

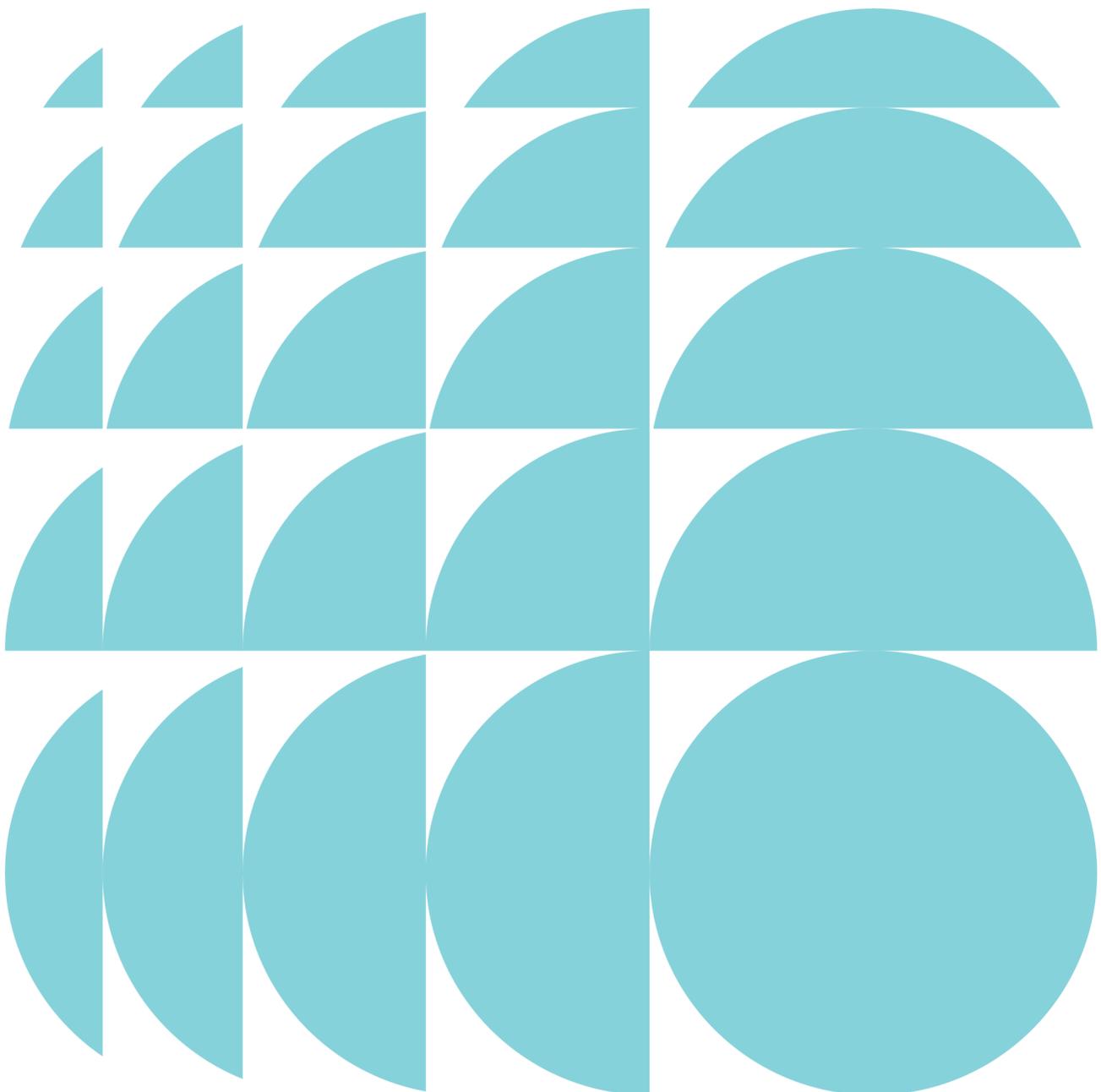
# ETHOS URBAN

## Response to Submissions and Additional Information

John Hunter Health Campus, Lookout Road, New Lambton Heights  
John Hunter Health and Innovation Precinct

Department of Planning, Industry and Environment  
On behalf of Health Infrastructure NSW

27 August 2021 | 2190777



*Ethos Urban acknowledges the Traditional Custodians of Country throughout Australia and recognises their continuing connection to land, waters and culture.*

*We acknowledge the Gadigal people, of the Eora Nation, the Traditional Custodians of the land where this document was prepared, and all peoples and nations from lands affected.*

*We pay our respects to their Elders past, present and emerging.*

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### *Under Separate Cover:*

*Parking Demand Study – GTA Consulting*  
*Response to Subsidence Advisory NSW – Health Infrastructure NSW*

## 1.0 Introduction

An Environmental Impact Statement (EIS) in support of a State Significant Development Application (SSDA) for the construction and operation of a new multi storey Acute Services Building (ASB) and refurbishment works to certain elements of the existing John Hunter Health Campus (JHHC) as part of the John Hunter Health and Innovation Precinct (JHHIP) was publicly exhibited for a period of 28 days inclusive between 1 June and 28 June 2021 (SSD 9351535).

In total, 22 submissions were received, including 12 public submissions and 10 submissions from government agencies or public authorities.

The applicant Health Infrastructure NSW (Health Infrastructure) and its specialist consultant team have reviewed and considered all issues raised.

The project team has carried out a review of the project to minimise the extent of environmental impacts of the project as much as possible. Design development changes include a refinement of the northern road and batters to require less bulk excavation and as a result, with significantly decreased impact on vegetation. As per the revised BDAR Assessment at **Appendix J**, the realignment results in vegetation clearing of 4.7ha as compared to 7.2ha in the original proposal which represents a significant -34 percent impact reduction.

This report, prepared by Ethos Urban on behalf of the applicant, sets out the responses to the issues raised and includes design amendments made to SSD 9351535 in accordance with Clause 55 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

This report should be read in conjunction with the original EIS prepared by Ethos Urban (including appendices and dated 17 May 2021), the Design Package prepared by BVN Architects (at **Appendix B**) and the supporting documents contained within the Appendices.

## 2.0 Consultation

Since the exhibition of the EIS, the project team has met with representatives from Transport for NSW through the established John Hunter Health and Innovation Precinct / RP2J Steering Committee and subsequent working groups on 8 July, 22 July, 5 August, 11 August, 5 July and 2 August and continue to discuss the project including the interfaces with the Inner City Bypass and to discuss the feedback and issues raised. Responses to the feedback and amendments to the proposal where appropriate, are included in this report and the supporting documentation.

## 3.0 Key Matters and Responses

This section of the report provides a response to the following key issues raised by the Department and other agencies during the exhibition of the SSD:

- Traffic and Parking
- Construction Management
- Biodiversity
- Water Cycle Management
- Aboriginal Cultural Heritage
- Bushfire
- Groundwater

A detailed response to each of the other individual issues raised by DPIE and other agencies is provided in the Response to Submissions table at **Appendix A** and by specialist consultants within the other supporting documentation (refer to Table of Contents).

### **3.1 Department of Planning, Industry and Environment Queries**

This section of the report provides a detailed response to the matters raised by the Department of Planning, Industry and Environment (DPIE) during the exhibition of the SSD, including the queries relating to the proposed Northern Road, and the proposed car parking arrangements.

It is noted that DPIE requested additional information relating to architectural plans and graphic mapping displaying land use zoning, exiting cycling and bushwalking tracks, existing loading docks and the proposed new road network in a wider context including the Newcastle Inner City Bypass (NICB) and interchange. These have been provided at **Appendix C**.

#### **3.1.1 Proposed Northern Road**

##### **Issue**

In their correspondence, DPIE queried the delivery timing of the eastern portion of the Northern Road, as well as who has the responsibility for its delivery and what commitments have been made to its delivery.

##### **Applicants Response**

It is Health Infrastructures intent to deliver the future stages of the road network in accordance with the staging and target timeframes outlined at Section 3.19 of the EIS (i.e 2025).

#### **3.1.2 Biodiversity impacts**

##### **Issue**

DPIE also raised concerns relating to the biodiversity impact of the future eastern portion of the Northern Road and questioned whether the temporary fire trail proposed to be used for temporary construction access could be utilised to provide an alternative future connection that avoids and minimise the biodiversity impacts.

##### **Applicants Response**

Northrop Engineering has provided a response at Section 3 of **Appendix H**. In summary, whilst it is acknowledged that there is a desire to reduce clearing, the project team do not believe utilising the construction access for a future road will achieve this outcome as upgrading to meet design standards would subsequently increase the associated clearing, rendering the provision ineffective at reducing biodiversity impacts. Further:

- It is not practical to have the final road network and construction access along the same alignment as it would cause significant delays to the delivery of the ASB, as construction vehicles would not be able to access the building zone whilst roadworks are being completed. Postponing access to the ASB until the completion of North Road Construction in order to avoid installing the construction access will result in significant time delays to the ASB delivery which cannot be accommodated.
- The alignment contains tight bends which do not afford adequate sight distances for a primary road network in accordance with Australian standards.
- The proposed construction access is generally placed over the existing fire trail and only requires minor additional clearing to facilitate construction access. Upgrading this track to provide compliant road widths would greatly increase the extent of battering and clearing required, likely requiring a similar extent of clearing as the proposed northern road.

## 3.2 Car Parking

### Issue

In their response, DPIE identified that the EIS refers to a Parking Demand Study that was prepared to understand the current and projected parking requirements of the hospital. DPIE has requested a copy of the study and a summary explanation of how the total parking demand was determined.

### Applicants Response

A Parking Demand Study Report was prepared by GTA Consultants in April 2020 to understand the parking requirements of the JHHIP (provided to DPIE under separate cover). The study was completed using a first principles analysis based on the relationship between current and future staffing levels, as well as student, visitor and patient demands.

The parking demand for the project is outlined in detail at Section 3, 3.1, 3.2, 3.3 and 3.4 of the Study including parking demand models for growth demand to 3031/32.

Activity and workforce data for JHHIP has been sourced from Hunter New England Local Health District's Clinical Services Plan (CSP). Projected activity growth rates are as follows:

- non-admitted patient services: 2 per cent per annum
- acute inpatient services: 1 per cent per annum
- inpatient separations: 0.8 per cent per annum.
- A 1.5 per cent per annum growth in FTE and VMO staffing numbers has been adopted

The parking demand model is shown at Figure 1.

Parking demand model assumptions are outlined at Figure 2.

Staff parking demand model assumptions are outlined at **Figure 3**.

**Table 3.1: Parking demand model – activity and workforce data**

User	Description	Input			Note/ Source
		2018/ 19	2026/ 27	2031/ 32	
Staff	Staff (headcount at 1-2pm)	3,260	3,618	3,898	Existing estimated based on data from HNELHD, HealthShare NSW and Pathology. 1.5 per cent growth in line with CSP
	VMO	171	193	208	Existing provided by HNELHD. 1.5 per cent growth in line with CSP
Public	Inpatient Beds	761	928	928	CSP
	ED Presentations	81,000 <sup>1</sup>	89,364 <sup>2</sup>	95,773	
	Outpatients service events	358,675	418,282	461,818	Activity Based Management Portal figures for 2018/ 19. 2 per cent growth in line with CSP

[1] CSP v1.0 outlines 2017/18 ED presentations as 79,954. Assuming linear growth of 1.31 per cent over nine years between 2017/18 and 2026/27, the 2018/19 ED presentations equals to 81,000

[2] CSP also does not provide numbers for 2026/27, numbers provided to GTA have been extrapolated by TSA Management from 2017/18 to 2031/32 projections.

### Figure 1 Parking demand model – activity and workforce data

Source: GTA Consultants

Table 3.4: Parking demand model assumptions (patient/ visitor)

Factor	Input			Reference Source/ Notes
	2018/ 19	2026/ 27	2031/ 32	
Percentage outpatient driving	90%	90%	90%	Reviewed against existing data of NSW public hospitals/ hospitals of a similar size/ scale/ contextual factors <sup>1</sup>
Outpatient space turnover factor	2.5	2.5	2.5	Average of NSW public Hospitals <sup>1,2</sup>
ED presentation utilising private vehicle	84%	84%	84%	Reviewed against existing data of NSW public hospitals/ hospitals of a similar size/ scale/ contextual factors <sup>1</sup>
ED presentations not admitted to an overnight bed	67%	67%	67%	Bureau of Health Information – JHH ED average June 2018 to June 2019 <sup>3(4)</sup>
ED presentations in daytime	65%	65%	65%	Provided by HNELHD
ED presentation vehicle turnover factor	2.1	2.1	2.1	Based on Bureau of Health Information – JHH ED <sup>1,3(4)</sup>
Inpatient weekday bed occupancy	95%	85%	85%	2018/19 provided by HNELHD. Future years based on recommended bed occupancy outlined in the CSP
Number of visitors per inpatient	2	2	2	Estimate based on a reviewed of existing data of NSW public hospitals/ hospitals of a similar size/ scale/ contextual factors <sup>1,4</sup>
Percentage visitors to inpatients driving	90%	90%	90%	Reviewed against existing data of NSW public hospitals/ hospitals of a similar size/ scale/ contextual factors <sup>1</sup>
Number of visitors per car	1.8	1.8	1.8	Estimate based on most (80%) visitors arriving in the same vehicle <sup>1</sup>
Inpatient turnover factor (daytime)	2.8	2.8	2.8	Based on average of NSW public Hospitals <sup>1,5</sup>
Percentage inpatient daytime visitors	60%	60%	60%	Provided by HNELHD
Students	20,626	24,167	26,682	Provided by HNELHD. Assumed 1.5% p.a. growth, in line with CSP v1.0
Students parked on campus	150	166	179	Assumption based on Secure Data, validated against other hospital examples <sup>6</sup> . Assumed 1.5% p.a. growth, in line with CSP
Number of volunteers parking on site	44	52	57	Secure Data <sup>7</sup> . Assumed 1.5% p.a. growth, in line with CSP <sup>1</sup>

[1] Approach/ assumption agreed with HI

[2] Benchmarked against Gosford, with current turnover of 2.5. GTA's database of NSW hospital examples indicates range between 1.69 and 2.82 hence 2.5 considered appropriate.

[3] Median time to leave the JHH ED for January 2019 to March 2019 was 3hours and 36minutes. Assuming an additional 10-minute travel time to and from the car park across an 8-hour day would imply an ED presentation turnover of 2.1.

[4] Tweed and Gosford Hospital recorded number of visitors per inpatient as 2

[5] Average length of stay greater than 3 hours unreasonable hence turnover less than 2.67 considered inappropriate. GTA's database of NSW hospital examples indicates range between 1.69 and 2.82 hence 2.8, being the average of NSW public hospitals, considered appropriate.

[6] Assumption based on Secure data of daily quantum of weekly vouchers recorded for August 2019. This equates to 27 per cent students per day parking on site, verified against Campbelltown Hospital, an accredited teaching hospital on the outskirts of the Greater Sydney region, student demand for onsite parking (160 students per day, 33 per cent park on site)

[7] Assumption based on Secure data of daily quantum of volunteer vouchers recorded for August 2019 (85<sup>th</sup> percentile demand of 44 spaces and a maximum of 55 vouchers)

## Figure 2 Parking demand model assumptions

Source: GTA Consultants

Table 3.5: Parking demand model assumptions (staff)

Factor	Input			Reference Source
	2018/ 19	2026/ 27	2031/ 32	
Percentage of staff driving to work	86%	86%	86%	ABS 2016 JTW data, vehicle driver
Average staff vehicle occupancy	1.06	1.06	1.06	ABS 2016 JTW data, vehicle passenger
VMOs present on weekdays	75%	75%	75%	Provided by HNELHD
Percentage VMOs driving to work	100%	100%	100%	Based on other NSW public Hospitals <sup>1,2</sup>
Average VMO vehicle occupancy	1	1	1	
VMO space turnover factor	3	3	3	

[1] Tweed and Gosford Hospitals recorded 100% VMOs driving to work, average of 1 VMO per vehicle and VMO space turnover factor of 3

[2] Approach/ assumption agreed with HI

### Figure 3 Parking demand model assumptions

Source: GTA consultants

Future parking supply requirements are set out at Section 4. A comparison of the demand projected by different models is shown at **Figure 4**.

Table 4.1: Parking demand comparison

Model	Existing Hospital Demand Estimate	Variance to Existing Demand
Observed peak demand	2,885	-
Parking Demand Model estimate	3,566	+681 (+24%)
The Guide	1,554	-1,331 (-46%)
Newcastle DCP	2,576	-309 (-11%)

### Figure 4 Parking demand comparison

Source: GTA consultants

Figure 4 shows that parking rates from the Guide to Traffic Generating Developments (Roads and Maritime, 2002) and Newcastle DCP estimate a much lower demand for existing hospital activities, compared to that observed. Utilising the parking demand model estimates a much higher demand for existing hospital activities, compared to that observed.

GTA recommended that the parking demand model outputs are adopted until the visitor and staff travel surveys can be undertaken. Growth in fleet parking supply requirements has been assumed to match growth in FTE staffing numbers.

A detailed summary of the JHHIP car parking demand and supply characteristics for the year of opening 2026/27 and five-year design horizon 2031/32 is outlined at Figure 5.

Table 4.4: Detailed summary of JHHIP Parking Demand and Supply

Description	Existing Hospital 2018/ 19	Design Year	
		2026/ 27	2031/ 32
<b>DEMAND</b>			
Staff/ VMOs <sup>1</sup>	2,688	2,984	3,214
Public (general access)	878	1001	1081
Fleet	128	142	153
Other <sup>2</sup>	151	151	151
<b>Total Parking Demand<sup>1,2</sup></b>	<b>3,845</b>	<b>4,278</b>	<b>4,599</b>
<b>ON CAMPUS SUPPLY</b>			
Redevelopment	N/A	TBC	TBC
Staff/ VMOs	2,212	2,212	2,212
Public (general access)	1003	1003	1003
Fleet	128	128	128
Other <sup>2</sup>	151	151	151
<b>Total Parking Supply</b>	<b>3,494</b>	<b>3,494</b>	<b>3,494</b>
On campus shortfall	365	798	1119
Off-campus supply			
<b>Total shortfall</b>	<b>365</b>	<b>798</b>	<b>1119</b>
Total existing shortfall	365	365	365
Total redevelopment supply requirement	0	433	754

[1] demand increased by 14 to include forensic science and 7 possum place childcare spaces, demand assumed to equate to supply  
 [2] demand for 'other' assumed to equate to supply, includes visitor (authorised guest), short term public parking, emergency/ patient transport parking, authorised parking (service vehicle, security etc)

### Figure 5 Summary JHHIP Parking Demand and Supply

Source: GTA consultants

The parking demand study identified that the proposed JHHIP should provide for an additional 754 parking spaces on site.

The development will provide an uplift of around 900 spaces across the site to accommodate parking demand generated by the JHHIP and to alleviate some of the existing parking shortfall. These will be provided via a combination of basement car park and at-grade spaces.

## 4.0 Design Refinements to the Proposed Development

Since exhibition, a number of design refinements have been made to SSD 9351535 as part of design development and to address the issues raised in the agency submissions.

The project team has carried out a review of the project to minimise the extent of environmental impacts of the project as much as possible. Design refinements include a realignment of the northern road and batters to require less bulk excavation and as a result, with significantly decreased impact on vegetation. As per the revised BDAR Assessment at **Appendix J**, the realignment results in vegetation clearing of 4.7ha as compared to 7.2ha in the original proposal which represents a significant -34 percent impact reduction.

The key refinements are summarised below:

- Refinement and realignment of northern road to bypass and HMRI car park connection that will reduce the extent of environmental impacts.
- Replacement of a portion of the Western link road with a road bridge (in lieu of fill & batter).
- Refinement of the helicopter landing site (elevate landing site from the slab).
- Refinement of the gravity fed sewerage system.
- In fill of the ASB basement car park facade to the northern elevation.
- Increase the depth of ASB basement level B04 by one metre.
- Reduction of the ASB Basement extent (removal of the basement 'wedge').

Amended Architectural Plans have been prepared by BVN Architects (refer to **Appendix B**), and Civil Plans have been prepared by Northrop (refer to **Appendix G**) reflecting these changes.

### 4.1 DA Description and Numerical Summary

The following section presents a brief updated description of the development for which approval is sought. It is noted that the only amendment to the DA description is the inclusion of the western link road bridge.

Accordingly, and as detailed in **Section 5.0**, the refinements 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 and the development description remains generally unchanged, however has been provided for completeness.

The DA description for SSD 9351535 has been amended as follows:

- Construction and operation of a new 7 storey Acute Services Building (plus 4 semi-basement levels) to provide:
  - an expanded and enhanced Emergency Department;
  - expanded and enhanced intensive care services - Adult, Paediatric and Neonatal;
  - expanded and enhanced Operating Theatres including Interventional Suites;
  - an expanded Clinical Sterilising Department;
  - Women's Services including Birthing Unit, Day Assessment Unit and Inpatient Units;
  - integrated flexible education and teaching spaces;
  - expanded support services;
  - associated retail spaces;
  - new rooftop helipad;
  - new semi-basement car parking;
- Refurbishment of existing buildings to provide:
  - additional Inpatient Units;

- expanded support services;
- A new Hospital entry canopy and works to the existing drop off;
- Link bridge to the Hunter Medical Research Institute;
- Inclusion of bridge along the western link road;
- Landscape works;
- Site preparation including bulk earthworks, tree removal, environmental clearing, cut and fill;
- Mines grouting remediation works;
- Construction of internal roads network and construction access roads and works to existing at-grade carparking;
- Connection to the future Newcastle Inner City Bypass; and
- Inground building services works and utility adjustments.

Further, while the project remains generally unchanged, key development information is provided at **Table 1** to provide clarity.

**Table 1 Key development information, as amended**

Component	As exhibited	As amended
Site area	1,182,800m <sup>2</sup>	No change
Gross floor area of the ASB	59,000m <sup>2</sup>	No change
Maximum height	53.1m (RL 124.1)	55.3m (RL 125.3) – See <b>Section 5.4</b>
Storeys	7 storeys (plus 4 semi-basement levels)	No change
Car spaces	894	Approximately 900*  <i>*Supply is approximate as quantum of parking within each area, including ASB, may be subject to refinements during detailed design, with an overall uplift of around 900 spaces to be delivered as part of the development.</i>
Bicycle parking spaces	Staff – 24 Visitor – 24	No change
End of trip facilities	6 showers	No change
Loading dock spaces	Utilising existing JHH facilities	No change

Revised supporting documentation has been provided to describe the works and assess the impact of the development (see Table of Contents). The documentation enables DPIE to undertake an informed assessment of the refined proposal. The findings of the revised supporting consultant documentation that are relevant to the amended design are summarised in **Section 5.0** of this report.

## 5.0 Additional Information and Assessment

This section provides additional assessment of the proposed development (as refined) against the relevant matters for consideration under section 4.15(1) of the EP&A Act. The assessment is supplementary to and should be read in conjunction with the original environmental assessment provided in the EIS prepared by Ethos Urban and dated 17 May 2021.

### 5.1 Environmental Planning Instruments

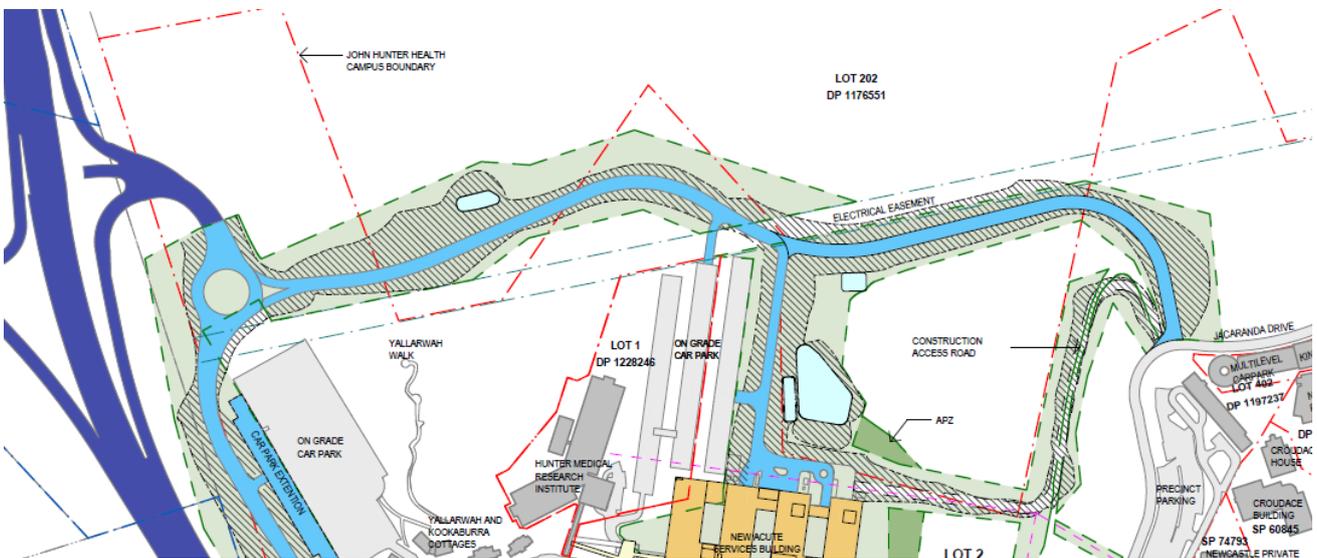
The proposed development's consistency and compliance (as refined) with the applicable statutory plans and policies remains unchanged from that which was assessed in the EIS prepared by Ethos Urban and dated 17 May 2021. Therefore, the proposal does not require any further assessment against the strategic plans, state or local legislation as provided in the EIS.

## 5.2 Realignment of northern road to Bypass and Reduction of Environmental Impacts

This application proposes a refined realignment of the northern road to the NICB, as shown in **Appendix B** and **Appendix G**. The realignment will reduce associated cut and fill volumes, reduce the road length due to a 'straightening' of the alignment, adjust the location of the biofiltration and detention system and minor realignment of the intersection with Jacaranda Drive to improve driver sight lines. The refined layout also better aligns with the electricity easement which will reduce impacts on vegetation as the easement is already clear of vegetation.

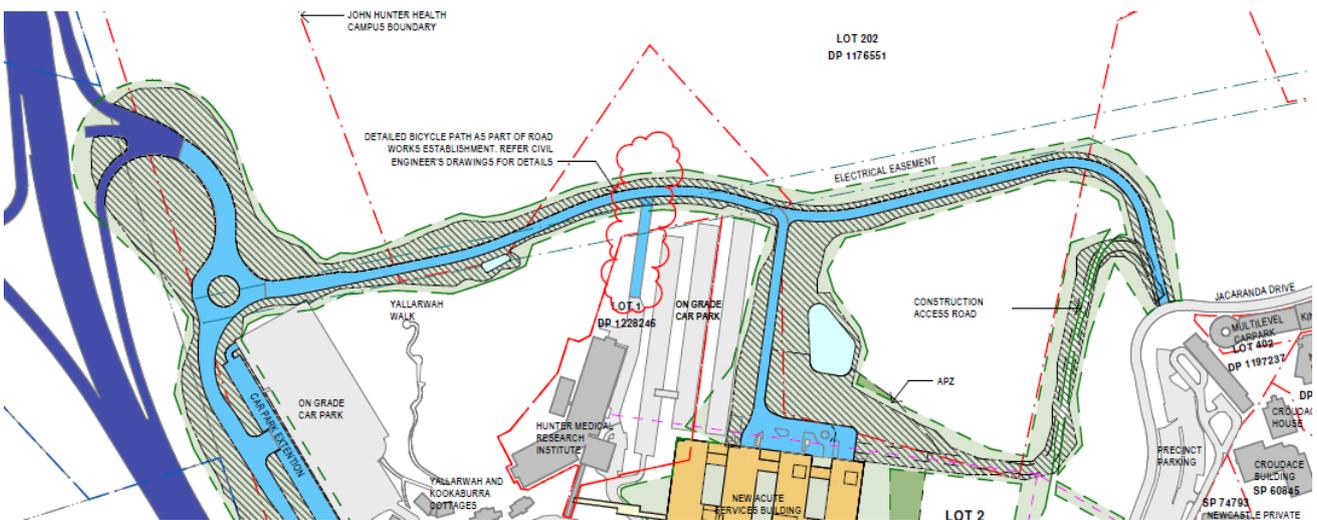
The refined design requires less bulk excavation and as a result, decreased impact on vegetation. As per the revised BDAR Assessment at **Appendix J**, the realignment results in vegetation clearing of 4.7ha as compared to 7.2ha in the original proposal,

The proposed realignment will not have any impact on the previous traffic assessment undertaken in regard to the link to the NICB or vehicle circulation. GTA have reviewed the design refinements and confirm that compliance with the relevant Australian Standards can be met (See **Appendix P**).



**Figure 6 Northern road alignment as exhibited**

Source: BVN

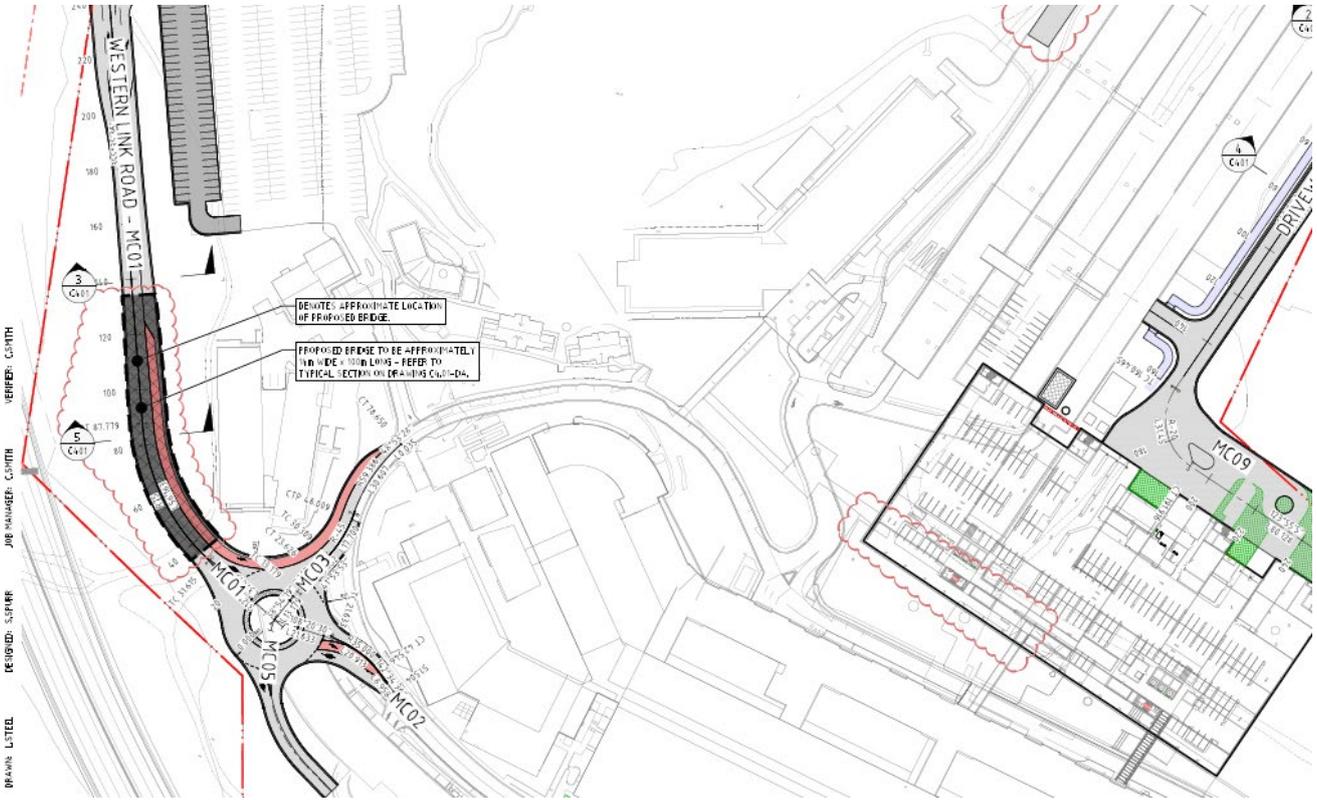


**Figure 7 Northern road alignment as refined**

Source: BVN

### 5.3 Western road bridge introduction

It is proposed that a bridge is included along the western link road to reduce filling and retaining wall extents. The proposed bridge is shown in **Figure 8**. This is a result of ongoing design development and engineering of the project to provide a better relationship of the road to adjacent buildings by reducing the steep batters with a bridge that will be less visually intrusive. The inclusion of the bridge does not result in any alteration to the previously considered environmental impacts, including biodiversity or traffic impacts.



**Figure 8** Proposed bridge on the western link road, as clouded in red.

Source: BVN Architects

### 5.4 Building Height and Helicopter Landing Site

Minor amendments to the helicopter landing site will include an air gap below the helicopter landing site and building slab to allow for air movement through this space. The proposed refinement will improve the operation of the landing site by reducing air turbulence.

The building height has accordingly changed from RL 124.1 to RL125.3 to accommodate the design refinement. This will reduce the prevailing winds up-washing across the helipad and increasing turbulence for landing helicopters.

The amended Wind Assessment at **Appendix L** confirms that the proposed refinement to the HLS do not have any impact on the previous wind testing or pedestrian comfort levels, and therefore remains satisfactory.

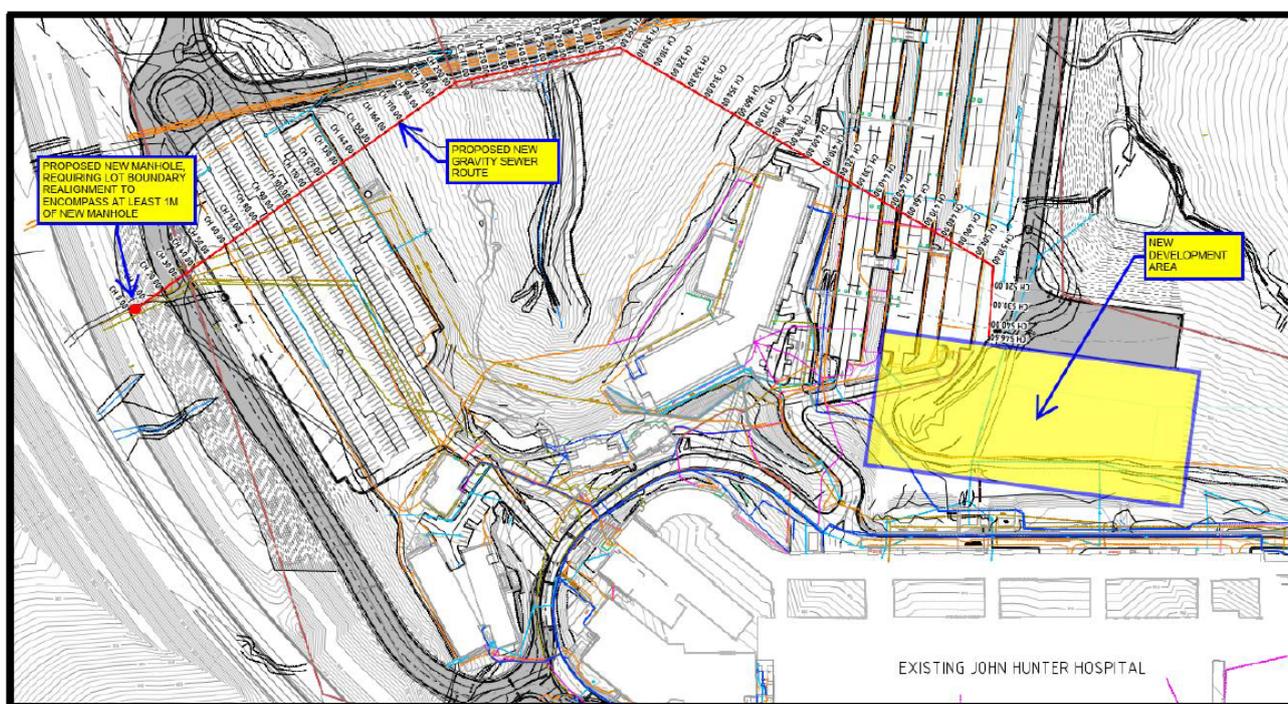
Avipro have reviewed the refined design and confirm the amendments do not have an impact on aviation safety considerations and the changes will overall improve operational performance by reducing air turbulence (see **Appendix O**).

Updated shadow diagrams have been provided by BVN at **Appendix C** that show the refined design shadow impacts are substantially unchanged compared to the original design and appropriate amenity is continued to be achieved for future users.

### 5.5 Gravity-fed sewerage system

The refinement of the gravity-fed sewerage system servicing the ASB is proposed as a result of correspondence with the Hunter Water Corporation, as discussed further in the amended Hydraulic and Fire Services Report (**Appendix M**). A new 300mm private sanitary drainage pipe is proposed for the ASB. This will provide an option to eliminate the requirement for the sewer pump station and provide capacity flexibility for the future Stage 2 development. These works do not generate any subsequent impacts (such as vegetation impacts).

The location of the gravity fed sewer line is shown at **Figure 9**.



**Figure 9** Refined gravity fed sewer line

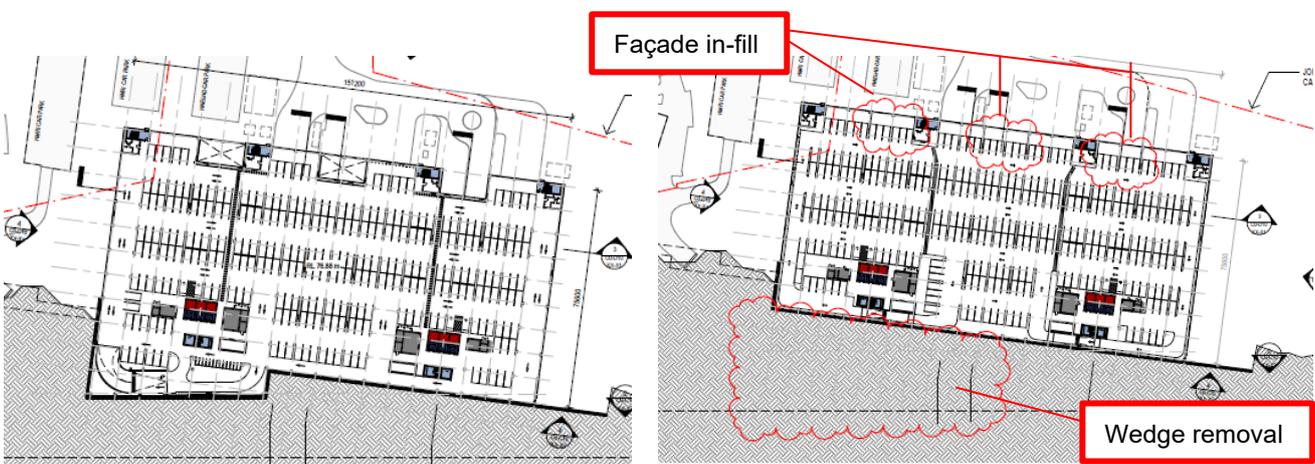
Source: Warren Smith Consulting Engineers

## 5.6 ASB basement design refinement

The building footprint has been refined to make the basement levels rectangular in shape. This refinement decreases previously available cut material from the ASB footprint and is proposed across all four levels of basement. The previously exhibited basement design (level 2 for reference) is shown at **Figure 10**, and the proposed basement design is shown at **Figure 11**, with the proposed infill elements to the façade and removal of the 'wedge' shown clouded in red. Minor refinements are also proposed to lower the level of the ASB basement level B4 by approximately one metre to improve carpark efficiency and clearances to building services.

The refined car park layout will result in minor changes to vehicle circulation. A statement from GTA consultants confirms the proposal can comply with the Australian Standard for Off Street Car Parking (AS/NZS2890.1:2004 and AS/NZS2890.6:2009) (see **Appendix P**).

Spatially, the civil design is unchanged, however bulk cut and fill volumes have been modified to reflect the refinement. Overall, the design refinement reduce the extent of excavation required for the project which is an improved environmental outcome for the project.



**Figure 10** Previous basement design (Level 2)

Source: BVN Architects

**Figure 11** Basement design as proposed (level 2)

Source: BVN Architects

## 5.7 Landscaping

Minor design refinements have been made as a result of design development to respond to issues raised by the NSW Rural Fire Service, including changes to plant types and inclusion of vegetation buffers. These are discussed further in the detailed response to submissions table at **Appendix A** and illustrated in the updated Landscape Plans and Landscape Design Report at **Appendix D** and **Appendix E** respectively.

## 5.8 Biodiversity

The project team has carried out a review of the project to ensure a refined design can minimise the extent of environmental impacts as much as possible. Design refinement include a realignment of the northern road and batters to require less bulk excavation and as a result, with significantly decreased impact on vegetation. As per the revised BDAR Assessment at **Appendix J**, the realignment results in vegetation clearing of 4.7ha as compared to 7.2ha in the original proposal which represents a significant -34 percent impact reduction.

An amended BDAR that reflects the refined design, including Ecosystem credits is provided at **Appendix J**.

## 6.0 Mitigation Measures

Since the exhibition of the EIS, the mitigation measures have been amended to respond to the Department's queries and correspond with the updated proposal and supporting documentation. Refer to **Table 2** below. Changes are indicated in the table by ~~strike through text~~ or **bold italics**.

**Table 2 Mitigation Measures**

Mitigation Measures
<p><b>Construction Hours</b></p> <p>Construction may only be carried out between the following hours:</p> <ul style="list-style-type: none"> <li>Monday-Friday: 6:00am-6:00pm</li> <li>Saturday: 7:00am-5:00pm</li> <li>Sundays and public holidays: No works</li> </ul>
<p><b>Transport and Accessibility</b></p> <p>Construction traffic will be managed with the incorporation of the following mitigation measures:</p> <ul style="list-style-type: none"> <li><b>Where possible</b>, heavy vehicle movements are to take place outside peak periods</li> <li><b>Where possible</b>, construction workers to access the site before the weekday morning traffic network peak and leave after the afternoon traffic network peak period</li> <li>Consider utilising a shuttlebus for staff <del>and service users</del> to minimise traffic and parking impacts</li> <li>A traffic management plan would be developed by the contractor and incorporated into the Construction Environmental Management Plan (CEMP).</li> <li>Construction and delivery vehicles entering or leaving the JHHIP site compound would use arterial roads wherever possible. Vehicle deliveries would be restricted to nominated times within the approved Construction Traffic Management Plan (CTMP).</li> <li><b>Work with the contractor to implement initiatives such as park and ride shuttle bus services and encourage car-pooling</b></li> <li><del>Should the Newcastle Inner City Bypass not be open prior to the opening of the ASB there is to be no uplift in the clinical capacity of the JHHHC (from the operational benchmark of 2025) until the bypass is open and connected to the JHHHC.</del></li> </ul> <p>Operational traffic will be managed with the incorporation of the following mitigation measures:</p> <ul style="list-style-type: none"> <li>Implement an operational policy to manage vehicle movements, in the event that a 19m semi-trailer is required to use Kookaburra Circuit. This will include the requirement to complete movements at designated times and in consultation with the Hospital Engineering Department to ensure no impacts to ambulances. This will also consider the management of approach routes to ensure ambulances have right of way, with ambulances arriving from the west and semi-trailers arriving from the east.</li> </ul>
<p><b>Noise and Vibration</b></p> <p>The construction and operation of the proposal will be in accordance with the Noise and Vibration Assessment prepared by Acoustic Studio, as follows:</p> <ul style="list-style-type: none"> <li>Schedule noisy activities to less sensitive times of the day for each nominated receiver (i.e. daytime hours).</li> <li>Including Respite Periods where activities are found to exceed the 75 dB(A) Highly Affected Noise Level at receivers, such as 3 hours on and 1 hour off.</li> <li>Carry out vibration surveys on each key vibration-generating activity.</li> <li>Mechanical plant - Noise controls will be incorporated within the design any other plant located outdoors in accordance with the recommendations of the Noise and Vibration Assessment prepared by Acoustic Studio.</li> </ul>
<p><b>Aboriginal Heritage</b></p> <p>The following mitigation and management measures are proposed by Umwelt in the ACHAR at <b>Appendix N</b>.</p> <ul style="list-style-type: none"> <li>Ensure employees and contractors are aware that it is an offence under Section 86 of the NPW Act to harm or desecrate an Aboriginal object unless that harm or desecration is the subject of an AHIP or approved management plan.</li> <li>In the unlikely event that an Aboriginal object is exposed during works, all works in the vicinity of the object should cease and advice should be sought from an archaeologist and the registered Aboriginal parties in regard to management of the object(s).</li> <li>In the unlikely the event that suspected human skeletal material be identified within the Project Area, all works should cease immediately and the NSW Police Department, NSW Heritage, DPC and the registered Aboriginal parties should be contacted so that appropriate management strategies can be identified.</li> </ul>
<p><b>Heritage</b></p> <ul style="list-style-type: none"> <li>In the unlikely event that intact remains are unexpectedly discovered during works, work must cease, an appropriately qualified archaeologist consulted with. If appropriate, the Heritage Council should be notified in accordance with section 146 of the Heritage Act.</li> </ul>

## Mitigation Measures

### Waste

- A detailed Construction Waste Management Plan (CWMP) shall be prepared by the Contractor. This is to include accurate estimates of waste quantities to ensure appropriate onsite waste management in accordance with the waste management hierarchy.
- Operational waste is to be in accordance with NSW Health waste management practices and policies.

### Stormwater

- The proposal will be designed in accordance with the Civil Report dated March 2021, **and August 2021** and Civil Drawings prepared by Northrop and dated **August March 2021**.

### Tree Removal

The mitigation measures outlined in the Aborigicultural Impact Assessment tree protection specification prepared by Arborsafe dated 19 April 2021 are to be followed.

- The main tree protection fencing should be based on the site perimeter fence and on excluding the retained trees from the construction zone. Individual fencing may be required in certain instances.
- In the event excavation is required within the TPZs of retained trees, arborist involvement will be required to ensure works are undertaken in accordance with the Australian Standard AS 4970–2009: Protection of Trees on Development Sites.
- Excavation/trenching required within the TPZs of retained trees to facilitate service installation should be undertaken using sensitive construction methods such as under boring, manual excavation, hydro-vac or air spade, light machinery with spotter and ground protection.
- Reduction pruning should focus on the removal of smaller diameter branches where feasible and remove no greater than 10% of the total crown. Branches no greater than 50mm diameter are to be removed unless specifically approved by the project arborist

### Biodiversity

- The project will be required to satisfy Biodiversity Offset credits in accordance with the project staging outlined in the BDAR prepared by Umwelt dated ~~March~~ **August 2021**. Phase 1 will require ~~354~~ **227** credits and Phase 2 will require ~~62~~ **33** credits to be satisfied.
- **All nest boxes in trees that may be cleared are to be moved to trees in the adjacent forest that are outside of any development footprint**

### Mine Subsidence

- Mine subsidence works are to be in accordance with the preliminary grouting works specification and recommendation of Subsidence Australia as set out by RCA Australia ~~dated 8 April 2021~~ (under separate cover).

### ESD

- Unless otherwise agreed by the Planning Secretary, the Applicant must demonstrate that ESD is being achieved by either:
  - (a) registering for a minimum 5 star Green Star rating with the Green Building Council Australia and submit evidence of registration to the Certifier;
  - or (b) seeking approval from the Planning Secretary for an alternative certification process.

### Aviation

- Standard obstacle/obstruction lighting to the crane(s) will provide an adequate additional level of safety and assure ongoing, existing HLS operations during construction.

### Wind

- Incorporate the design measures identified by Windtech in accordance with the Pedestrian Microclimate CFD Study dated April 2021 **and addendum statement dated 9 August 2021**

### Newcastle Inner City Bypass

- **Should the Newcastle Inner City Bypass Rankin Park to Jesmond road works approved as part of State Significant Infrastructure approval SSI 6888 not be completed by the commencement of operations of the Acute Services Building, the proponent shall identify appropriate management measures (such as ensuring there is no uplift in clinical activity, staggered staff start and finish times, modified visiting hours) to minimise traffic growth on the John Hunter Hospital Campus during peak periods to the satisfaction of the Secretary. These measures shall be implemented until the completion of the Newcastle Inner City Bypass Rankin Park to Jesmond road works.**

### Bushfire

- **A Bushfire Emergency Management and Evacuation Plan is to be completed prior to the issue of the occupation certificate.**

## 7.0 Conclusion

The applicant and project team have considered all submissions made in relation to the public exhibition of the proposal. A considered and detailed response to all submissions has been provided within the accompanying documentation.

In responding to and addressing the range of matters raised, the proposal has been refined pursuant to Clause 55 of the *Environmental Planning and Assessment Regulation 2000*.

We trust that the responses provided above will enable DPIE to finalise their assessment of the SSDA. Given the environmental planning merits (and the ability to suitably manage and mitigate any potential impacts) and significant public benefits proposed, it is requested that the Minister approve the application.