths

Increased at-grade pedestrian movement is a key objective of the public realm design across the entire SICEEP Precinct.

As shown in **Figure 20**, pedestrian primacy has been specifically addressed in the Haymarket Precinct through:

- The Macarthur Street interface with The Goods Line;
- The at-grade crossings over both Darling Drive and Hay Street at Macarthur Place;
- Signalised pedestrian crossing to Darling Drive between the laneways and the Darling Drive plot;
- Share-way cycle and pedestrian path adjacent to the student accommodation, to the western side of Darling Drive, linking through to the Tumbalong Place light rail stop; and
- Hay Street pedestrian zone running adjacent to the light rail as a direct link to the Boulevard and broader pedestrian connection east to George Street.

Figure 20 – Pedestrian connectivity

Source: *HASSELL*

Provision of a formalised pedestrian crossing across Darling Drive directly west of Dickson's Lane to facilitate a safe and legible crossing to the student housing component

As shown at **Figure 21** two (2) signalised pedestrian crossings will provide access to Dickson's Lane and Hay Street. The signalised crossing at the mid-block between Hay Street and Pier Street across Darling Drive provides a direct, safe crossing point for students allowing them to take the Dickson's Lane route into The Haymarket precinct.

This crossing point has been provided as a result of comments received from the City of Sydney, and is seen as a strong development of the design as it improves connectivity into the precinct for students, increases activation of the lanes , reinforces natural pedestrian desire lines, improves pedestrian safety and increases the at-grade permeability of the site.

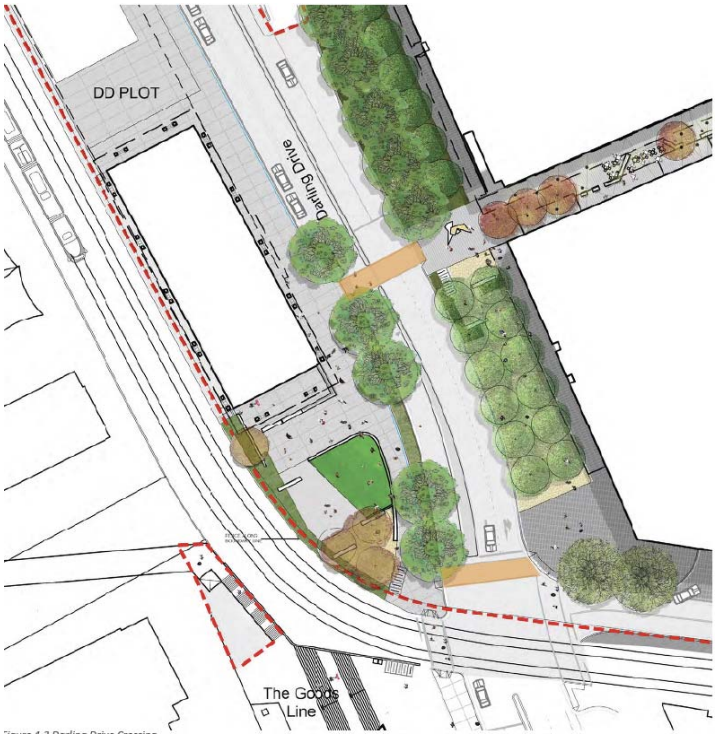

Figure 21 – Darling Drive pedestrian crossings

Source: *HASSELL*

2.3 Visual and View Impact

2.3.1 Issue

The Department has requested that additional analysis of the relationship between the scale of the Darling Drive plot and the Powerhouse Museum be provided, including:

- Section(s) indicating the change in land level and heights; and
- An examination of the nature of the Powerhouse's unbuilt spaces and whether any amenity spaces (i.e. open space for active/passive recreational use) would be overshadowed.

Specifically the Department has requested four (4) additional photomontage vantage points be provided showing the eastern and western facades of the Powerhouse Museum as follows:

- Pier Street overpass, looking west;
- South west corner of the SEC car park at ground level (north east side of Darling Drive intersection with Metro Light Rail), looking north west;
- North west corner of the junction of William Henry and Harris Streets, looking east; and
- South west corner of the junction of Macarthur and Harris Streets, looking along the alignment of Macarthur Street.

City of Sydney has noted that tall buildings should respect public view corridors and pedestrian desire lines via setbacks and appropriate building separation. Council also suggested that the western tower within the South-West Plot should be deleted to respect the Macarthur Street view corridor to the City.

Loss of views and visual impact was a key issue raised in a number of public submissions. Key concerns include:

- Visual impact from the public domain;
- Loss of visual amenity for The Peak Apartments;
- Loss of city skyline views from Ultimo properties from the proposed student accommodation building;
- Insufficient view corridors and lack of view sharing; and
- Loss of views to the Powerhouse Museum as a result of the student accommodation building.

2.3.2 Proponent's Response

A detailed Visual and View Impact Analysis relating to the proposed development was submitted as part of the EIS.

Seven key buildings in the vicinity of the SICEEP Site have been identified as being impacted or potentially impacted on by the SICEEP Project in terms of private views including the Peak Apartments.

The March 2013 Visual and View Impact Analysis was updated as part of the Response to Submissions prepared for the PPP component (SSDA 1) to reflect the amendments that have been made to the PPP development following public exhibition of that SSDA (June 2013 Update). Key images that were specifically relevant to the proposed amended development were reproduced to show the final design scheme. This included 10 public domain images as well as a range of images of the development as viewed from the Novotel, 18-20 Allen Street, Darling Court, Oaks Goldsbrough Apartments and the Bullecourt Apartments. The updated June 2013 Visual and View Impact Analysis has been submitted to the Department.

The June 2013 Visual and View Impact Analysis has been further updated to incorporate additional view and view photomontage images relating specifically to the impact of the proposed student accommodation on the Powerhouse Museum (refer to **Appendix L**). Four (4) additional ground view photomontages are provided to show the eastern and western facades of the Powerhouse and the student accommodation as requested by the Department. These photomontage images also show the detailed design of the proposed student accommodation building within the maximum envelope, as proposed as part of the Stage 2 SSDA 3 that has been submitted to the Department. Other images remain as documented in the March 2013 and June 2013 reports.

In addition to the additional photomontage images, **Figure 7** provides a section through the Powerhouse Museum and the development proposed as part of both the student accommodation building and also within the SW Plot. The section indicates the change in land level and relative heights of the proposed development in relation to the Powerhouse Museum.

Powerhouse Museum and Student Accommodation Buildings

The existing view from the south west corner of the SEC car park looking north west towards the Powerhouse Museum (additional vantage point 1) is interrupted by the existing monorail structures, and street tree planting along the western side of Darling Drive. Only limited glimpses of small portions of the Powerhouse Museum facades are visible behind these structures and vegetation.
With the removal of the monorail structures, the maximum envelope proposed for the student accommodation building opens up views to the eastern façade of the Powerhouse Museum. The visibility of the museum façade will be considerably increased compared to what can currently be seen when viewed from this location. As is also illustrated by the detailed building design shown within the maximum envelope, the student accommodation building proposed by SSDA 3 does not fill the maximum proposed building envelope. It is considered that The Haymarket concept proposal and maximum building envelope for the student accommodation building results in a net improvement in views to the eastern façade of the Powerhouse Museum when viewed from this location.

The Powerhouse Museum can be viewed when travelling in both directions along Pier Street. Pier Street is accessible by pedestrians, however it is not primarily a pedestrian public domain thoroughfare. It is relatively low intensity in pedestrian use, and is utilitarian in nature. It is a noisy, uninviting environment. Vehicles travelling along Pier Street move along the street at relatively high speed, with views and vistas towards the Powerhouse Museum being of relatively limited duration and extent.

When viewed from the Pier Street overpass (additional vantage point 2) the proposed student accommodation building envelope will partially encroach into the view of the eastern façade of the Powerhouse Museum. A significant portion of the eastern façade of the Powerhouse Museum will however remain clearly visible to both pedestrians and motorists when travelling along Pier Street to the west (refer to **Figure 23**). When moving along Pier Street to the west, views of the rear of the Powerhouse Museum progressively open up. There is a clear and distinct separation between the proposed student accommodation built form and the Powerhouse Museum, that allows for appropriate views and vistas to the building. It is considered that the relationship of the northern end of the student accommodation building in terms of setback ensures that good visual connectivity is maintained in terms of line of sight to the Powerhouse Museum.

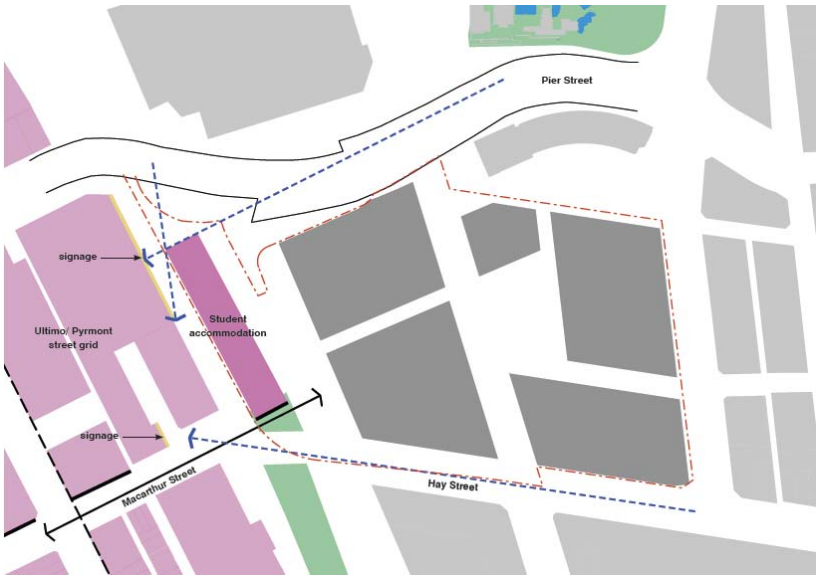

Figure 22 – Diagram showing alignment and visual connectivity to Powerhouse Museum

Source: *DCM*

When viewed from the south west corner of Macarthur and Harris Streets looking east (additional vantage point 3) the Powerhouse Museum sits in the foreground with the proposed development forming part of the CBD skyline behind. As is illustrated by the additional photomontage image, the form of the Powerhouse Museum will continue to be clearly read in the streetscape. Whilst the maximum envelope proposed as part of the student accommodation building is taller than the existing Powerhouse Museum building, it is setback well behind the roofline of the Powerhouse Museum. The Haymarket concept proposal establishes a new built form that contributes to the southern CBD skyline, however it is not considered to encroach upon or detract from the presence of the Powerhouse Museum building in the foreground.

As is illustrated by the detailed building design shown within the maximum envelope (as has been submitted as part of SSDA 3), the student accommodation building presents as a modest built form that blends readily into the urban backdrop of the Powerhouse Museum building when viewed from this angle. It is not considered that the proposed student accommodation building (or other development within The Haymarket concept proposal) will result in any negative impact on the visual quality of or vistas to the Powerhouse Museum from this vantage point.

The existing public domain view from Macarthur Street is toward the southern CBD skyline. The existing skyline and foreground view is of limited visual interest and does not provide for any particular pedestrian visual connectivity to or through the SICEEP Site, although the southern end of the Powerhouse Museum building is visible in this location with both the building and its publicly accessible forecourt presenting a key element to the intersection. Vehicular traffic passes relatively quickly along Macarthur Street, with views to and from the CBD relatively limited in scope and duration. It is not considered that these views are significant.

When viewed from the south west corner of Macarthur and Harris Streets looking along the alignment of Macarthur Street (additional vantage point 4) the proposed maximum envelope for the student accommodation building (and other development within The Haymarket concept proposal) presents as a dominant built form that will significantly change the existing CBD skyline. Given that the existing CBD skyline is a far distant view, the new development will terminate the public domain views from this vantage point by bringing large scale buildings to the foreground and establishing a more immediate backdrop to the existing view. Whilst there is a potential opportunity at the detailed DA stage to explore the establishment of 'gaps' to sky between the building forms in The Haymarket when looking in this direction, there is an overlap in the built form of the student accommodation building and development in the SW plot when viewed from this vantage point.

Notwithstanding the change to the CBD skyline that will inevitably result, it is considered that the proposed development will not significantly detract from the vista down Macarthur Street towards the Powerhouse Museum. The museum building and its distinctive roof form will remain clearly legible in the streetscape and the museum forecourt and associated landscaping will continue to present to the intersection as a key outdoor space. This is particularly so given the elevation of the forecourt and building form which sit well above the road / public domain level and therefore establishes a dominant and raised presentation to the foreground when approaching the intersection of Harris and Macarthur Streets. It is not considered that the student accommodation building envelope, or other development proposed within The Haymarket concept proposal will result in the obstruction of or adverse impact on any significant public domain views towards the Powerhouse Museum from this location which will continue to be a highly visible and legible component of the streetscape.

It is noted that the detailed design of the student accommodation building that has been submitted as part of SSDA 3 adopts design detail and materials and finishes that relate directly to the bulk, form and materials of the Powerhouse Museum and other warehouse buildings in Ultimo. Specifically, the façade detailing of the development proposed as part of SSDA 3 uses patterning of windows in the western façade of the student accommodation building inspired by the brick patterns in the Powerhouse walls. The panel divisions and openings are arranged to evoke 'hit and miss' brick coursing, where every second brick is removed in each course to create simple openings. The colour and texture of the facade references masonry walls.

As the basis for the heritage significance of the Powerhouse Museum is its association with the city tramwork and the view of the museum that will be blocked is of its utilitarian side, it is considered that there will be no adverse impact on the significance of the item. The changes in the existing views/vistas towards the Powerhouse Museum that will result from The Haymarket concept proposal generally, and the proposed student accommodation building in particular, are not therefore considered to significantly detract from or result in any adverse impact to the visual quality of the heritage building.

Private Views

It is acknowledged that a number of submissions made by the general public raised issues with respect to potential impacts on private views from dwellings, in particular dwellings within the Peak Apartments to the south of the Haymarket site.

Consideration of potential impacts on private views (along with public views) was comprehensively considered and addressed as part of the material lodged with the original EIS in support of the Haymarket SSDA. In light of the nature of the refinements to the SSDA post exhibition, the conclusions of the original Visual and View Impact Analysis remain unaltered. These conclusions are reiterated within the updated Visual and View Impact Analysis at **Appendix L**, including:

- The siting and design of new built form elements has sought to respond to view sharing principles and to provide for an appropriate outlook from adjoining private development to the greatest extent practicable in a highly urbanised inner city environment;
- The impacts associated with the PPP and The Haymarket developments are considered to continue to provide for a reasonable 'outlook' from apartments that may nonetheless have a change in 'view', consistent with current planning objectives, strategies, principles and development controls for the CBD which recognise that outlook, as distinct from views, is the appropriate measure of residential amenity within a global CBD context. Outlook is retained from all affected apartments with an appropriate distance separation between towers and with space / daylight provided between the proposed new built form elements;
- There will be a reduction in views available from, in particular, the lower and middle levels of The Peak in certain locations and aspects. This results from the creation of an entirely new urban precinct in The Haymarket where there are only currently low rise buildings in existence. The interruption of existing private views that are currently unimpeded by any development is inevitable in the context of an urban renewal project and is not unreasonable having regard to the highly urbanised global CBD environment of Sydney within which the land is situated. Notwithstanding, the proposed development has accommodated view sharing between and above buildings, and has achieved the principles of view sharing appropriate in an highly urbanised CBD location seeking to retain a combination of water, horizon and CBD skyline views by the positioning of the building footprints and configuration of the public domain connections through the site.

In summary, it is considered that the proposed Haymarket SSDA achieves a reasonable balance between the protection of private views and the protection of public domain views in the delivery of a new vibrant mixed use precinct in the City.

2.4 Traffic, Parking and Transport

2.4.1 Issue

The Department, Council and Transport for NSW (TfNSW) raised a number of technical issues with respect to traffic, parking and transport.

The Department has raised concerns around the geographic coverage of the traffic model undertaken. The Department has also requested clarification and further information in relation to:

- Details of the model warm up / cool down periods, demand flow profiling over the model period and the model assignment method;
- Clarification of impacts on network capacity and critical intersections in a 'future' scenario, and definition of the model time horizon for 'future';
- Confirmation as to traffic generation assumptions used in the micro simulation models and assumed Saturday event model;
- Clarification as to the access and usage arrangements for the laneways and Boulevard including for vehicles, servicing and / or emergency vehicle access, and bicycles;
- Clarification as to the provision of improvements to existing pedestrian facilities;
- Consideration of the potential for the provision of car share parking spaces, bicycle parking for residential / student accommodation and to meeting the City of Sydney's car parking rates;
- Revised traffic modelling to take into account comments within the combined TfNSW/ RMS / Railcorp submission;
- Consideration of use of variable message signage for pedestrians;
- Provision of further detail as to how the new laneway at Hay Street will operate and function, and provision of turning paths;
- Clarification / justification in relation to the need for the provision of the left turn lane along Darling Drive adjacent to the NW and SW plots (between Pier and Hay Streets) and consideration of improving the pedestrian environment in this location;
- Provision of further information regarding the proposed Haymarket Precinct egress driveways onto Harbour Street and whether they will be affected by queue spillback from the Goulburn / Pier / Harbour Streets intersection; and
- Clarification as to any proposed provision of bus / coach parking within The Haymarket.

Council's primary concerns with respect to parking, transport and access relate to the desire to have residential parking rates reduced to more closely match those contained within LEP 2012, and to further consider the provision of bicycle parking for the student accommodation and retail/ public domain areas. Council also raised issues relating to active transport, noting that further consultation is required with Council's Cycling Team to ensure all cycle connections are designed and built to match the existing and planned infrastructure. To create a street environment with more space for pedestrians and lower traffic speeds, the Council has recommended that Darling Drive be reduced to a single lane on the eastern leg between Pier Street and Hay Street to improve pedestrian connections; and that a design competition be held in relation to comprehensive refurbishment day / night experience of the Pier Street pedestrian and vehicle underpass.

Transport for NSW (TfNSW) has made a number of comments in relation to the proposal:

- The proposal contains no specific provision for car share spaces within allocated parking that would assist in achieving the SICEEP's objective in reducing private vehicle dependency given the development's significant residential/student population;
- In terms of supporting cycling, the proposal only commits to a new cycle path on Darling Drive. There needs to be a firmer commitment to bicycle parking particularly for residents / students rather than recommending the installation facilities;
- The road safety assessment should have included an assessment of cycling conditions including cyclist crash history; and
- Whilst the timing of the removal of the monorail around the site is yet to be confirmed, it may coincide with demolition activities for the Sydney Entertainment Centre and associated car park. The proponent is advised to liaise with TfNSW regarding any activities that may impact on the removal of the monorail.

TfNSW has made a number of comments in relation to the proposal and have suggested several draft conditions. TfNSW has requested that details be provided about the measures proposed to encourage sustainable transport, including provisions for future bus services, as well as new cycling and pedestrian facilities.

TfNSW has also requested that additional details be provided around the cumulative impacts of the proposal with respect to major transport infrastructure projects in the area, including the CBD and South East Light Rail Project, Inner West Light Rail Extension, Monorail Removal Project and Wynyard Walk Project.

TfNSW has reiterated the Department's concerns about the changes to Darling Drive, and has raised a number of questions about the traffic analysis. In this regard, TfNSW has requested that Hyder demonstrate (to the satisfaction of the RMS) that the base AIMSUN traffic model has been suitably calibrated and validated against all agreed key criteria within RMS's Traffic Modelling Guidelines-RMS 13.184. Further concerns have been raised about traffic generation more broadly, and pedestrian / motorist safety.

TfNSW has also recommended a number of conditions of consent in relation to the interface of the proposed development with the light rail.

The general public also raised concerns around pedestrian and cycle access, loss of parking and inadequate parking provision, public transport and traffic generation; as well as the narrowing of Darling Drive and resultant capacity issues. Concern has also been raised in relation to the cumulative impacts of construction.

The Proponent's response to key issues is provided below. A detailed response to each matter raised is provided at **Appendix C**.

2.4.2 Proponent's Response

To respond to issues raised, Hyder has prepared a Traffic and Transport Assessment Addendum Report (refer to **Appendix M**). The revised assessment also considers the provision of a new signalised pedestrian crossing on Darling Drive, between Hay and Pier Streets, which was included in SSDA3 for the student accommodation and is being formalised within the Concept Proposal. The Traffic and Transport Assessment Addendum Report includes further technical appendices providing further information as follows:

- Technical Note 1 - AIMSUN Model Calibration and Validation as per RMS Guidelines; and
- Technical Note 3 - Modelling Results for Post Development Conditions Based on AIMSUN.

In summary, Hyder advises from an overall traffic and transport impact perspective that:

- The impact from The Haymarket development would not adversely impact the traffic performance of Darling Drive;
- The results based on revised AIMSUN modelling do not change the conclusion drawn in March 2013 Traffic and Transport Assessment Report; and
- The signalised pedestrian crossing on Darling Drive would not adversely impact the operation of intersection of Darling Drive / Hay Street and suitably addresses pedestrian safety. Further, although within 130m of an adjacent intersection, it will be designed to ensure that adequate site lines for pedestrians, cyclists, motorists and light rail drivers.

Geographical Coverage of the Model

Originally the geographic coverage of the AIMSUN Micro-simulation model was determined by Mott MacDonald as part of the assessment of the SICEEP development proposal. Hyder carried forward the AIMSUN model and updated it to support the environmental assessment of the SICEEP project. Hyder has re-assessed the geographic coverage of SICEEP for modelling purposes and found that the modelling study area coverage as included in the AIMSUN Micro-simulation model is fit for the study purpose and has advised that no further upstream intersections need to be included in the model in order to ensure that the traffic approach profiles are correctly represented at critical intersections.

Figure 24 shows key SICEEP development footprint and modelling study area coverage.

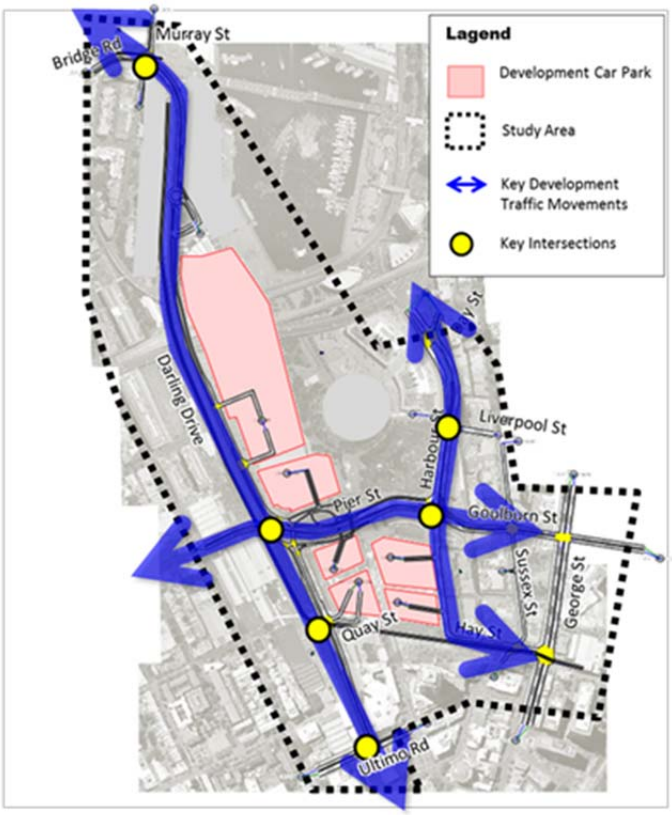

Figure 23 – Shows key SICEEP development footprint and modelling study area coverage

The following factors were considered in determining the adequacy of the geographic coverage used in the AIMSUN model:

1. Future Traffic distribution to and from SICEEP i.e:
   - North-south movement to and from the development has been captured by Darling Drive/Murray Street and Darling Drive / Ultimo Road intersections;
   - East-west movement to and from the development has been captured by Darling Drive/Pier Street and Harbour Street / Goulburn Street / Pier Street intersections; and
   - North-south movement to and from the development has been captured by Harbour Street and Hay Street.

2. Potential impact locations. In general road network impact from the SICEEP project will decline with greater distance from the site. Additional traffic impact from SICEEP will be largely confined within the boundary of the modelling study area.

Calibration and Validation of AIMSUN Traffic Model

Hyder previously calibrated AIMSUN traffic model using the October 2012 counts. Further model calibration and validation has now been undertaken using new traffic data collected in June 2013. The June 2013 traffic data includes travel time, intersection turning movement counts and queue length at key intersections. The AIMSUN model has been calibrated and validated according to the RMS's Traffic Modelling Guidelines (RMS 13.184). Detailed model calibration and validation results were documented in Technical Note 1 and included as an Appendix A in the Addendum Report (refer to **Appendix M**).

Regarding GEH criteria, Table 3-1 in Technical Note 1 showed that Friday PM peak model achieved 88%. This meets the targets of 85%.

Hyder notes that the previous traffic model included a reference to Goulburn Street/Sussex Street and Sussex Street/Hay Street intersections. Both intersections are located within the study area boundary (see **Figure 25**). Hyder advises the left turn out of Sussex Street (southbound) into Goulburn St is being obstructed by existing congestion observed at the downstream intersection of George St /Goulburn St. Similarly the right turn traffic out of Sussex (southbound) does not clear up in each cycle time due to congestion from upstream intersection at Harbour St/Goulburn St.

Hyder confirms that the revised June 2013 model reflects existing traffic conditions of road and intersections contained within the model boundary showed by dotted line in **Figure 25**.

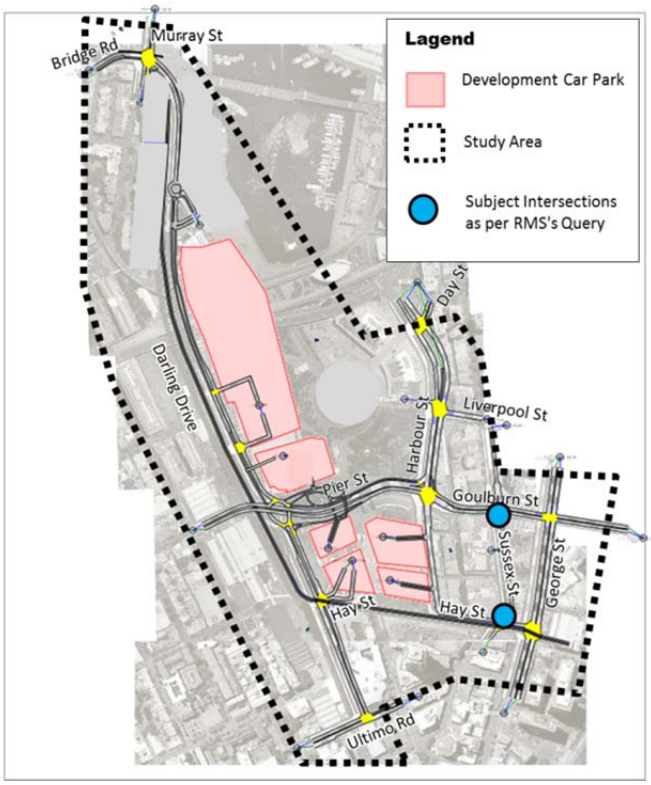

Figure 24 – SICEEP modelling study coverage and subject intersections

Darling Drive

Hyder has extended the AIMSUN model to incorporate the full length of Darling Drive. The model was extended from Quay Street to the Ultimo Road intersection. The Darling Drive/Ultimo Road intersection has been assessed for existing traffic conditions. The model shows a Level of Service (LoS) B for 2013 traffic conditions.

The Concept Proposal now includes provision of a new pedestrian crossing between Hay and Pier Streets, linking the future planned student accommodation buildings with Dickson's Lane and the rest of The Haymarket and CBD more broadly. The VISSIM modelling undertaken to assess the effect that the pedestrian crossing would have on traffic performance suggests that there will be a minimal impact in average travel speeds during the (critical) Saturday PM peak. The modelling demonstrates that:

- The proposed crossing will have a negligible impact for northbound traffic travelling along the length of Darling Drive;
- The proposed crossing will have a minor impact for southbound traffic travelling along the length of Darling Drive, although the overall average speed is acceptable at approx. 28 km/h; and
- Where queue forms to the nearby intersection at Hay Street for a brief period of time. However, the queue dissipates quickly within the cycle and does not obstruct Darling Drive with Hay Street.

Residential Parking Rates

The proposed car parking for The Haymarket does not include parking for retail, student accommodation or community uses. The car parking proposed to support the commercial use (50 spaces only) is approximately 20% less than that permitted under the SLEP 2012.

The proposed rates being sought for the residential component are consistent with those approved for comparable developments within the City of Sydney including the Carlton United Brewery site and The Quay.

In addition and in comparison with the existing situation, the overall parking proposed and expected to be delivered (across the PPP core facilities and the Haymarket) will be reduced by approximately 500 car spaces.

With the future mix of land uses across SICEEP including The Haymarket Precinct and the PPP Core Facilities, demand for parking will balance across different peak periods and consequently, reduce potential impacts associated with parking provision. The modelling undertaken to date demonstrates that the proposed parking capacity is adequate for the proposed development.

Cycle Connections and Bicycle Facilities

The Concept Proposal incorporates refinements that address comments raised through the public exhibition process in relation to pedestrian and cyclist connectivity. This includes an enhancement of the north/south connections along Darling Drive resulting in a shareway (pedestrian / cycleway) along its western edge to link the precinct and planned student accommodation with the light rail stop at Tumbalong Place/Exhibition Stop. The connection has been designed to be consistent with the existing and planned components of the Sydney cycleway network.

Bicycle parking provisions will be addressed as part of the detailed Stage 2 SSDAs for The Haymarket Precinct. This will include details for a potential bike hub to be accommodated with the Northern Development Plot, subject to the finalisation of a development brief and details surrounding funding and delivery between Lend Lease and the City of Sydney.

The three Stage 2 SSDAs lodged with the Department to-date outline the quantum of bicycle parking provided. Bicycle parking provision in each proposed developments exceeds the *Planning Guidelines for Walking and Cycling*. Lockers and end-of-trip facilities will also be provided in the residential and commercial buildings. In summary:

- The Stage 2 SSDA 5 for the SW Plot provides a storage cage for each apartment of sufficient size that it can be used for bicycle storage for the residents. In addition 50 bicycle parking spaces are to be provided for visitors on the ground floor hence exceeding the guidelines noted above.

- The Stage 2 SSDA 3 for the Western Plot (first stage of Student Accommodation) provides secure storage for 38 bicycles for residents and an additional 5 bike racks for visitors within the building plus proposed bike racks in the adjacent public domain. In total, the proposed bike parking provision exceeds the guidelines noted above. This provision is also informed by existing bike parking requirements from comparable operating student accommodation facilities.
- The Stage 2 SSDA 4 for the NW Plot provides a total of 95 bicycle parking spaces which exceeds the guideline requirements.

2.5 Stormwater and Flooding

2.5.1 Issue

The Department has sought further information to clarify a number of matters in relation to potential flooding and stormwater impacts which are generally summarised as follows:

- Risk to groundwater levels rising due to sae level rise and associated performance of future site drainage and stormwater treatment measures;
- Approximate probability of occurrence of a tide level of 0.9m ADH coinciding with peak runoff for a significant rainfall event in relation to definition of the worst case 1% Annual Exceedance Probability event for design levels;
- Confirmation of inlet pit blockage in relation to modelling assumptions with respect to upstream catchment flows entering the Project site;
- Key differences in hydrological and hydraulic representations between the existing and proposed case DRAINS and TUFLOW models;
- Confirmation of drainage from flyover road structures and any interaction with the existing or proposed site drainage systems including Sydney water trunk drainage systems;
- Clarification as to noted increase in SS load in the RP and TN pollutant loads; and
- Clarification as to potential climate change application to the PMF event, maximum flood impact at the northern end of the Boulevard and mapping techniques used to map the provisional hydraulic hazard.

Sydney Water raised concern that the proposed offices, public car parking and residential apartments within The Haymarket concept proposal are proposed over and adjacent to Sydney Water major stormwater culverts and that the structures do not meet Sydney Water's policy and guidelines for "Building over or adjacent to Sydney Water stormwater assets." Specifically, Sydney Water also requested further information in relation to proposed flood mitigation measures and associated risks including confirmation of design levels to undertake further modelling and develop a Floodplain Risk Management Plan.

2.5.2 Proponent's Response

Hyder has prepared a response to address the concerns raised by the Department and Sydney Water (refer to **Appendix N**). A summary of their response to the points above is provided below:

- While it is noted that there is a possibility of any and all catchment runoff events coinciding with Cockle Bay water levels greater than 0.9m AHD, when determining flood frequency it is also important to understand that such possibility sits alongside all other possibilities of any and all catchment runoff coinciding with Cockle Bay water levels of less than 0.9m AHD and in fact as low as -0.8m AHD (or lower).
- The modelling of underground systems extends beyond the site boundary. In the TUFLOW model, all upstream catchment flows have been applied to the culvert. Once the culvert has reached capacity, the excess is applied to the surface. Therefore, modelling includes overland flow from adjacent areas. At detail design stage, systems will be designed to provide 20 year ARI capacity, except when limited by downstream system capacities. Catchment flows are not contained within the underground system. The underground systems have limited capacity and the modelling includes overland flows in excess of the underground capacity.
- The key differences between the existing and proposed DRAINS and TUFLOW models are that the proposed models include:
  - A concept minor drainage system (pits, pipes and proposed building connections);
  - The proposed surface re-grading (Including the proposed building ground floor footprints);
  - Revised sub-catchment boundary delineation to reflect the proposed building / public domain layout (noting that overall (total) existing and proposed catchment areas are the same); and
  - An amplification option.

  All other parameters are consistent in existing and proposed models.
- Runoff from the flyover drains into the existing stormwater system below, or in the case of the proposed development, into the new drainage system within the SICEEP site. Hyder has assumed that drainage from the flyover structures will be independent of the proposed stormwater quality treatment strategy for SICEEP. The runoff from the flyover is not considered in determining the percentage pollutant reductions achieved by the treatment strategy proposed for the SICEEP site, hence its nomination as a 'bypass' catchment.
- The MUSIC modelling completed in the SSDA 1 and SSDA 2 was applicable only to the PPP site. Further modelling has been completed to support SSDAs 3, 4 and 5 which addresses the DGR requirement to provide "an Integrated Water Management Plan including alternative water supply, proposed end uses of potable and non-potable water, water sensitive urban design and water conservation measures". The City of Sydney Council DCP was adopted as reference targets in the design of WSUD treatment trains which achieve industry accepted / best practice water quality targets.
- Hyder has applied sea level rise only to the PMF modelling. The provisional hydraulic hazard mapping has been an output from TUFLOW (similar to flood depths and velocities) with the _Z1.dat function. The results (based on the maximum D x V) produce a number, i.e. 1, 2 or 3, representing Low Hazard, Intermediate Hazard or High Hazard, respectively. These numbers have then been mapped based on the grid output.

In response to Sydney Water's (SW) concerns consideration has been given to compliance with SW's requirements for building over its assets. Lend Lease and its consultants Hyder and Cardno recently met with SW to discuss concerns set out in its letters regarding SSDA2. Minutes of that meeting are attached at **Appendix N**.

At that meeting there was general understanding and support for the Lend Lease approach which includes:

- A build over strategy consistent with the SW guidelines;
- No negative impact on the structure or function; and
- An improvement in access for existing and proposed assets for maintenance and inspection where possible.

As discussed with SW, Lend Lease and its consultants are preparing a Site Wide Servicing Strategy (SWSS) which will provide an overarching approach to the SICEEP site including further details on the approach to build over SW's assets.

In response to SW's comments around flooding, Hyder notes:

- Flooding, Stormwater and Water Sensitive Urban Design Reports have recently been prepared to support the three Stage 2 State SSDAs that are currently on exhibition. The Flooding & Stormwater Report has quantified the flows, water levels and hydraulic hazard categories for the SICEEP site. This information can be used to develop strategies to protect people and properties from flooding.
- Water quality is integral to the proposed development and will result in improved quality of stormwater discharge from the Haymarket. This is achieved through the use of tree pits, rainwater tanks and proprietary water treatment devices.

2.6 Groundwater and Dewatering

2.6.1 Issue

The EPA has requested additional information be provided regarding the need for ongoing dewatering of basement areas during operation of the development, in particular whether it is likely that groundwater will be collected and discharged from excavations and basement areas; the location of any discharges; and details of any treatment required.

The Department has also questioned whether there is a risk that groundwater levels at the site will rise due to sea level rise, and additionally whether this could affect the performance of the future site drainage and stormwater treatment measures.

2.6.2 Proponent's Response

Coffey has prepared a Preliminary Groundwater and Dewatering Assessment to address the issues raised by the EPA and the Department (refer to **Appendix O**). A summary of the Assessment is provided below.

Review of Hydrogeological Conditions

Recent ground investigations (Coffey, January 2013) recorded groundwater strikes at depths 2.4mbgs (BH120) to 3.0mbgs (BH118, BH127) which coincided predominantly with the upper alluvial deposits. Coffey (August 2011a) report that groundwater flows in a northerly direction towards Cockle Bay. Standing groundwater levels were recorded in MW120 using a data logger to assess the influence on tidal fluctuations (Coffey, January 2013).

Groundwater levels measured over a 5 day period ranged between 0.751mAHD and 0.788mAHD, which suggests that tidal fluctuations have negligible influence on groundwater levels within the site. Coffey note however that groundwater beneath the site is (and will remain) hydraulically connected to water within Cockle Bay. This highlights the potential for groundwater to be influenced by future changes in sea level height. Such influences will be considered during the detailed design of the stormwater system and other water quality management systems.

No water bodies are located within the site. Cockle Bay is the nearest surface water feature and is located approximately 475m to the north. Coffey (June 2012b) notes that there are a number of artificial water features within the SICEEP and surrounding areas (e.g. Sydney Chinese Garden of Friendship site). It is understood these water bodies are tanked structures which are hydraulically separated from the underlying groundwater.

Water Quality Assessment

Surface Water Quality

The findings of the surface water quality assessment are considered to be indicative of a modified and highly trafficked marine environment. The analytical results of samples collected from Cockle Bay suggest that chemical quality of this water body generally meets the trigger levels for the protection of marine aquatic species as set out within ANZECC (2000).

The presence of heavy metals such as copper and mercury may be attributable to antifouling measures applied to older ships and other marine structures, and/or derived from runoff from the urban environment which surrounds Cockle Bay, rather than a specific point source. When considered against the visual amenity criteria set out within the Marine Water Quality Objectives for NSW Ocean Waters, it has been determined that Cockle Bay generally meet these criteria, although the presence of occasional floating debris was observed during sampling.

Groundwater Quality

Analysis of groundwater samples collected from across the site indicates a pH neutral, brackish to saline environment which is consistent with historical reclamation of the land and \ the site's proximity to Cockle Bay.

A review of the proportion of major cations and anions within groundwater samples collected from the site indicates that the chemistry of groundwater within the central part of the site (i.e. those areas that were historically reclaimed) is considerably different to that along the periphery of the site. The dominant ions present within samples collected from the central parts of the site are sodium and chloride, which is likely to be associated with the former Long Cove channel that historically dissected the site.

Groundwater analytical data collected from previous and recent sampling events is presented at Appendix E of Coffey's Assessment.

In summary, Coffey has determined that:

- The direct discharge of groundwater abstracted from excavations during construction to Cockle Bay would contribute to the existing contaminant load within Cockle Bay, however it is assessed that any increases in chemical concentrations would generally be below the limits of detection.
- Groundwater abstracted from excavations at the site is likely to include suspended solids. Direct discharge of sediment laden groundwater to stormwater drains that discharge to Cockle Bay would almost certainly generate visual sediment 'plumes' which would be not be aesthetically acceptable.
- A proportion of the chemical constituents reported within groundwater readily adsorb to sediment, which may lead to further concentration of certain chemical constituents in areas surrounding the existing stormwater outfalls.

On the basis of groundwater analytical data available for the site, it is assessed that groundwater abstracted from excavations within the site during construction would not be suitable for direct discharge to existing stormwater drainage or local sewer connection without some prior treatment.

Based on the above, Coffey makes a number of recommendations for water monitoring during construction. In summary, groundwater would need to be monitored for the following parameters:

- pH;
- Suspended and total dissolved solids;
- Heavy metals including arsenic, cadmium, chromium, copper, iron, lead, nickel, manganese, mercury and zinc;
- Inorganics including ammonia, nitrate, sulphide and sulfite; and
- Petroleum Hydrocarbons (TPH, BTEX and PAH).

Appropriate groundwater management treatment options will be determined and approved in accordance with the relevant regulatory processes during the detailed construction phase, following additional water quality assessment.

The mitigation measures at Section 5 have been updated accordingly to reflect the recommendations of Coffey with respect to the future treatment, management and monitoring (as appropriate) of groundwater discharge.

Preliminary Dewatering Assessment

Coffey has noted that the proposed development will not involve the construction of basements below the groundwater level. Hence, extensive construction dewatering will not be required.

However, elements of the development may require localised dewatering. These elements could include:

- Trenches for drainage and sewer works;
- Lift pits associated with new tower structures;
- Water retention structures as part of WSUD initiatives; and
- Grease traps for trade waste generated from retail uses.

It is understood that these elements will be tanked, and will not experience groundwater inflow / seepage during operation. However, these elements may require dewatering during construction.

Notwithstanding this, Coffey notes that the design of the above elements is currently incomplete and details on the likely location and geometry of these structures are currently unavailable. However, the elements fall within two broad categories:

- Narrow longitudinal excavations where one side of the excavation area is significantly longer than the other, such as for drainage/sewer lines; and
- Rectangular excavations, such as for lift pits and water retention (tank) structures.

On this basis, Coffey has undertaken a preliminary assessment of the likely groundwater inflow during construction for the two types of excavation. The assessment was made using analytical methods assuming radial flow to rectangular excavations and parallel flow to linear excavations (trenches). The assessment was made on the following assumptions:

- Groundwater level 2.4m below ground (based on site measurements);
- Hydraulic conductivity of fill 0.2m/d (upper end of falling/rising head test results);
- Excavation of pits no more than 2m below the groundwater level and excavation of trenches no more than 1m below groundwater level;
- Low permeability rock at a depth of 10m below ground level (typical value from earlier field studies); and
- No high permeability features such as gravel filled trenches intersect excavations below the water table.

Based on these assumptions it is assessed that inflow to individual open pits of up to 5m x 10m would be unlikely to exceed 0.2L/s and inflows to trenches would be unlikely to exceed 0.5L/s per 100m length of trench. Inflows would be greatest immediately following excavation and would reduce over time as the extent of influence gradually increases.

2.7 Noise Impacts

2.7.1 Issue

The Department has requested further information be provided regarding the LAeq contribution from industrial sources used to calculate the amenity criteria for the operational stage of the development.

Transport for NSW has requested that a detailed noise and vibration assessment be undertaken to quantify the likely impacts from current and future light rail operations upon future sensitive receivers which will be part of the Haymarket development.

The EPA has requested clarification in relation to a number of matters around the noise and vibration impacts of the proposed development, during both the construction and operational phases. As no construction activities are proposed as part of the application, the scope of the Noise and Vibration Impact Assessment submitted is to provide noise criteria and objectives only. The EPA has therefore recommended that detailed Noise and Vibration Impact Assessments addressing noise impacts during construction and operation of the developments must be prepared for each subsequent Stage 2 application. The clarification matters raised by the EPA are addressed individually in the table at **Appendix D**.

The City of Sydney Council has recommended that acoustic modelling be provided discussing the probable design and management techniques which would be necessary for the interface between active ground floor uses and residential uses above.

Finally, the residents have also raised general concerns around increased noise as a result of the development.

2.7.2 Proponent's Response

Renzo Tonin & Associates has prepared a Noise and Vibration Assessment (Addendum) to address the issues raised (refer to **Appendix P**).

Consistent with the recommendations made by the EPA, more specific assessment of construction and operational noise associated with the Plots in the Haymarket will be presented in each respective Stage 2 SSDA.

In response to the Department's concerns around the establishment of the amenity noise criteria, the notes at Table 5 (p.17 of the SSDA 2 Report) outline the process used to modify the amenity noise criteria in accordance with the Industrial Noise Policy. As stated, the amenity criteria have been modified in accordance with Table 2.2 of the *Industrial Noise Policy* assuming the existing industrial noise contribution equals the measured background level. It is considered that the existing noise level is unlikely to decrease in the future. The high traffic noise environmental criteria has not been applied in the criteria as the majority of noise level measurements were carried out at street level and therefore lower traffic noise levels are expected at upper levels of development. The traffic noise correction could however reasonably be applied at lower levels of the development. No correction to the commercial premise criteria were determined to be required based on the measurement data. Notwithstanding this, Table 1 of Renzo Tonin & Associates' addendum report presents the noise levels used to establish the amenity noise criteria. This will also be included in each of the Stage 2 SSDA reports, inclusive of in-principle allowable noise contributions for each Plot within the Haymarket, in line with the cumulative assessment requirements of the amenity criteria.

In response to the Transport for NSW comments, Renzo Tonin & Associates have confirmed that the detailed assessment for the Stage 2 SSDAs for each Plot will include assessment of light rail, in accordance with *State Environmental Planning Policy (Infrastructure) 2007* and the supporting *Development Near Busy Roads and Rail Corridors*.

In regard to the noise amenity of residential premises in relation to noise from the retail type uses and public realm, additional detailed design will be required to enable active uses to operate as well as the provision of suitable residential acoustic amenity. However, further to the preliminary noise assessment, indicative building envelope construction requirements for the residential premises have been provided in accordance with the standard noise criteria set out within the Sydney DCP 2012. An external noise limit of 65 to 70dB(A) has been assumed for the cumulative impact of retail type premises and the public domain to the most severely impacted locations at lower floor levels and fronting Haymarket Square and The Boulevard. It is noted that acoustic treatments to apartments on higher floors and less exposed orientations would have reduced acoustic requirements.

Whilst noise from the public domain cannot be directly controlled, use of the area for special events should be managed accordingly. The external noise limits can also be used to derive appropriate limits for individual retail type premises. These criteria would be developed during the design development phase.

Renzo Tonin & Associates conclude that the information and assessment presented in the Addendum Assessment demonstrates that internal acoustic amenity within the residential premises of The Haymarket can be provided by suitable design for the building façade, as well as management of the retail type uses. The recommendations of the Noise and Vibration Assessment (Addendum) are reflected within the mitigation measures at Section 5.

2.8 Overshadowing

2.8.1 Issue

The Department has requested further information to examine whether any amenity spaces associated with the Powerhouse Museum (ie open space for active/passive recreational use) would be overshadowed by the proposed student accommodation building within the Western plot, and also to clarify the extent of overshadowing occurring to The Peak building façade facing the site. In this regard, the Department has requested elevational shadow diagrams for The Peak.

The City of Sydney Council also raised potential overshadowing to the rear publicly accessible courtyard of the Powerhouse Museum in winter as a concern and recommended that the proposed student accommodation building(s) be shaped in plan at the northern end and reduced in height to minimise potential overshadowing impacts.

Potential overshadowing impacts were also raised in a number of public submissions, particularly in relation to the impact of the student accommodation buildings on properties in Ultimo, and loss of solar access / shadowing of The Peak / Quay Apartments and southern Haymarket area.

2.8.2 Proponent's Response

Overshadowing

Revised shadow studies have been prepared and are included in the Supplementary Design Report (refer to **Appendix H**). The diagrams respond both to minor amendments that have been made to the proposed building envelopes and provide detailed solar access analysis in relation to the Powerhouse Museum courtyard and also for The Peak elevations.

Overshadowing impacts to the Powerhouse Museum and The Peak Apartments elevations are considered below. It is also noted that the proposed amendments to the Parameter Plans in relation to the step location on the top of the NW Plot roof (which has been moved south by 7.3 metres) will transition the built form scale from Pier Street to Haymarket Square and reduce the overshadowing impact onto the SW Plot podium landscape.

Powerhouse Museum

The proposed student accommodation building envelope will result in additional overshadowing to two (2) areas of open space (passive / active) recreation at the Powerhouse Museum: the courtyard located at the rear of the existing building in the south eastern corner of the site, and the forecourt adjacent to the intersection of Harris and Macarthur Streets.

As is illustrated by the shadow diagrams, the maximum envelope proposed for the student accommodation buildings results in some additional overshadowing to the forecourt of the Powerhouse Museum at 9am at 22 March, and also between 9am and 10am at mid-winter. By shortly after 10 am in mid-winter the shadow has moved off the forecourt space and no further shadow impact arises. This additional overshadowing is not considered to be significant for a short part of the early morning in an highly urbanised city location. No additional overshadowing of the forecourt results at any other time of the day throughout the year.

With respect to the courtyard at the rear of the Powerhouse, additional overshadowing will result during the morning period at all times of the year. The additional shadows start to move off the courtyard space after approximately 11 am, with no additional overshadowing occurring after midday.

It is noted that the courtyard is already substantially covered by shadow via a shade cloth and existing trees. Even a significant reduction in the height of the proposed student accommodation building envelope would not remove all potential additional overshadowing. This courtyard has been identified as potentially being redeveloped in the future for a non-residential use.

It is further noted that the Stage 2 detailed design of the southern student accommodation building sits well within the maximum proposed building envelope. Shadow diagrams prepared by Virtual Ideas illustrating the hourly the shadow cast by the proposed Building W2 from 9:00am-5:00pm on 21 December, 21 March and 21 September, and 9:00am-4:00pm on 21 June have been submitted with SSDA 3. It is evident from these shadow diagrams that the shadow cast by the detailed design of Building W2 is contained well within the expected shadow of the proposed envelope (in terms of both height and footprint) currently sought under the Concept Proposal. The siting of Building W2 ensures that it does not result in any significant shadowing of the Powerhouse Museum, with minor shadowing only occurring in the morning.

Having regard to the location of the SSDA3 Site within central Sydney, and due to its lack of any adverse impacts on significant areas of public open space, it is considered that the shadow cast by Building W2 is acceptable.

The Peak Elevations

Shadow diagrams for The Peak Apartments illustrating the shadows cast by The Haymarket Concept Proposal on the facades of the building have been prepared for hourly intervals between 9am and 4pm at 22 September, 22 December, 22 March and 22 June.

As is illustrated by the elevational shadow diagrams, at 22 September, 22 December and 22 March, no overshadowing will result to any façade of The Peak Apartments tower at any time of the day.

Some minor additional overshadowing of the Market City podium elevation occurs during the afternoon at 22 September and 22 March with a relatively small portion of the elevation and podium roof receiving additional overshadowing. This additional overshadowing is considered to be negligible and will not result in any significant loss in amenity. There is no additional overshadowing to the Market City podium elevation at any time of the day at 22 December.

At mid-winter (22 June) there is some additional overshadowing impact to the Markey City podium and to the western elevation of The Peak Apartments after 2 pm. There is no additional overshadowing during the morning period, or the early afternoon.

After 2pm the western edge of the Market City podium roof is overshadowed, and a relatively small proportion of the western and northern elevations of The Peak are overshadowed. As the afternoon progresses the length and extent of shadow increases and by approximately 3pm the Market City podium roof is overshadowed and approximately 40-45% of the western and northern tower elevations are overshadowed. By 4pm, approximately 45-50% of the western elevation is in shadow, however the shadow has substantially moved off the northern façade such that only approximately 15-20% of the façade remains in shadow.

The extent of additional overshadowing to the Market City Podium roof and to the northern and western elevations of The Peak is considered appropriate and reasonable. All apartments in The Peak tower will continue to receive solar access for more than 2hrs during midwinter. It is also noted that the apartments on the northern and western elevations of the building are dual aspect.

2.9 Social and Community Impacts

2.9.1 Issue

The City of Sydney Council has recommended that a minimum of 10% of all new housing be affordable rental housing, and the location of the affordable housing should be nominated prior to the first application being determined. The Council has also recommended that the dwelling mix targets for the Project include a minimum of 10% of three bedroom dwellings. A series of recommendations have been made in relation to the Stage 2 design and location of library and child care facilities. The Council has also recommended that a Place Manager be appointed.

A number of public submissions raised issues relating to increase population density and resultant pressure on demand for community services including schools, child care, health, aged care and sporting facilities. Potential social and community impacts including crime, late night noise and demographic change were also raised.

2.9.2 Proponent's Response

The Concept Proposal allows for the provision of housing that is affordable, with details to be provided as part of future SSDAs. The recent lodgement of SSDA3 demonstrates that affordable housing (in the form of student accommodation) will be delivered on The Haymarket site. Lend Lease will continue investigating the potential to accommodate further and different forms of rental housing that is affordable on the site.

With respect to apartment mix, it is noted that the details of apartment type and mix will be the subject of future Stage 2 SSDAs. The proposal will provide a varied apartment mix, including studio, one bed, one bed plus study, two bed and three bedroom apartments in order to meet the objectives of the dwelling mix controls provided by Council's and State Environmental Planning Policy 65 - Design Quality of Residential Flat Development.

This diversity in mix has been developed following detailed market analysis, and to ensure that the apartment offering is relevant to a broad cross section of the community. In addition, the typical tower floor plates have been designed with flexibility in mind, and to enable apartments to be combined if desired. For example, a one bed and a two bedroom apartment could be combined into a larger 3 bedroom apartment should the future demand exist for this product type.

In response to the public's concerns about the additional demands placed on community facilities, it is noted that the redevelopment of the SICEEP Precinct for a range of entertainment, business tourism, residential, commercial and retail land uses has been determined by INSW to be the most suitable in fulfilling the objectives of the NSW Government for the subject site.

However, Lend Lease and the City of Sydney have commenced an active dialogue on the development of the Haymarket North plot including a Library, bike Hub, retail, community facilities, childcare centre and associated sustainable uses. The parties have commenced work on finalising a development brief which is proposed to be reported to the City of Sydney Council for endorsement in the last quarter of 2013. The details of the funding and delivery will form part of the recommendation made to council which will be worked up by both the parties as a joint proposal. It is proposed the building will be the subject of a limited design competition.

Further, the Haymarket also includes an area for a proposed IQ Hub to nurture and support media, technology and IT by providing purpose-built, low-cost workspaces to encourage start-up, viable ventures and social initiatives. Full details regarding the design of these facilities will be provided with the relevant development application.

With respect to the remaining services identified above, it is noted that facilities within the overall SICEEP Precinct will include opportunities for active recreation and sporting facilities, including within Tumbalong Park and the Event Deck, e.g. basketball court and outdoor gym. Further, within the residential buildings (refer to Stage 2 SSDAs) adaptable and accessible housing will be provided for older persons. Whilst a school is not proposed as part of the SICEEP Site, INSW is consulting with the Department of Education regarding the provision of schools in the locality.

Overall, the Haymarket development will deliver a more attractive, vibrant and high quality public domain that can be experienced by future residents, and visitors to Darling Harbour. It is noted that all future food and beverage uses will be subject to detailed development applications, whereby appropriate operating hours and mitigation measures to alleviate any noise concerns will be implemented.

The Public's concerns relating to changing demographics primarily relates to the provision of student accommodation on the site (refer to SSDA3). The proposed student accommodation is well-suited to the site given the close proximity to higher-education institutions, services and public transport, and it will serve a critical shortfall in the availability of affordable student housing. To alleviate any concerns about anti-social behaviour associated with the use, an Operational Management Plan will be put in place to govern the operation of the student accommodation (refer to SSDA3 for details).

Finally, with respect to crime and safety, a Crime Prevention through Environmental Design (CPTED) assessment was undertaken for The Haymarket Concept Proposal which found that the proposal promotes safer-by-design strategies. The provision of higher density housing will likely improve safety in the locality, with greater surveillance and activity throughout the day and night.

2.10 Public Benefit

2.10.1 Issue

The Department has noted that for an equivalent scheme outside the Darling Harbour State Significant Site boundary Section 61 of the City of Sydney Act would require a monetary contribution of 1% of the estimated cost of construction value for physical integration. In this regard the Department has requested further clarification is required for the reasons of not providing a monetary contribution, together with an analysis of the public benefit arising from the proposed redevelopment of The Haymarket site.

The public also questioned whether the development would deliver any public benefits to the people of NSW.

2.10.2 Proponent's Response

The redevelopment of the SICEEP site (which includes The Haymarket) will, on the whole, result in a significant increase in the economic benefits delivered by the site. These benefits will have ongoing positive impacts on the NSW economy. The Haymarket is part of the revitalisation of Darling Harbour which will inject $260 million annually into the NSW economy, and create new employment opportunities during both the construction and operational phases.

As noted in the original EIS, the overall SICEEP Project will deliver long lasting and significant public benefits to Sydney and NSW and therefore the burdening of the development with additional contributions will undermine the State Government's objectives of supporting the development of the Darling Harbour area for a variety of tourist, educational, recreational, cultural, residential and commercial facilities.

Further, Lend Lease will make a series of developer rights payments totalling approximately $140m to the Government for the major commercial development with costs such as infrastructure and remediation paid by the developer. The Haymarket development will create a new urban neighbourhood, with approximately 200,000sqm of GFA, including apartments, student housing, office, retail, community uses, a new town square and north / south, east / west streets and connections.

In addition, and as noted above, Lend Lease is working in partnership with the City of Sydney to investigate the potential for a new library, bike hub, and childcare centre in the Haymarket site, and includes an area for a proposed IQ Hub which will foster creative industries.

The funds made available to the NSW Government through the developer rights payments will also be utilised as part of the revitalisation of Darling Harbour, and will contribute toward the upgrade and revitalisation of facilities and spaces in the public domain.

A summary of the public benefits associated with The Haymarket is provided below. The Haymarket development will:

- develop The Haymarket into one of Sydney's most innovative residential and working districts;
- create approximately 2,100 new jobs during construction, with ongoing employment opportunities for over 2,000 people;
- improve housing supply, choice and affordability in the City of Sydney LGA by accommodating approximately 2,360 dwellings (comprising 1,360 residential apartments and 1,000 student beds) upon completion with a resident population in the order of 3,400 – 3,700;

- facilitate a greater number of people living close to their place of work or study, including staff and students of the education and health precinct;
- minimise urban sprawl and the costs to society associated with this inefficient form of growth;
- encourage sustainable travel behaviour by providing a significant quantum of dwellings close to public transport;
- providing opportunities to provide community uses for the benefit of existing and future residents, such as a library and childcare centre etc;
- embrace and respect the vitality and character of the neighbouring Chinatown precinct;
- provide a quality visitor experience and establish The Haymarket as a distinctive destination within a revitalised quarter of the City;
- create new functional, vibrant and connected public open spaces;
- increase and improve connections with Chinatown, Ultimo, the CBD and the south of the City; and
- repair the urban fabric of this part of the City restoring street grain and connectivity.

3.0 Proposed Amended Development

Since public exhibition of The Haymarket concept proposal, minor amendments have been made to the proposed development. The minor changes include aspects made in response to the issues and comments raised by the Department, Council and the general public, along with adjustments made to reflect consistency with the Stage 2 SSDAs lodged in relation to the Darling Drive, South-West, and North-West development plots.

The proposed changes are shown on the revised Architectural Drawings prepared by Denton Corker Marshall (**Appendix H**), and Public Domain Concept Plan prepared by HASSALL (**Appendix K**). It is noted that not all of the originally submitted plans are proposed to be amended. A drawing schedule outlining the new amended plans for approval is provided at Section 3.5.

For completeness, the following section presents a brief updated description (where relevant) of the modified development for which approval is sought. The changes overall are considered to be positive and aim to deliver an improved outcome. Accordingly, and as detailed in Section 4, the changes are not considered to give rise to any material alteration to the environmental assessment of the potential impacts considered as part of the original development application.

3.1 Overview of Proposal (unchanged)

The Concept Proposal seeks approval for the following key components and development parameters:

- Staged demolition of existing site improvements, including the existing Sydney Entertainment Centre (SEC), Entertainment Centre Car Park, and part of the pedestrian footbridge connected to the Entertainment car park and associated tree removal;
- A network of streets, lanes, open space areas and through-site links generally as shown on the Public Domain Concept Proposal, to facilitate reintegration of the site into the wider urban context and connect with the broader SICEEP Site;
- Street layouts;
- Development plot sizes, development plot separation, building envelopes (maximum height in RLs), building separation, building depths, building alignments and a benchmark for natural ventilation and solar provision for the precinct;
- Land uses across the site, including residential and non-residential uses;
- A maximum total gross floor area (GFA) across The Haymarket Site of 197,236m^2 for the mixed use development (excluding ancillary above ground car parking), comprising of:
  - A maximum of 49,545m^2 non-residential GFA;
  - A maximum of 147,691m^2 residential GFA;
- Above ground parking including public car parking;
- Residential car parking rates to be utilised in the subsequent detailed (Stage 2) Development Applications, being:
  - Zero (0) spaces per studio apartment;
  - Maximum one (1) space per two (2) one bedroom apartments;
  - Maximum one (1) space per one bedroom + study apartment, plus one (1) additional space per five (5) apartments;

  - Maximum one (1) space per two bedroom apartment, plus one (1) additional space per five (5) apartments; and
  - Maximum two (2) spaces per 3 + bedroom apartment.
- Design Guidelines prepared by Denton Corker Marshall to guide future development and the public domain; and
- A remediation strategy.

3.2 Amended Site Boundary

The site boundary of The Haymarket concept proposal has been amended principally to exclude Exhibition Place which now sits within the site of SSDA 1 (the PPP component of the project). This proposed amended site boundary is shown on **Figure 26**. The amendment has been a logical boundary adjustment as the works involved to redesign the Darling Drive/ Pier Street junction and revised vehicle access into the site now falls within a single site boundary and SSDA.

It is noted that the public car park entering and exiting the NW Plot will share this road, but will not require any additional modifications to the junction geometry or lane alignment.

As amended the boundary of The Haymarket concept proposal SSDA 2 has a total area of 37,696m^2 (previously it was 43,880m^2). With a total GFA of 197,236 m^2 this results in a maximum FSR for the proposed development of 5.2:1.

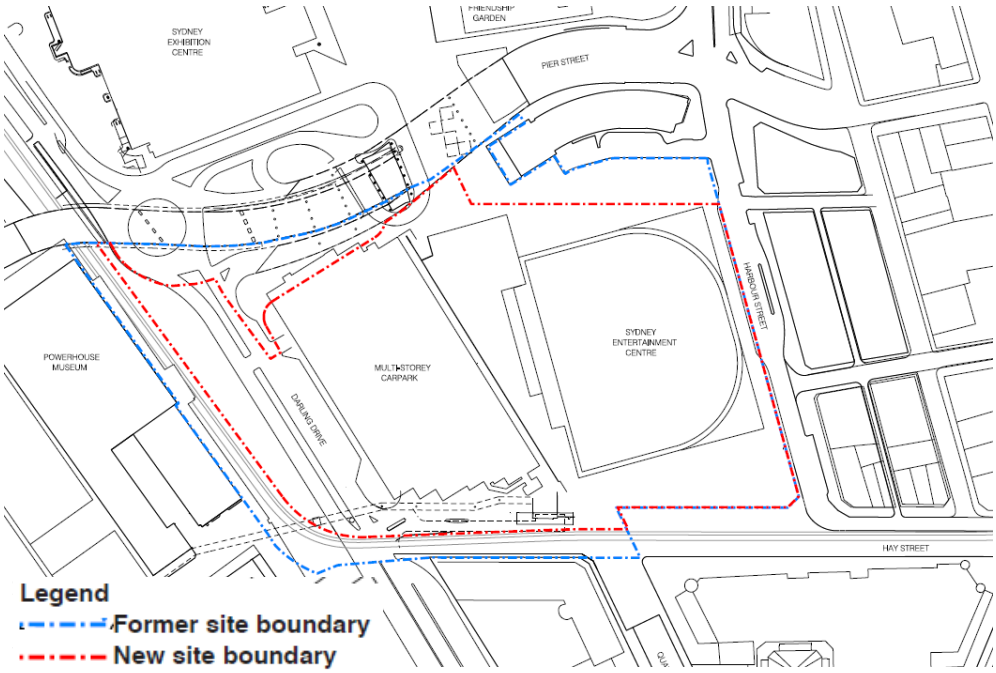

Figure 25 – Amended site boundary

Source: *DCM*

3.3 Building Envelopes

Two (2) of the Stage 2 detailed SSDAs that have been submitted to the Department propose minor changes to the maximum envelopes that have been publicly exhibited as part of The Haymarket concept proposal SSDA 2:

- SSDA 4 for the construction and use of a mixed use commercial development and public car park building and associated public domain works within the North West Plot is generally within the maximum envelope that was publicly exhibited as part of SSDA 2. However there is a small protrusion at roof level associated with plant; and
- SSDA 5 for a mixed use residential development and associated public domain works within the South West (SW) Plot of The Haymarket is generally within the maximum envelope that was publicly exhibited as part of SSDA 5. However, a small portion of the western façade of Building SW1 protrudes outside the exhibited envelope.

Accordingly, The Haymarket concept proposal Parameter Plans are proposed to be amended to be wholly consistent with the detailed design proposed in SSDA4 and SSDA 5.

Overall it is noted that the majority of Building SW1 and of the Commercial Office Building and Public Car park sit well within the exhibited building envelopes, and the volume of the buildings is substantially less than that otherwise proposed under the concept proposal.

The revised Parameter Plans are included at **Appendix H**.

In summary, the amendments to the Parameter Plans are:

- Step location on the top of the NW Plot roof has been moved south by 7.3 metres in order to transition the built form scale from Pier Street to Haymarket square and reduce the overshadowing impact onto the SW Plot podium landscape and minimise proximity and overlooking issues between the SW1 tower and the commercial office space;
- NW Plot north elevation has been amended to follow the new site boundary and not the Pier Street alignment; and
- Projecting 2.5 x 12.5 m bay has been added to the SW Plot above podium level to allow for sheathing of the core on the western elevation by residential accommodation to improve the visual appearance and provide more active usage.

3.4 Landscaping, Open space and Public Realm

Following the public exhibition of the Concept Proposal and in response to comments made by submitters, a range of significant improvements have been made and formalised within the amended Concept Proposal in relation to the public realm with a particular focus around pedestrian and cyclist connectivity, safety, and permeability. These improvements are detailed within the Supplementary Public Domain Design Report (refer to **Appendix K**) prepared by HASSELL.

Key aspects of the refined Public Domain Concept Proposal include:

- The new boundary which coordinates with the PPP core facilities under SSDA1 to the north, the interfaces with the light rail corridor and also reflects boundary amendments adjacent to the Novotel and Pumphouse;

- Further design resolution west of the boulevard reflecting design advancement as part of the Stage 2 SSDA3/4/5;
- An enhancement of the north/south connections along Darling Drive resulting in a cycle / pedestrian shareway along its western edge to link the precinct and the student accommodation with the light rail stop at Tumbalong Place/Exhibition Stop;
- Removal of the previously proposed pedestrian / vehicle shareway on Hay Street, and replacement with pedestrian priority space;
- Introduction of a signalised pedestrian crossing across Darling Drive between Dickson's Lane and the Darling Drive plot (which includes the student accommodation building) in recognition of the desire line into the balance of the Haymarket; and
- Formalisation of the important Macarthur Street east-west interim connection.

3.5 Drawing Schedule for Approval

Table 1 identifies the Drawings that are proposed for Approval.

It is noted that in addition to the amended Parameter Plans, the revised drawing schedule includes two additional plans as requested by the Department as follows:

- MCD AR 207 Maximum building plots overlaid onto existing site plan; and
- MCD AR 208 Maximum building plots overlaid onto proposed site plan.

Table 1 – Final Drawing Reference Schedule

Drawing Number	Title	Date
Architectural		
MCD AR D107 Rev P4	Proposed Site Plan	3/07/2013
MCD AR D102	Parameter Plan 01 Maximum Envelope Plot Sizes	3/07/2013
MCD AR D202	Parameter Plan 02 Maximum Envelope Plot Separation	3/07/2013
MCD AR D203	Parameter Plan 03 Maximum Horizontal Building Envelope	3/07/2013
MCD AR D204	Parameter Plan 04 Maximum Building Envelope Separation	3/07/2013
MCD AR D205	Parameter Plan 05 Maximum Vertical Building Envelope	3/07/2013
MCD AR D206	Parameter Plan 06 Proposed Land Use	3/07/2013
MCD AR D207	Parameter Plan 07 Maximum Building Plots Overlaid Onto Existing Site Plan	3/07/2013
MCD AR D208	Parameter Plan 08 Maximum Building Plots Overlaid Onto Proposed Site Plan	3/07/2013

4.0 Additional Information and Assessment

The Department has requested that all reports submitted with the EIS be reviewed in light of any revisions made or to assist in the resolution of the issues, and to ensure consistency with the final proposal.

The exhibited EIS assessed the potential impacts of the overall development against a range of matters relevant to the development. Except where addressed in this report, the conclusions of the original assessment remain unchanged. In this regard, the assessment of the following matters remains unchanged:

- Director-General's Environmental Assessment Requirements
- Environmental Planning and Assessment Act 1979
- Compliance with Planning Policies
- Compliance with Planning Instruments
- Design Excellence
- Internal Residential Amenity
- Wind Impact
- Accessibility
- Archaeology
- Infrastructure and Utilities
- Waste
- Water Cycle Management
- Air Quality
- Contamination
- Construction Management
- Socioeconomic and Cultural Issues
- Crime Prevention through Environmental Design
- Environmental Sustainability
- Ecologically Sustainable Development
- Development Contributions
- Site Suitability
- Public Interest

As identified at Section 1, the following consultants' reports and supporting information has been updated or further supplements the material originally submitted in support of the EIS:

- Supplementary Design Report including Amended Parameter Plans and additional Shadow Study prepared by DCM;
- Supplementary Public Domain Concept Proposal prepared by Hassell;
- Updated Visual and View Impact Analysis prepared by JBA;
- Traffic and Transport Assessment Addendum Report prepared by Hyder;
- Flooding and Stormwater Addendum Report prepared by Hyder;
- Statement of Heritage Impact prepared by TKD Architects;

- Outline Interpretation Strategy prepared by TKD Architects;
- Noise and Vibration Assessment Addendum Report prepared by Renzo Tonin;
- Letter regarding Student Accommodation Benefits prepared by Urbanest;
- Letter regarding Crime Prevention Through Environmental Design prepared by Harris Crime; and
- Supplementary Groundwater and Dewatering Assessment prepared by Coffey.

The updated supporting documentation and assessment information relating to built form and urban design, visual and view impact analysis, open space, public domain and pedestrian movement, overshadowing, traffic, parking and transport, noise, water cycle management (flooding, stormwater and water quality), groundwater and dewatering, social and community and public benefit issues have been addressed at Section 2 of this report as relevant in responding to key issues raised during submissions.

The further information and assessment material that has not otherwise been addressed at Section 2 of this report is summarised in the following sections.

4.1 Consistency with Original DA Scheme

All key elements of the proposed development have remained unchanged. The scheme remains generally consistent with, and does not substantially differ from, the development as originally proposed.

4.2 Heritage

TKD Architects has updated the Heritage Impact Statement (refer to **Appendix Q**) originally submitted as part of the EIS in support of the Concept Proposal.

The Statement has been updated to assess the impact of the proposal on the Darling Harbour Rail Corridor, which is included in the SICEEP boundaries and is listed on the SHFA Section 170 Heritage and Conservation Register. TKD Architects note that there will be some minor impacts on the Rail Corridor as a result of the two student housing blocks. The two buildings are situated within the Rail Corridor and will have some impact on the open character of the Corridor, which currently works with Darling Drive to form a buffer between the existing development at Darling Harbour and development along the western side of the Corridor. Notwithstanding this, TKD notes that the setting of the Rail Corridor will be enhanced by the continuation of the Ultimo Pedestrian Network and its associated landscaping works.

Further, any impact will be minimised because the student housing blocks are confined to the eastern edge of the Corridor and will not interfere with its existing light rail use. Similarly, the Corridor will continue to be able to be understood and interpreted as it extends to the north along the western edge of the SICEEP site.

TKD notes that the Corridor is not generally visible from the Haymarket Precinct at the moment, as it is screened by dense planting and is situated below the level of Darling Drive. As a result, and because the Corridor is located on the periphery of the site, it does not make any contribution to a sense of place.

Finally, with respect to the site of the proposed student accommodation itself, it is noted that it is currently an open space between the railway tracks and Darling Drive, and is currently occupied by the monorail and landscaping, both of which date to the second half of the 1980s.

5.0 Final Mitigation Measures

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 2** below. These measures replace those outlined in the original EIS.

Table 2 – Final Mitigation Measures

Mitigation Measures
Traffic Generation ▪ The following improvement measures should be considered in order to achieve satisfactory performance for intersections directly adjacent the Haymarket Site: – minor adjustment to the signal layout and operation to the Darling Drive / Hay Street intersection; and – signal coordination of the Harbour Street / Pier Street / Goulburn Street intersection with adjacent signals. ▪ Provide a new signalised pedestrian crossing along Darling Dive at the entry to Dickson's Lane to improve pedestrian safety and connectivity.
Accessibility ▪ Ensure the podium entry stairs from the adjoining pedestrian footpaths, are recessed a minimum 900mm from the transverse path of travel (The Boulevard, pedestrian footpaths), in accordance with AS1428.1-2009. ▪ Ensure the student housing has a minimum of 19 accessible sole-occupancy units plus 1 additional accessible sole-occupancy unit for every 50 units or part thereof in excess of 500, in accordance with DDA Access Code 2010 Clause D3.1. ▪ Ensure accessible sanitary facilities are provided in the student housing, retail, community and commercial areas, in accordance with DDA Access Code 2010. ▪ Provide a continuous accessible path of travel from the accessible pedestrian entrance of the residential buildings to at least one floor containing sole-occupancy units and to the entrance doorway of each sole-occupancy unit located on that level, in accordance with DDA Access Code 2010 and BCA. ▪ Ensure 1% of the commercial office car parking bays are allocated for people with a disability, in accordance with DDA Access Code 2010. ▪ Ensure 1% of the public car parking bays are allocated for people with a disability, in accordance with DDA Access Code 2010.
Heritage The Heritage Interpretation Strategy prepared by TKD Architects dated June 2013 should be incorporated into the detailed design of the SICEEP redevelopment and inform a Heritage Interpretation Plan developed for the SICEEP precinct. Preparation of the Heritage Interpretation Plan should include the opportunity for consultation with primary stakeholders such as representatives of the Sydney Harbour Foreshore Authority, the City of Sydney, NSW Heritage Branch, project architects, heritage consultants, and other appropriate statutory and non-statutory authorities. The Heritage Interpretation Plan should detail measures such as public art, wayfinding media, naming, interpretive signs and installations, archaeological remains, development of oral histories, educational tours (guided or self-guided), interpretive walks, events and/or website based information.

Archaeology

Indigenous Archaeology

In order to mitigate any impacts to potential aboriginal archaeological deposits, Comber Consultants advise that archaeological testing, recording and salvage should occur in areas where piling or any other ground disturbance that will penetrate the fill is to be undertaken within the area of the original foreshore. In addition, the following measures are proposed:

- Prior to commencement of the monitoring and testing, a research design and management strategy should be prepared.
- Monitoring, recording and testing should be undertaken in partnership with the Metropolitan Local Aboriginal Land Council.
- If any Aboriginal "objects" (as defined under the National Parks & Wildlife Act 1974) are located during the course of the testing program, the Metropolitan Local Aboriginal Land Council should apply for a Care Agreement with the Department of Environment and Heritage to enable them keep the objects.
- The program of sub-surface testing should be coordinated with Casey & Lowe, the archaeologists undertaking testing/recording in respect of the historical archaeology.
- If any previously undetected Aboriginal "objects", artefacts or sites are uncovered, work must cease in the vicinity of that object, artefact or site and further advice sought from the archaeologist who undertook the program of sub-surface testing.

Non-Indigenous archaeology

In order to minimise impacts to known and potential archaeological resources the following mitigation measures are proposed by Casey and Lowe:

- Archaeological remains of State significance within The Haymarket area should be retained in situ, utilising the strategies outlined in the Assessment.
- Archaeological testing shall be undertaken prior to the preparation of detailed designs.
- Where there are impacts on archaeological remains, archaeological recording will be undertaken in accordance with Heritage Council and Heritage Branch guidelines and best practice methodologies.
- A Non-indigenous Archaeological Research Design and Management Strategy will be prepared following the preparation of detailed designs.
- Construction site protocols are to be prepared to manage and minimise intended and unintended impacts.
- Any proposed development in the vicinity of the Hay Street stormwater channel will be undertaken in accordance with engineering and heritage advice. A specific Heritage Impact Statement may be required.
- A repository for artefacts is to be provided by SHFA following the completion of the archaeological program.
- Opportunities for public interpretation of the archaeology should be provided within the redevelopment.

Noise and Vibration

Operational Noise

To ensure that noise levels (both singularly and cumulatively) comply with the INP, the following measures may be adopted:

- procurement of 'quiet' plant;
- strategic positioning of plant away from sensitive neighbouring premises, maximising the intervening shielding between the plant and sensitive neighbouring premises;
- commercially available silencers or acoustic attenuators for air discharge and air intakes of plant;
- acoustically lined and lagged ductwork;
- acoustic screens and barriers between plant and sensitive neighbouring premises; and/or

- partially-enclosed or fully-enclosed acoustic enclosures over plant.

Measures as outlined within the Noise and Vibration Assessment (Addendum) prepared by Renzo Tonin & Associates (NSW) Pty Ltd dated 5 July 2013 in relation to protecting residential amenity from adjoining/adjacent noise sources are to be employed as appropriate.

Construction Noise

The following management measures can be employed to mitigate against any construction noise and vibration impacts. These include:

- Ensuring plant and equipment are properly maintained;
- Locating noisy plant and equipment as far as possible from noise sensitive areas, optimising attenuation effects from topography, natural and purpose built barriers and materials stockpiles;
- Undertaking noise and vibration compliance monitoring for all major equipment and activities on site;
- Selecting low-noise plant and equipment and ensuring that equipment has quality mufflers installed; and
- Implementing respite periods (if appropriate) with low noise/vibration-producing construction activities.

The Noise Assessment outlines the communication and complaints strategy that will be implemented. In summary, throughout the construction period:

- management procedure will be put in place to deal with noise complaints that may arise from construction activities;
- good relations will be established with people living and working in the vicinity of the construction site at the beginning of the project; and
- people will be kept informed of progress and taking complaints seriously and dealing with them expeditiously is critical.

Infrastructure and Utilities

Infrastructure

To protect the Sydney Water drain, the pile layout will need to avoid the drain alignment, and also provide adequate horizontal separation distance between the pile shaft and the drain. Additionally, structural bridging beams may need to be constructed over the drain to support building columns. Such beams would be supported by piles on either side of the drain. Any piles located adjacent to the drain will need to be detailed so as to limit the potential for creating instability in the soils beneath the drain.

Utilities

- The sewage collection pipework shall be designed in accordance with WSA Sewerage Code of Australia Sydney Water Edition 1- Version 3.
- The new sewer collection system and diversions shall be designed and constructed in accordance with Sydney Water requirements which when completed will become Sydney Water assets.
- A building over sewer application will be required if Sydney Water approve building over the existing sewer on the south west section of the site.
- Any capital works associated with the stages of the development will be in accordance with the relevant Section 73 Notice of Requirements from Sydney Water.
- The reticulation pipework shall be designed in accordance with Water Supply Code of Australia (WSA)– Sydney Water edition 2012, suitable for the water loading and fire requirements for the development.
- Water infrastructure works will maintain service to the SEC while construction is proceeding on the western section of the site, until operations at the SEC cease in December 2013.
- Pathways solely servicing the buildings which are nominated for demolition during this development are to be decommissioned and where practicable, telecommunications cable in a reusable condition shall be pulled back and coiled at the site boundary.

- Where telecommunications diversion works are required, the proposed alternate pathway will be established prior to decommissioning the existing pathway in consultation with the relevant service provider. All required cut-overs shall be programmed at times to limit the disruption of service to existing subscribers.
- The quantity and locations of fibre optic cabling shall be determined during tenant consultation with minimum provisions as per the requirements of the PCA Guide to Office Building Quality 2012.
- The design and installation of the electrical infrastructure (new and/or augmented) will be undertaken by Level 3 and Level 1 and/or 2 Accredited Service Providers to the requirements of Ausgrid.

Water Cycle Management

- All overland flow paths are to remain unobstructed and ground levels are to be consistent with the proposed flood modelling.
- A formal floodplain risk management plan with respect to evacuation and refuge is to be developed.
- Buildings and structures are to be designed for hydraulic loadings up to the PMF event.

Contamination

- Maintain a secure boundary fence;
- Provide appropriate personal protective equipment during ground works;
- Implementation of good health, safety and welfare facilities and practice during ground works;
- Implement dust suppression techniques during ground works ;
- Undertake boundary monitoring for vapours, dusts and fibres;
- Segregate contaminated materials following excavation.
- Undertake on-site treatment of contaminated soils and/or disposal to licensed landfill;
- Backfill excavation with suitably validated material, and clean imported materials;
- Reinstate cover layer to separate receptors from residual ground conditions;
- Develop a detailed Environmental Management Plan (EMP) to mitigate potential environmental risks associated with future ground maintenance events;
- Redevelop the site with hard surfaces and site drainage thereby reducing infiltration;
- Prepare an ASS Management Plan (ASSMP);
- Co-ordinate construction excavation and dewatering activities alongside the ASSMP;
- Allow for on-site treatment of ASS; and
- Undertake remediation in accordance with the approach and design outlined in the Overarching Remedial Action Plan, prepared by Coffey Environments, report date 15 March 2013.

Groundwater

- The monitoring, management and treatment of future groundwater (as appropriate) to be discharged will be undertaken in accordance with the statement titled Supplementary Monitoring & Assessment Works - The Haymarket, Sydney, prepared by Coffey and dated 9 July 2013.

CPTED

- Lighting and landscaping should be designed to provide diverse and safe activation;
- Noise attenuation measures should be incorporated in and around Haymarket Square to encourage safe, time-extended social engagement with locality and surrounding components of the public domain.
- CPTED Principles shall be considered when:

  - locating lobbies, loading, and parking facilities;
  - selecting treatments to access points, set-backs, under-crofts and facades;
  - designing landscaping, lighting and signage; and
  - designing strategies for public transport, and road and street corridors servicing the precinct.
- Ongoing engagement with surrounding precincts is required in order to ensure a holistic CPTED design is developed.

6.0 Conclusion

The proponent Lend Lease (Haymarket) Pty Ltd and its expert project team have considered all submissions made in relation to the public exhibition of The Haymarket Concept Proposal. A considered and detailed response to all submissions made has been provided within this report and the accompanying documentation.

In responding and addressing the range of matters raised by government agencies and authorities, independent bodies and the general public, Lend Lease (Haymarket) Pty Ltd has sought to refine the project design. The refined proposal also captures changes made by the project team post exhibition.

As outlined within this report, the analysis of the amendments to the proposed development confirms that all key elements of the proposed development as originally proposed and exhibited have remained unchanged.

Further and more importantly, the refined development does not substantially differ from the original publicly exhibited development proposal. In addition, and to the benefit of the overall project the environmental impacts of the amended development remain consistent with the original application and on balance deliver a project that results in an overall improvement to the concept originally publicly exhibited (particularly in relation to pedestrian connectivity and safety).

In conclusion, the Haymarket Concept Proposal represents a major urban renewal project that will have significant and long lasting public benefits for Sydney and NSW more broadly. It will deliver Sydney with a new vibrant mixed use neighbourhood along with significant improvements to the public realm, pedestrian connectivity and provision of community facilities.