

## Appendix A Response to Government and Agency Submissions

The following is a response to the full text of submissions provided by or on behalf of State and local government agencies. For completeness, the full text of each submission is provided in the left-hand column, accompanied by the proponent's corresponding response in the right-hand column. The proponent's responses have been informed by input by the expert consultant team, and should be read in conjunction with the publicly exhibited Environmental Impact Statement and accompanying technical reports, as well as the Response to Submissions Report to which this document is appended.

The relevant agencies can be found at the following page references:

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Issue	Response
<b>1. Department of Planning and Environment</b>	
<b>Floor Space Ratio (FSR)/Gross Floor Area (GFA)</b>	
The Department considers the appropriateness of the proposed GFA to be closely linked with how the proposal addresses a range of key issues including future built form, setbacks, open space, deep soil planting, biodiversity/tree removal, overshadowing/solar access and traffic generation.	Refer to the responses below.
The Department has set out how each of these particular issues need to be addressed below. Additionally:	
<ul style="list-style-type: none"> <li>provide further justification why the development seeks to maximise the permissible FSR (and affordable housing bonus) for entirely residential uses while seeking a variation to allow other uses that might reasonably form an integral part of a development of this scale and tenure i.e. retail, Mission Australia offices, child care centres and community facilities</li> </ul>	The Response to Submissions report and revised Clause 4.6 Variation Request for FSR set out the justification for the proposed GFA and the application of FSR bonuses. Refer to <b>Appendix F</b> .
<ul style="list-style-type: none"> <li>review the clause 4.6 FSR variation request in response to the issues identified below as required.</li> </ul>	A revised Clause 4.6 Variation Request is provided at <b>Appendix F</b> .
<b>Built Form and Urban Design</b>	
<i>Concept Plan Design</i>	
<ul style="list-style-type: none"> <li>Review the plans for approval to provide more certainty regarding the proposed form of future development.</li> </ul>	<p>The drawings have updated to include additional detail, including:</p> <ul style="list-style-type: none"> <li>Setbacks.</li> <li>Building separation.</li> <li>Deep soil zones.</li> </ul> <p>These drawings are supplemented by the Ivanhoe Masterplan Design Guidelines, which provide detailed guidance on the form of future development across the site.</p>
<ul style="list-style-type: none"> <li>Demonstrate how the proposed GFA is accommodated in each of the proposed envelopes.</li> </ul>	The Indicative Design Scheme at <b>Appendix E</b> illustrates how GFA may be distributed across the proposed building envelopes.
<ul style="list-style-type: none"> <li>Confirm it is intended to achieve recommended ADG requirements for solar access and cross ventilation for each future residential apartment building rather than averaged across the overall site.</li> </ul>	<p>The preliminary assessment demonstrates that future buildings are capable of compliance with the majority of key design criteria recommended by the ADG, including solar access and cross ventilation.</p> <p>Across the site, solar access is achieved to 70% of all dwellings. Within each block, the Indicative Design Scheme illustrates that the recommended solar access criteria can be achieved for all buildings, with the exception of A1 and A2.</p>
<ul style="list-style-type: none"> <li>Clarify why the design report appears to include single aspect apartments as cross-ventilated.</li> </ul>	A revised preliminary assessment against the ADG is included at <b>Appendix D</b> and illustrates how cross ventilation has been calculated using the Indicative Design Scheme.
<i>Impacts to Adjoining Properties</i>	

Issue	Response
<ul style="list-style-type: none"> <li>Provide further consideration of the proposed development in relation to the approved redevelopment at 137-143 Herring Road. This should be accompanied by revised drawings, shadow diagrams and relevant Apartment Design Guide (ADG) analysis including building separation and solar access to both the subject site and the approved development at 137-143 Herring Road.</li> </ul>	<p>The Masterplan has been updated to consider the approved development at 137-143 Herring Road. This includes:</p> <ul style="list-style-type: none"> <li>Provision of maximum separation distance recommended by the ADG.</li> <li>Updated shadow diagrams and solar access analysis.</li> <li>Incorporation of design guidance to maintain privacy in the Ivanhoe Masterplan Design Guidelines.</li> </ul>
<ul style="list-style-type: none"> <li>Provide further consideration of the proposed development in relation to the likely future form/scale of development on sites to the north-east (Peach Tree Road) i.e. building separation, solar access, privacy.</li> </ul>	<p>The revised Masterplan has considered the relationship to existing and future development on Peach Tree Road in the following ways:</p> <ul style="list-style-type: none"> <li>Setbacks and building separation are provided in accordance with the requirements of the ADG or the RDCP.</li> <li>Visual privacy will be maintained through the provision of adequate separation distance and future detailed design measures.</li> </ul> <p>Adjoining properties on Peach Tree Road are located north of the site and, as a result, development subsequent to the Masterplan will not cast shadow on the properties on Peach Tree Road.</p>
<ul style="list-style-type: none"> <li>Provide more detailed overshadowing analysis of properties in Epping Road to the south-west of the site, particularly noting the location of private open space in the Epping Road setback of nos. 178 to 190 Epping Road.</li> </ul>	<p>Updated shadow diagrams have been prepared by Bates Smart and consider the impact of properties on Epping Road, as discussed in further detail in the Response to Submissions report.</p>
<i>Setbacks</i>	
<ul style="list-style-type: none"> <li>Provide further information and consideration of the proposed setbacks indicated on the proposed envelope control plan to the site boundaries and between each development block. This should include consideration of minimum ADG setback recommendations, solar access, landscaping, and the need to achieve visually appropriate and desirable spaces between buildings.</li> </ul>	<p>The refined Masterplan includes additional detail for setbacks, building separation and deep soil planting zones. In addition, to the Indicative Design Scheme and Supplementary Design Report provide further assessment against the key design criteria recommended by the ADG.</p>
<ul style="list-style-type: none"> <li>Provide further information and consideration of the proposed setbacks/buffer zone from the edge of the 20 m wide Shrimptons Creek riparian zone.</li> </ul>	<p>The refined Masterplan has provided an increased setback to the Shrimptons Creek riparian zone, resulting in the provision of additional green space around the riparian corridor and an improved buffer zone. This is discussed in further detail in the Response to Submissions report.</p>
<ul style="list-style-type: none"> <li>Provide further consideration of proposed future building forms (facade length, upper and lower level setbacks), particularly in relation to public domain areas including Shrimptons Creek.</li> </ul>	<p>The updated Ivanhoe Masterplan Design Guidelines include specific provisions for the built form adjoining public domain areas and Shrimptons Creek to ensure that future buildings complement the public domain and create a pedestrian-scale environment.</p>
<ul style="list-style-type: none"> <li>Provide further consideration of the proposed basements to increase levels of deep soil landscaping for each development block and avoid areas of basement potentially extending above surrounding ground levels.</li> </ul>	<p>The basement footprint has been refined to provide increased areas for deep soil planting. The basement is located below existing ground level, as illustrated on the plans at <b>Appendix C</b> and <b>Appendix E</b>.</p>
<ul style="list-style-type: none"> <li>Clarify why the indicative roof plan (DA02.MP.030(3)) indicates a one storey element built to the boundary of Lots A1 and A2.</li> </ul>	<p>This one storey element is the podium and is intended to accommodate the outdoor area of the future child care.</p>
<i>Open Space</i>	

Issue	Response																								
<ul style="list-style-type: none"><li>Advise of the comparable urban renewal projects referred to in section 5.5 and Appendix U of the EIS in relation to quantum of open space per head of population.</li></ul>	<p>The comparable urban renewal projects referred to are as follows:</p> <table><thead><tr><th>Place</th><th>% land area open space</th><th>Open space area if applied to Ivanhoe</th><th>Open space per head of population applied to Ivanhoe future population (6,885)</th></tr></thead><tbody><tr><td>Harold Park</td><td>36</td><td>2.8ha</td><td>Approx. 0.4ha / 1,000 people</td></tr><tr><td>North Eveleigh</td><td>14</td><td>1.1ha</td><td>Approx. 0.15ha / 1,000 people</td></tr><tr><td>Green Square</td><td>10 – 14</td><td>0.8 – 1.1ha</td><td>Approx. 0.11ha – 0.15ha / 1,000 people</td></tr><tr><td>Barangaroo South</td><td>10.5</td><td>0.8ha</td><td>Approx. 0.11ha / 1,000 people</td></tr><tr><td>DOP 2010 guidelines</td><td>9 – 15</td><td>0.7 – 1.2ha</td><td>Approx. 0.10ha – 0.17ha / 1,000 people</td></tr></tbody></table>	Place	% land area open space	Open space area if applied to Ivanhoe	Open space per head of population applied to Ivanhoe future population (6,885)	Harold Park	36	2.8ha	Approx. 0.4ha / 1,000 people	North Eveleigh	14	1.1ha	Approx. 0.15ha / 1,000 people	Green Square	10 – 14	0.8 – 1.1ha	Approx. 0.11ha – 0.15ha / 1,000 people	Barangaroo South	10.5	0.8ha	Approx. 0.11ha / 1,000 people	DOP 2010 guidelines	9 – 15	0.7 – 1.2ha	Approx. 0.10ha – 0.17ha / 1,000 people
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<ul style="list-style-type: none"><li>Further demonstrate the level of solar access to proposed public open space areas including the town plaza, village green, forest playground, Shrimptons Creek park and the Epping Road reserve.</li></ul>	<p>The solar access analysis prepared by Bates Smart illustrates the number of hours that each public open space receives on 21 March, June, September and December. Refer to <b>Appendix D</b> for further detail.</p>																								
<p>The Department requests further consideration be given to matters raised by Council regarding:</p>	<p>-</p>																								
<ul style="list-style-type: none"><li>The limited capacity of existing sports fields to absorb the additional demand</li></ul>	<p><b>Meeting need for active open space on site</b></p> <p>The design of the Ivanhoe redevelopment has been revised to incorporate a larger village green of approximately 6,000m<sup>2</sup>.</p> <p>Best practice planning for open space recognises that it is often not practical, nor efficient to incorporate active open space in higher density developments. This is due to the fact that active recreational space is best provided in sports hubs with multiple sporting fields that both provide a focus for the community and allow structured sporting activity to be organised efficiently.</p> <p>Therefore, our view is that the better approach for meeting additional demand for active open space is to boost capacity of existing sporting fields in the area.</p>																								
<ul style="list-style-type: none"><li>the development should provide active open space/recreational facilities to meet its own needs</li></ul>	<p>The Ivanhoe redevelopment meets best practice requirements for open space in high density areas through providing:</p> <ul style="list-style-type: none"><li>Access to open space within 250m for residents</li><li>2.4 hectares or nearly 30% of the site as public open space, not including communal and private open space</li></ul>																								

Issue	Response
	<ul style="list-style-type: none"> <li>Multi-functional and diverse play and recreational spaces suited to a range of age groups and all abilities</li> <li>Shared use of school open space and recreational facilities.</li> </ul> <p>Given the demographics of the future population and the fact participation rates in structured sporting activities decline significantly after age 17, the greatest demand for open space from the future population at Ivanhoe will be for passive, unstructured open spaces. The amount of open space provided will allow university students and workers in the area to utilise these spaces and facilities.</p> <p>The site has been redesigned to include a village green &amp; proposed community centre that is large enough to incorporate active open space, but provision of sporting fields on the site would not meet best practice. Active recreational space is best provided in sports hubs with multiple sporting fields, rather than single fields sprinkled throughout communities. Sporting hubs both provide a focus for the community and allow structured sporting activity to be organised efficiently.</p>
<ul style="list-style-type: none"> <li>open space/recreation requirements for the proposed high school.</li> </ul>	<p>The vertical school will be designed to have a series of breakout spaces, external terraces, roof top gardens/courts, internal lower level gymnasium and courts. In addition to these spaces, incorporated into the built form there will also be ground level external plays areas and the school will benefit from the spaces within Ivanhoe which include the village green, forest playground, Shrimptons Creek - all which have been increased in size from the exhibited Masterplan. In addition, the school will have access to the proposed Ivanhoe community centre which will include a 25m indoor pool, gymnasium and community spaces.</p> <p>More broadly the school like many other schools will utilise both private and public local opens space to supplement formal sporting needs as and when required. Through all of these spaces the open space and recreational requirements of the school will be accommodated.</p>
<b>Biodiversity and Trees</b>	
<ul style="list-style-type: none"> <li>Investigate potential revisions to the proposed scheme that would allow the retention of additional trees, particularly reducing impacts to those forming part of the Sydney Turpentine Ironbark Forest endangered ecological community.</li> </ul>	<p>The refined Masterplan allows for the retention of an increased amount of Sydney Turpentine Ironbark Forest, resulting in only 0.28 hectares being removed.</p>
<ul style="list-style-type: none"> <li>Consider and demonstrate the impact of future basement excavation and road construction on significant trees to be retained, located within and adjoining the site.</li> </ul>	<p>The updated Arboricultural Impact Assessment at <b>Appendix H</b> has considered the impact of future basement excavation and road construction. During construction, trees to be retained will be protected in accordance with the Tree Management Plan.</p>
<ul style="list-style-type: none"> <li>Provide further consideration/assessment of the impact on remaining vegetation from overshadowing and limited light and calculate the reduction in the conservation value of vegetation to be retained.</li> </ul>	<p>The updated Biodiversity Assessment Report at <b>Appendix I</b> considers potential impacts as a result of overshadowing as immeasurable and notes that all vegetation on the site will be monitored in accordance with a Vegetation Management Plan. The protocols included as part of this</p>

Issue	Response
	Vegetation Management Plan will minimise and mitigate any potential impacts on retained vegetation.
<ul style="list-style-type: none"> <li>Provide more information on intended future tree planting including approximate numbers of proposed tree species and location, mature heights, and length of time until maturity.</li> </ul>	Future tree planting is illustrated on the Public Domain Masterplan at <b>Appendix D</b> . In addition to this, the first two stages of development will provide the majority of the public domain throughout the site and will comprise a range of species of varying heights and maturity to contribute to the creation of a tree canopy throughout the site. Detailed landscape plans will be provided as part of the Stage 1 application.
The Department requests further consideration be given to matters raised by the Office of Environment and Heritage (Environment) (OEH) regarding:	-
<ul style="list-style-type: none"> <li>Retention of the existing endangered ecological community and adjoining vegetation community along Epping Road</li> </ul>	The refined Masterplan retains an increased amount of the existing endangered ecological community and adjoining vegetation along Epping Road, as outlined in the Response to Submissions report.
<ul style="list-style-type: none"> <li>Deficiencies in the Biodiversity Assessment Report</li> </ul>	An updated Biodiversity Assessment Report is provided at <b>Appendix I</b> .
<ul style="list-style-type: none"> <li>Provision of an enhanced buffer between the proposed development footprint and Shrimptons Creek.</li> </ul>	The refined Masterplan includes an additional 5 metre setback from the edge of the riparian corridor, resulting in a minimum setback of 25 metres from Shrimptons Creek. This setback area is increased further in certain areas, allowing for the provision of additional green space adjacent to the riparian corridor.
In particular, the Department requires a response to OEH's view that the proposed development fails to avoid direct impacts on threatened ecological communities and that inadequate planning/siting of the proposal has been carried out.	The Biodiversity Assessment Report at <b>Appendix I</b> outlines how the siting and planning of the development has appropriately mitigated impacts on threatened ecological communities and that the proposed impacts can be appropriately minimised and offset.
<b>Traffic and Parking</b>	
The Department requests further consideration be given to matters raised by Transport for New South Wales (TfNSW) regarding:	-
<ul style="list-style-type: none"> <li>provide further intersection modelling regarding the proposed intersection of Main Street and Lyonpark Road</li> </ul>	The additional traffic modelling requested has been undertaken and is presented in the revised report prepared by Ason.
<ul style="list-style-type: none"> <li>provide a revised staging plan confirming the provision of an accessible turnaround following signalisation of the Herring Road/Ivanhoe Place intersection</li> </ul>	The proposed staging plan is provided at <b>Appendix C</b> and illustrates that a U-turn facility will be provided at Stage 1.
<ul style="list-style-type: none"> <li>provide confirmation the design of Main Street will be able to accommodate 14.5 m buses and incorporate appropriate indented bus stop bays.</li> </ul>	The Masterplan design is able to accommodate 14.5m buses and bus stop bays, as outlined in the Concept Engineer Plans at <b>Appendix U</b> .
<p>The Department requests further information also be provided regarding the following matters raised by the Department's Traffic Consultant (see Attachment B):</p> <ul style="list-style-type: none"> <li>traffic generation rates, modelling methodology, trip distribution and traffic assignment</li> <li>intersection operation</li> <li>site access</li> <li>car and bicycle parking.</li> </ul>	An updated Transport Assessment, addressing all matters raised by the Department's Traffic Consultant, is provided at <b>Appendix M</b> . Where relevant, detailed responses are provided below and in the covering Response to Submissions report.

Issue	Response
The Department also requests a response to comments from Council regarding traffic, car parking, vehicle access and shared user path links.	Detailed responses to Council's comments are provided at the relevant sections below.
<b>Other Matters</b>	
<ul style="list-style-type: none"> <li>Provide an updated strategic context regarding the Greater Sydney Region Plan and North District Plan.</li> </ul>	An assessment against the updated strategic plans is provided in the Response to Submissions.
<ul style="list-style-type: none"> <li>Provide an Aboriginal Cultural Heritage Assessment Report, a Biodiversity Offset Strategy and the BioBanking Credit Calculator (see OEH submission).</li> </ul>	Aboriginal and historical assessment was undertaken and the results did not identify any Aboriginal Artefacts, PADs or sites and confirm that the study area was highly developed and had low potential for any intact sub-surface archaeological site. Therefore, an Aboriginal Cultural Heritage Assessment Report is not required. A Biodiversity Offset Strategy and the BioBanking Credit Calculator is provided at <b>Appendix I</b> .
<ul style="list-style-type: none"> <li>Provide a revised Arboricultural Impact Assessment (see Council's submission).</li> </ul>	A revised Arboricultural Impact Assessment to address the matters raised in Council's submission is provided at <b>Appendix H</b> .
<ul style="list-style-type: none"> <li>Review the proposed Ivanhoe Urban Design Guide in accordance with issues identified above and in submissions received.</li> </ul>	A revised Ivanhoe Masterplan Design Guideline has been prepared and is provided at <b>Appendix G</b> .
<ul style="list-style-type: none"> <li>Provide a revised Social Impact Assessment (SIA). The revised SIA shall address the matters identified in Attachment C.</li> </ul>	An addendum to the SIA is provided at <b>Appendix S</b> .
<ul style="list-style-type: none"> <li>Clarify the maximum GFA of the proposed school as section 3.2.1 and Table 9 of the EIS state the maximum GFA will be 9,006m<sup>2</sup> but Table 2 provides a GFA range of 9,006m<sup>2</sup> to 9,907m<sup>2</sup>.</li> </ul>	The GFA of the proposed school will be in the range of 7,000 – 12,500m <sup>2</sup> , as set out in the covering Response to Submissions report.
<ul style="list-style-type: none"> <li>Provide a revised Quantity Surveyor Report that includes a close estimate of the jobs that will be created by the development during construction and operation.</li> </ul>	A revised Quantity Surveyor Report is provided at <b>Appendix T</b> .
<ul style="list-style-type: none"> <li>Provide landowner's consent.</li> </ul>	Landowner's consent will be provided prior to the determination of the application.
<ul style="list-style-type: none"> <li>Provide a revised acoustic assessment with background noise levels measured in accordance with the NSW Noise Policy for Industry.</li> </ul>	The Acoustic Assessment submitted with the original SSD DA is prepared in accordance with the NSW Noise Policy for Industry.
<ul style="list-style-type: none"> <li>Provide consideration of potential noise impacts from operation of the future high school, including out of hours community use, on neighbouring residents.</li> </ul>	Any noise impacts as a result of out of hours use of the school would be required to comply with the recommended noise levels by the EPA Industrial Noise Policy and would be considered as part of a future separate application.
<ul style="list-style-type: none"> <li>Provide a breakdown of proposed external open space areas for the high school and each child care centre.</li> </ul>	This will be subject to the detailed development applications. As outlined below, there will be ample opportunity to provide both internal and external play space and facilities.
<ul style="list-style-type: none"> <li>Provide further information regarding the proposed high school envelope and its ability to meet the operational requirements of approximately 1,000 students.</li> </ul>	An allowance of 9sqm (GFA) per student has been included in the indicative design which is appropriate for a school of this nature. The envelope for the school has been established allow flexibility for the design of the school but to ultimately fit the 9,000 sqm GFA required for a 1,000 student school (excluding childcare). The envelope will allow for classrooms, internal breakout spaces, external terraces and external courts and assembly spaces.
<ul style="list-style-type: none"> <li>Confirm anticipated timing for the provision of the proposed community facilities in relation to other stages.</li> </ul>	The delivery of community infrastructure will be generally in accordance with the staging plans prepared by Bates Smart.

Issue	Response
<ul style="list-style-type: none"> <li>Clarify the status and timeframe of the proposed Voluntary Planning Agreement with Council.</li> </ul>	A letter of offer was submitted to the City of Ryde on 18 July 2018 and negotiations have commenced. It is expected that a planning agreement will be executed following the approval of Stage 1, and that there will be a mechanism to ensure contributions are paid in the form of a bank guarantee for the first stage of development.
<ul style="list-style-type: none"> <li>Provide further information regarding intended surveillance/crime prevention measures for the location of the proposed pedestrian bridge below the road bridge.</li> </ul>	The updated CPTED report includes further consideration of the surveillance and crime prevention measures for the pedestrian bridge, including the provision of lighting and an extension of surveillance measures to be implemented throughout the riparian corridor.
<ul style="list-style-type: none"> <li>Clarify proposed easement arrangements for Lot 1 DP609711 (137-143 Herring Road).</li> </ul>	The easement plan has been registered.
<ul style="list-style-type: none"> <li>Clarify whether the 9 am, 10 am and 11 am midwinter shadow diagrams (Drawing 21.MP.100(1)) illustrate the full extent of overshadowing.</li> </ul>	The revised shadow diagrams illustrate the full extent of overshadowing for both the proposed envelopes and indicative design scheme.
<b>Plans and Images</b>	-
The Department requests the following plans and images are provided:	-
<ul style="list-style-type: none"> <li>Revise the proposed envelope control plan to include the proposed building envelope locations and minimum setbacks illustrated in the indicative plans.</li> </ul>	The Building Envelope Control plan has been revised to include minimum setbacks and separation distances.
<ul style="list-style-type: none"> <li>Provide proposed building envelope elevations.</li> </ul>	Building envelope elevations are included at <b>Appendix E</b> .
<ul style="list-style-type: none"> <li>Provide an FSR/GFA distribution plan illustrating each development block.</li> </ul>	Drawing DA02.MP.030[4] illustrates the indicative GFA which could be achieved in each block.
<ul style="list-style-type: none"> <li>Provide plans illustrating the proposed distribution of land uses including affordable, social and market dwellings.</li> </ul>	DA02.MP.000[10] illustrates the distribution of land uses throughout the site. Market, social and affordable housing will be distributed throughout the site to ensure that tenure blindness is achieved and will be detailed as part of development applications for future stages.
<ul style="list-style-type: none"> <li>Provide more detailed solar access plans demonstrating a minimum of 50% of principle areas of communal open space would be capable of receiving a minimum of two hours of solar access between 9am and 3pm in midwinter.</li> </ul>	Detailed solar access diagrams are provided at <b>Appendix D</b> .
<ul style="list-style-type: none"> <li>Provide additional view point images of the proposed development from: <ul style="list-style-type: none"> <li>the southern side of Epping Road looking north from 172 Epping Road frontage</li> <li>the southern side of Epping Road looking north-east from 198 Epping Road frontage</li> <li>the northern side of the Shrimpton Creek/Epping Road underpass looking north-east</li> <li>the Shrimpton Creek pathway looking north-west along proposed Main Street.</li> </ul> </li> </ul>	The Visual Impact Assessment has been updated and includes additional view points as requested.
<b>2. City of Ryde Council</b>	
<b>1. General Issues with regards to the Master Plan</b> The Master Plan sets up a framework of 15 development blocks in four precincts comprising various stages of development. The development will comprise of 18 buildings. The following general issues have been identified which require further clarification or amendments to the proposal:	-
Lack of clarity in relation to staging of development: The staging of the development is not clear. There are no clear indication of the logistics, sequence and completion timing of each stage. Also there are two stages of "Stage 02" and also separate "Stage A" and "Stage B". It is not known also as to the construction and delivery of	A staging plan has been prepared by ADW Johnson (refer to <b>Appendix #</b> ) and Bates Smart illustrating the proposed staging.



Issue	Response
the roads and bridge whether it is anticipated under first stage of construction or subsequent stages. If the delivery of the roads and bridge is to be provided at a later stage, the applicant should demonstrate that the existing access point is adequate to accommodate the required vehicular movements. The matter of staging must be clarified.	<p>Delivery of the roads and bridge will be undertaken as part of the Stage 1 &amp; 2 works, for which a separate SSD DA is being prepared. The delivery of this infrastructure will be completed in phases.</p> <p>Stage A &amp; B – These stages will be completed in coordination with future operators of the facilities. These stages could occur any time after the completion of Main Street.</p>
Building Envelopes in the Master Plan is confusing. The Envelope Control Plan (DA01.MP.100[3] shows that the building envelopes for B1.1, B1.2 and B2 are connected to each other without the required building separation and could be misread should such a plan be stamped approved. Similarly buildings A1, A2, A3 and D1 are all shown connected to each other without regards for building separation and setbacks. The building envelopes should be setting an appropriate scale for future development in terms of bulk and height relative to the streetscape, block and lot sizes. As proposed, this plan may result in future development having a massing that is inappropriate for the desired urban form and character of the locality. This is the plan submitted for approval and must provide adequate clarity in relation to building footprint, boundary setbacks and the building separation distances.	<p>The building envelopes proposed represent the maximum development parameters within which a future building could be constructed. All future buildings would be subject to separate planning approval, which would require the relevant built form controls in relation to building separation and setbacks to be applied.</p> <p>The refined Envelope Control Plan includes DCP setback and ADG separation distances to demonstrate that the proposed envelopes establish appropriate massing for the site.</p>
Unacceptable level of tree removal: The development proposes the removal of 311 tree which are located within the site, adjoining street verge and Shrimptons Creek corridor. Forty-five (45) of these trees are of high retention value. It is noted that this is an estimate only as the details are not clearly presented in the application (see discussion under Section 6). It should be noted that 547 trees have already been approved for removal as part of the approval for demolition works by the Department of Housing under Part 5 of the EP&A Act. This results in a total loss of 858 trees. The tree removal will have a significant negative impact on a large tract of Sydney Turpentine Ironbark Forest as well as the landscape character of the area. This issue has been discussed in greater detail in Section 6 of the submission.	The Masterplan has been refined to allow for retention of a greater number of trees and native vegetation. This is discussed in the covering Response to Submissions Report.
Road reference: The roads are not numbered on all plans for ease of reference.	The roads are numbered on the Architectural Masterplan drawings prepared by Bates Smart and on the Concept Engineering Plans prepared by ADW Johnson at <b>Appendix U</b> .
Lack of regard to the Urban Design Guide for Ivanhoe Estate Redevelopment. Council has previously prepared a document entitled "Design Guidelines for Ivanhoe Estate Redevelopment". (See attachment 1 for a copy of this document). This document was prepared in conjunction with the owner of the site and formed part of the tender documents issued to all interested parties. The Guidelines provide a design framework for the site in relation to matters such as built form, public domain, site planning, building design and transport. The proposed Master Plan is inconsistent with the objectives of this document as demonstrated throughout this submission.	The proposed Master Plan has been developed following rigorous urban design analysis undertaken by Bates Smart and Hassell. The proposed Master Plan is generally consistent with the objectives of the Urban Design Guide for Ivanhoe Estate Redevelopment and any variation has been informed by urban design, environmental constraints and operational requirements.
Road Connection: Future road for connection to Peach Tree Road on the northern side of the site has not been shown on the Master Plan. Although this road is not shown in the Access Network in Part 4.5 of Ryde DCP 2014, a future road connection has been discussed with the applicant. Such a road will increase the permeability throughout this area. Council seeks that a clear gap be provided between Building B2 and B1.2 to enable road connectivity to Peach Tree Road as demonstrated in Figure 1. This gap will need to accommodate a 14.5m wide road as well as the appropriate setback.	The refined Masterplan includes a potential future connection to Peach Tree Road. This is shown on the Envelope Control Plan at <b>Appendix C</b> .

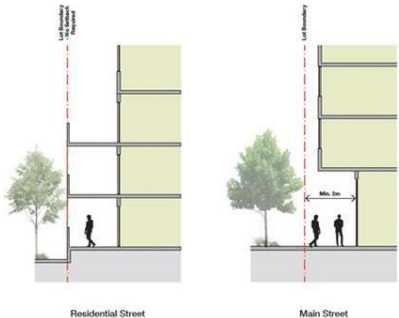

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<div data-bbox="159 240 1133 858"></div> <p data-bbox="159 861 851 882">Figure 1. Plan showing the required road connection to Peach Tree Road.</p> <p data-bbox="159 901 1227 1220">Road width. Council's DCP2014 Part 4.5 Figure 4.1.1 requires that main street on the Master Plan is to be 20m wide. This road provides connection through to Lyonpark Road. This road is shown as St 1 on plan DA.MP.004[3] and referred to as Road No. 3 on Ryde DCP2014. The Master Plan shows the proposed main street (St 1) as 23.4m wide along majority of its length. However the width of this road is narrowed down significantly adjacent to building B1.1, at the connection to the proposed bridge and the bridge itself. This results in a road configuration that is different to the roads proposed under the DCP. The reduced width is likely to result in creating various pinch points and substandard infrastructure. A traffic bottleneck may also result especially given the narrow width within close proximity to the Herring Road intersection and alleviates all options for Council to ever widen that part of the road if the demand so requires in the long term. This also will have issues in relation to the provision of utilities, street car parking, street lighting, planting and shared pathway along the street to provide connectivity to Herring Road intersection. In addition this has serious implication in relation to traffic safety and will result in future constraints for Council. Council seeks that the width of Road no. 3 as identified on Ryde DCP2014 Part 4.5 be provided with a width of 20m throughout its length.</p>	<p data-bbox="1240 901 1982 973">A carriageway width of 3.5m is proposed to be maintained along the entire length of Main Street, including along the bridge and through to Lyon Park Road. There are therefore no "pinch points" within the carriage way itself.</p> <p data-bbox="1240 1002 1982 1050">Car parking is proposed to along the straight section of Main Street directly adjacent to the prosed buildings where the nexus will be.</p> <p data-bbox="1240 1078 1982 1145">Car parking is not included within the footprint of the proposed RMS designed intersection at Herring Road and Main Street – this is controlled by the RMS design guidelines.</p> <p data-bbox="1240 1174 1982 1222">Car parking is also not proposed within the vicinity of internal intersections and the lead-up to the bends/bridge due to safety reasons.</p> <p data-bbox="1240 1251 1982 1345">Car parking is also not proposed along the length of Main Street proposed through the LIF owned site as there is no direct nexus to the development in this area. Should Council require car parking or wider verges, it is proposed that they can condition the adjacent developers as part of future applications.</p> <p data-bbox="1240 1374 1982 1441">Indicative servicing alignments have been shown on sheet 501 of the engineering DA set (<b>Appendix #</b>). From this drawing, it can be seen that no major services are proposed within the verge in the vicinity of B1.1 and leading</p>

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	<p>up to the bridge. Low voltage street lighting will be required, but the verge in this area is at least 3.5m wide and can therefore accommodate it.</p> <p>The servicing alignments shown on sheet 501 of the engineering DA set show that the utilities can adequately be provided in the vicinity of the intersection between Mains Street and Road No 2. The intersection of Herring Road and Main Street is to be designed to RMS specifications and is based upon traffic modelling to the RMS's satisfaction, with storage bay lengths designed accordingly.</p> <p>RMS have advised that they will not support a right-turn movement out of the subdivision onto Epping Road for the final option, accordingly, south bound travel on Road No 3 is limited to between Main Street and Road No 2. Due to the RMS imposing a no right turn condition, the objectives of the DCP in using Road No 3 as another site exit point cannot be met. Due to the fact that Road No 3 will now act as a Local Street and not a Collector Street, a width of 14.5m is suitable and in accordance with Council's DCP.</p>
<p><b>2. Height of Building</b> Council notes that the proposal development will comply with the maximum height restrictions under the Ryde Local Environmental Plan 2014.</p>	<p>The proposed amended development seeks to vary the height standard, as set out in the covering Response to Submissions report.</p>
<p><b>3. Floor Space Ratio</b> The proposed Master Plan proposes a maximum GFA of 283,500m<sup>2</sup> comprising:</p> <ul style="list-style-type: none"> <li>a maximum total residential GFA of 270,313m<sup>2</sup>, including: <ul style="list-style-type: none"> <li>a minimum social housing GFA of 70,488m<sup>2</sup> [1000 units];</li> <li>a minimum affordable housing GFA of 7,184m<sup>2</sup> [128 units];</li> <li>a minimum residential aged care facility GFA of 6,600m<sup>2</sup> [120 units];</li> <li>a minimum seniors self-care units GFA of 9,048m<sup>2</sup> [132 units];</li> </ul> </li> <li>a maximum retail GFA of 1,246m<sup>2</sup>; and</li> <li>a minimum community based land use GFA of 11,941m<sup>2</sup>, including: <ul style="list-style-type: none"> <li>a maximum child care centre GFA of 1,345m<sup>2</sup>;</li> <li>a maximum school GFA of 9,006m<sup>2</sup>;</li> <li>Community hub, swimming pool etc. of 1590m<sup>2</sup>.</li> </ul> </li> </ul> <p>The land is subject to a FSR restriction of 2.9:1 under the RLEP2014. Given the total site area of 78,680m<sup>2</sup> (excluding RE1 land) the maximum GFA allowable would be 228,172m<sup>2</sup>. The development is also seeking to utilise the GFA bonus pursuant to clause 13(2)(b) of State Environmental Planning Policy (Affordable Rental Housing) 2009 (SEPP ARH). The GFA available under SEPP ARH results in a maximum allowable GFA of 261,217m<sup>2</sup> for the site which represents a FSR of 3.32:1.</p> <p>Council is concerned that the floor space is exceeded at the expense of significant environmental impact and that the development constitutes an overdevelopment as a result of the following factors:</p> <ul style="list-style-type: none"> <li>Narrow and inadequate setbacks to boundaries and riparian corridor zone (due to the scale and the DCP objectives);</li> </ul>	<p>An updated Clause 4.6 request for floor space ratio is provided at <b>Appendix F</b>.</p> <p>In response to the issues raised, the refined Masterplan has:</p> <ul style="list-style-type: none"> <li>Provided increased setbacks to improve the relationship with the surrounding area and riparian corridor.</li> <li>Incorporated setbacks above podium level on the Envelope Control Plan.</li> <li>Provided an increased setback to the vegetation corridor along Epping Road to retain more of the Sydney Turpentine-Ironbark Forest.</li> <li>Reduced the number of trees required to be removed.</li> <li>Provided an increased amount of open space across the site.</li> <li>Reduced the overall amount of gross floor area proposed across the site.</li> </ul>

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<ul style="list-style-type: none"> <li>• Inadequate separation distances between buildings;</li> <li>• A lack of street front setbacks to the internal new roads and the lack of setbacks to the residential tower to street boundaries;</li> <li>• An encroachment to the existing Sydney Turpentine-Ironbark Forest zone (threatened ecological community) along Epping Road;</li> <li>• Excessive number of trees proposed for removal from the site;</li> <li>• Lack of adequate active and passive recreational space provided on site.</li> </ul> <p>Council is of the view that the applicant's Clause 4.6 variation in respect of the floor space does not adequately demonstrate that there is sufficient environmental planning grounds to justify the variation or that compliance with the floor space ratio control would be unreasonable or unnecessary in the circumstances of the case.</p>	
<b>4. Built Form and Urban Design</b>	
a. Built form – Bulk & Scale	-
The proposed built form in general lacks a sensitive response in its interface with open space and in creating a human-scale streetscape. Council's design guidelines for the site (Section 4.4.1 of Ivanhoe Estate Redevelopment – Urban Design Guidelines) anticipate lower-scale definition at street frontage, but the proposal has not delivered the intended outcome, for instance:	-
<p>The proposal contains some 60 to 70m long and 14 to 20 storey high built forms fronting the Shrimptons Creek Parklands without providing any upper level setbacks. Such an approach is very harsh and insensitive to the open space. Podium forms with a more fine-grained interface should be created to provide the transition to open space.</p>	<p>The Masterplan seeks approval for the Envelope Control Plans. Detailed building design will be undertaken as part of subsequent development applications and will be informed by the Ivanhoe Masterplan Design Guidelines, the Apartment Design Guide, the applicable Council controls and other environmental factors.</p> <p>The refined Envelope Control Plans incorporate a setback above the podium level for buildings fronting Shrimptons Creek. This above-podium setback is 8 metres from the edge of the riparian corridor, constituting a 28 metre setback from the centre of the creek. Further design guidance is provided in the Ivanhoe Masterplan Design Guidelines, which specify that:</p> <ul style="list-style-type: none"> <li>• Buildings fronting Shrimptons Creek should express a 2 – 4 storey scale on the lowest levels of the building.</li> <li>• Buildings fronting Shrimptons Creek should be articulated into multiple parts so that unbroken facades are no longer than 30 metres.</li> </ul> <p>Refer to the Design Guidelines at <b>Appendix G</b> for further detail.</p>
Similar built form approach should be applied to the interface with the Village Green and the Forest Playground.	<p>Detailed building design will be undertaken as part of subsequent development applications and will be informed by the Ivanhoe Masterplan Design Guidelines, the Apartment Design Guide, the applicable Council controls and other environmental factors.</p> <p>The Design Guidelines include provisions for how the public domain interface should be treated throughout the site to ensure a high level of activation and passive surveillance are achieved.</p>

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The Guidelines restricts a maximum building length of 40m. The proposed long facades is a significant variation and unacceptable in this location. The tall and long building envelopes with an absence of variation in alignment, length and articulation result in bulky built forms that create monolithic, long towers and should be reconsidered.	Detailed building design will be undertaken as part of subsequent development applications and will be informed by the Ivanhoe Masterplan Design Guidelines, the Apartment Design Guide, the applicable Council controls and other environmental factors.
A number of the proposed envelopes encourage tower form without podiums or sufficient mass to create a human scale or sufficient amenity for ground floor apartments. This will contribute to excessive scale when perceived from the street level.	Detailed building design will be undertaken as part of subsequent development applications and will be informed by the Ivanhoe Masterplan Design Guidelines, the Apartment Design Guide, the applicable Council controls and other environmental factors.
No information is provided to demonstrate that the proposed school building envelope can meet its operational requirements and function properly.	An allowance of 9sqm (GFA) per student has been included in the indicative design which is appropriate for a school of this nature. The envelope for the school has been established allow flexibility for the design of the school but to ultimately fit the 9,000 sqm GFA required for a 1,000 student school (excluding childcare). The envelope will allow for classrooms, internal breakout spaces, external terraces and external courts and assembly spaces.
On the main street and some residential streets, the proposal provides 14 to 20-storey high towers to the streets without any upper level setbacks. This approach is very aggressive and might potentially lead to wind washing to the public domain which would adversely affect the pedestrian environment.	<p>Wind impacts have been considered in the revised Wind Impact Assessment prepared by CPP. This assessment finds that wind impacts around the site will achieve a suitable wind environment and is capable of meeting the relevant safety criterion.</p> <p>Detailed building design will be undertaken as part of subsequent development applications and will be informed by the Ivanhoe Masterplan Design Guidelines, the Apartment Design Guide, the applicable Council controls and other environmental factors. Upper level setbacks would be provided in accordance with the separation distance required by the ADG, the Ivanhoe Masterplan Design Guidelines and to mitigate any potential wind impacts.</p>
The proposed setbacks (5-10m) to the common boundaries with neighbouring properties should be reconsidered to ensure sufficient separation distance is provided as per the Apartment Design Guide (ADG). It is not reasonable to provide inadequate separation and burden adjacent lots with additional setback requirements.	The building envelopes are set back in accordance with or greater than the RDCP. Future detailed applications for buildings within these envelopes would incorporate the applicable building separation distances.
<b>b. Lack of adequate Building Separation</b>	-
i. Neighbouring properties: The proposed setbacks (5-10m) to the common boundaries with neighbouring properties should be reconsidered to ensure sufficient separation distance is provided as per the ADG. The separation distances between buildings contribute to the urban form of the area and the amenity within apartments and open space areas. The reduced setbacks to the common boundaries with neighbouring properties will result in poor amenity between apartments and neighbouring sites as well as a lack of useable space with landscaping. It is not reasonable to provide inadequate separation and burden adjacent lots with additional setback requirements.	The building envelopes are set back in accordance with or greater than the RDCP and the ADG, where applicable. Future detailed applications for buildings within these envelopes would incorporate the applicable building separation distances.
ii. Separation at lower levels: As shown in the Ground Level Interface diagram, the proposed separation distances between some lower levels of buildings are much narrower than the ADG requirements, that is, C1.5 & C1.3-1.4, C4.4 & C4.1. The narrow separation distance (3-4m) also creates overlooking and visual privacy issues for units with habitable rooms/private open spaces facing each other, that is, C4.4 & C4.1.	Future detailed applications for buildings within these envelopes would incorporate the applicable building separation distances in accordance with the ADG.
iii. Town square: The proposed Envelope Control Plan (DA01.MP.100[3]) shows only a 10m wide town square reserve (space between C1 and C2) as well as a serious constraint on street reserves by narrowing points of the street reserve to only 11.8-13.8m for the main street. This is not acceptable. As previously discussed, the	<p>The design of the Master Plan has been revised to provide an increased amount of communal open space in the centre of the site.</p> <ul style="list-style-type: none"> <li>Street widths are consistent with or greater than what the RDCP requires.</li> </ul>

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road reserves should be a consistent width in accordance with Part 4.5 of DCP 2014. This also results in unacceptable building separation distances between various buildings. The town square reserve should encompass its full width to deliver certainty as well as improve solar access. The solar access to the town square is quite constrained due to building scale, the proximity of the full tower height and orientation. Podium setbacks should be provided to reduce the building scale and increase access to sunlight.	<ul style="list-style-type: none"> <li>• Building separation will generally comply with the ADG or be mitigated appropriately where minor non-compliances occur.</li> <li>• The town square has been modified and the retail have been relocated to a location with more solar access.</li> </ul>
iv. Lack of separation distance Building B1.1: With reference to setbacks shown on Plan Number DA01.MP.100[3] a 10m setback proposed along the northern boundary with respect to building B1.1 at northern corner is not sufficient. The function of building (B1.1) is not clearly identified on the plans. However, it seems that it will be apartment building. This building will be built to 14 storeys high and will require a separation of 24m between habitable rooms with respect to adjoining future developments along Peach Tree Road. A 12m clear separation setback is required from the boundary along the northern boundary. In order to comply with the ADG the proposal must provide increased setback of at least 12m along its northern boundary.	The building envelopes are setback in accordance with the RDCP at ground level, with 12 metres of separation distance at the upper levels provided to the northern boundary in accordance with the ADG. Future detailed applications for buildings within these envelopes would incorporate the applicable building separation distances.
v. Lack of separation distance Building B1.2 (RACF): A 6m setback is proposed for the 5 storey component of building B1.2 (RACF) with a 10m setback for rest of the building. This building is proposed to be 12 – 14 storey in height. Again, the setback must be increased for floor levels above the fourth storey to at least 12m to ensure adequate separation is achieved between the subject site and future apartment developments on Peach Tree Street. Lack of adequate separation distance will compromise sunlight access, visual and acoustic privacy.	Separation distances in accordance with the Apartment Design Guide do not apply to residential aged care facilities. Nonetheless, a 12 metre setback is provided from the upper levels to the boundary.
vi. B2 – School: A 10m setback from the northern boundary is proposed and given the function of the building and 9 storey height, this is considered unsatisfactory. The school building may not achieve adequate solar access in addition to a lack of acoustic and visual privacy with respect to other adjoining buildings.	The building envelopes are set back 10 metres in accordance with the RDCP requirements for rear setbacks. Future detailed applications for a building within this envelopes would ensure that a level of amenity suitable for an education establishment is provided.
vii. Building B3: The building is proposed to be setback only 5m from the adjoining northern and eastern boundary. The building will be 14 storeys tall with child care centre provided on the lower floors. For the reasons mentioned above, the setback must be increased to at least 12m since the upper floors are likely to be apartments. Similarly the setback to the Shrimptons Creek is proposed at 5m which is considered inadequate. Council requires that a 30m setback be provided from the side of the creek comprising of a 20m riparian zone and 10m wide natural buffer.	<p>The building envelopes are setback 5 metres in accordance with the RDCP requirements for setbacks from parks. Future detailed applications for buildings within these envelopes would incorporate the applicable building separation distances.</p> <p>A riparian buffer of 20 metres is provided in accordance with the requirements for a 2<sup>nd</sup> order stream, as set out in the <i>Guidelines for riparian corridors on waterfront land</i>.</p>
viii. Building C4/D4 with respect to the Creek: No clear dimensions have been shown on the envelope control plan to indicate the actual width of land along the creek. A survey plan needs to establish these dimensions with respect to the edge of the creek. If the edge of riparian zone as shown on the plan is taken to be accurate then a clear 10m setback for the buildings are required as a natural buffer from the riparian zone in accordance with Urban Design Guide for Ivanhoe Estate Redevelopment. This will also assist with a reasonable and meaningful separation of the built form and basement from the open space on the edge of the Creek.	The Envelope Control Plan has been prepared based on the survey undertaken for the site by ADW Johnson. A 5 metre setback at lower levels from the edge of the riparian corridor to the building envelopes is provided in accordance with the setbacks stipulated in the RDCP, however on average along the entire Shrimpton's creek frontage a 10m setback has been achieved with varying areas of open space.
ix. Lack of separation between Buildings C3, C4, D3 & D4. The Master Plan submitted for approval (DA01.MP.100[3] indicates that the building will be separated by a combined distance of 14.5m between buildings which range from 14 storeys to 20 storeys. Council seeks that the plans must clearly show that building envelopes comply with the separations distance as required under the NSW Apartment Design Guide or a condition be imposed requiring all future detailed approval to fully comply with the building separation requirement in accordance with the ADG.	The Envelope Control Plans illustrate that the separation distances required by the ADG can be achieved between all proposed building envelopes. Future detailed applications for buildings within these envelopes would incorporate the applicable building separation distances.
x. Lack of separation between Buildings A2, A3, C1, C2, D1, D2. The Master Plan submitted for approval (DA01.MP.100[3] indicates that the building will be separated by a combined distance of 14.5m between buildings which range from 14 storeys to 24 storeys. Council does not support built to line along the front	The Envelope Control Plans illustrate that the separation distances required by the ADG can be achieved between all proposed building envelopes. Future

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<p>boundary and therefore seeks the plans must clearly show that building envelopes comply with the separations distance as required under the NSW Apartment Design Guide or a condition be imposed requiring all future detailed approval to fully comply with the building separation requirement in accordance with the ADG.</p>	<p>detailed applications for buildings within these envelopes would incorporate the applicable building separation distances.</p>
<p>xi. Lack of regard for the adjoining approved building: Recently a major development was approved by the Sydney North Planning Panel comprising multiple apartment buildings on 137-143 Herring Rd. Building footprint was partly dictated by the need to protect a number of trees on that site and also on the western side of the Ivanhoe site. The proposal does not seem to take into account the approved development on the adjoining property located at No. 137-143 Herring Road. The plans show a setback/ separation on only 10m from the adjoining site. This will have serious amenity impact on the proposed buildings A1, A2 &amp; A3 if the required separation is not provided. Council seeks that:</p> <ul style="list-style-type: none"><li>• The design, setbacks, envelopes on the subject site should establish a positive relationship with this site;</li><li>• Separation between adjoining development at 137-143 Herring Rd and buildings A1, A2 &amp; A3 is inadequate and should be increased to at least 12m from the boundary.</li></ul>	<p>The updated Master Plan drawings at <b>Appendix C</b> have considered the built form of the approved development at 137-143 Herring Road. A minimum 12 metre setback is provided to the boundary of the A3 block and a minimum 14.7 metre setback is provided to the boundary of the A2 block to ensure that future buildings within the envelope are able to achieve a high level of visual privacy.</p> <p>Notwithstanding this, the development approval for 137-143 Herring Road stipulates that the design must incorporate privacy screening as a result of the reduced boundary setback.</p>
<p>c. Lack of adequate and appropriate street setbacks</p> <p>Council has concerns regarding the proposed building setbacks from the proposed new roads as it seems that the high rise buildings will be built to boundary as shown in the design guide submitted with the application. It seems that the application seeks to establish a street wall from ground level to the top most levels or provide an inadequate setback or reduced front setbacks of buildings without considering potential detrimental amenity, aesthetics and streetscape impacts.</p> <p>The figures below shows the nature of building setbacks proposed from the various streets:</p> <div><div><h3>08. GROUND LEVEL STREET SETBACKS</h3><p><b>OBJECTIVES</b></p><p>A. To provide buildings that positively contribute to the physical definition of the public domain.</p><p>B. To transition between private and public domain without compromising safety and security which contributes to the streetscape and residential amenity.</p><p><b>PROVISIONS</b></p><p>1. On residential streets, the lower levels of buildings can be built to the lot boundary.</p><p>2. On main street, the lower levels of buildings should be set back a minimum of 2m from the lot boundary on average.</p><p>3. On residential streets, any setback zone should be landscaped to balance street activation and residential amenity.</p></div><div><h3>09. UPPER LEVEL SETBACKS</h3><p><b>OBJECTIVES</b></p><p>A. To reduce the scale of buildings as perceived from the public domain.</p><p>B. To minimise the adverse wind impact of down drafts from tall buildings.</p><p><b>PROVISIONS</b></p><p>1. On residential streets, upper floors of buildings should be set back a minimum of 4.7m from the lot boundary.</p><p>2. On Main Street, upper levels of buildings can be built to the lot boundary, subject to building separation requirements of SEPP65.</p></div></div>	<p>-</p>
<p>Figure 2. Plan showing the building setbacks to various streets.</p> <p>The specific issues with the plans are discussed below:</p>	



Issue	Response
<p>i. Lack of adequate street setback: The setbacks as proposed (zero setback along main street and a tokenistic setback along other street) is contrary to the general built form envisaged in Macquarie Park. It is also inconsistent with the requirements under Part 4.5 of RDCP2014 Part 4.5 and the Design Guideline that Council had prepared for this site. It would seem that the rationale for the setback is to create a street wall. However, given the height of the buildings (14 storeys to 24 storey towers) zero setback without any articulation and increased setback above the lower floor levels is likely to result in overwhelming presence of tall street walls without relief. Street walls may be appropriate for the retail precinct on lower floor levels, however, it is critical that the residential buildings provide a greater setback (minimum of 5m) from the street boundary. Whilst upper level setbacks may be appropriate in some locations, they are considered not appropriate for this site. It is recommended that a more detailed approach to the built form is adopted to address site specific issues.</p>	<p>Street setbacks have been established for Main Street and the Neighbourhood Streets in accordance with the updated Ivanhoe Masterplan Design Guidelines at <b>Appendix G</b>. Setbacks will be provided in accordance with this Design Guideline as well as the ADG, where applicable.</p> <p>The design intent for Main Street is to create a street wall that reflects the civic function of the space, with setbacks to be provided to ensure building separation in accordance with the ADG where applicable. On Neighbourhood Streets, upper floors will be set back a minimum of 4.75 metres from the lot boundary.</p>
<p>ii. Building setback from road boundaries not shown on the plan. The Envelope Control Plan (DA01.MP.100[3] shows no setback of the building envelopes from the road boundaries. However, the indicative elevation plans on DA09.MP.102[2] seems to imply that there will be setbacks along the street with respect to Lots C1 &amp; D1. The rest is not clear. Council seeks that the building envelope plan be amended to clearly indicate a minimum 5m front setback and rear/side setback plus additional building separation distances to fully comply with Part 2F of the Apartment Design Guide.</p>	<p>Setbacks from internal streets for buildings will be determined as part of the future development applications and will be determined in accordance with the Ivanhoe Masterplan Design Guidelines. The building envelope plan has been revised to include the required setbacks to property boundaries.</p>
<p>iii. Zero setback from road frontage not supported - the Master Plan does not clearly show setbacks of buildings from the proposed roads. Typical sections shown for the 23.4m wide road (Plan not numbered p54) shows the buildings built to the street boundary with zero setback and will not be supported by Council for the following reasons:</p> <ul style="list-style-type: none"> <li>• The proposed street setbacks will compromise the residential privacy of the ground-floor units and will result in high front fence and or privacy screens being erected all along the street that will impact on the streetscape and will result in poor surveillance and design outcomes.</li> <li>• A minimum of 5m street setback should be provided as per Council's Design Guide for Ivanhoe Estate Redevelopment proposal.</li> </ul>	<p>The Ivanhoe Masterplan Design Guidelines prescribe a 2m landscaped setback to neighbourhood streets, and an average 2m setback to ground level on Main Street. This aligns closely with the recommendations of 'City of Ryde Urban Design Guidelines Ivanhoe Estate Redevelopment', which proposes a 2m landscape treatment for privacy beyond which is a 3m landscaped edge to the street. The only difference from Ryde's diagram is that the 3m landscaped edge is proposed within the public domain (in a wider footpath) rather than within the private domain.</p> <p>Envelope plans show zero setback to the streets to allow flexibility in the design on steeply sloping sites, but all future detailed Das will need to comply with the design guidelines.</p>
<p>iv. Inconsistent details. Typical sections shown for the 14.5m wide roads (Plan not numbered p57) shows the buildings' setback from the front boundary, this contradicts the building setback plans showing the buildings with zero setbacks with respect to the neighbourhood street. Built to line/ zero setback will not be supported by Council.</p>	<p>The Ivanhoe Masterplan Design Guidelines prescribe a 2m landscaped setback to neighbourhood streets and an average 2m setback to ground level on Main Street. This aligns closely with the recommendations of 'City of Ryde Urban Design Guidelines Ivanhoe Estate Redevelopment', which proposes a 2m landscape treatment for privacy beyond which is a 3m landscaped edge to the street. The only difference from Ryde's diagram is that the 3m landscaped edge is proposed within the public domain (in a wider footpath) rather than within the private domain.</p> <p>Envelope plans show zero setback to the streets to allow flexibility in the design on steeply sloping sites, but all future detailed Das will need to comply with the design guidelines.</p>
<p>v. Courtyard along the main street: The proposed building and terrace/courtyards right up against the street boundary is likely to result in high front fence and or privacy screens being erected all along the street that will impact on the streetscape and will result in poor surveillance and design outcomes.</p>	<p>Residential uses at ground level are encouraged to provide activation through the Ivanhoe Masterplan Design Guidelines. Measures to ensure activation whilst maintaining privacy will be detailed as part of future development applications. Future detailed development applications will demonstrate streetscape interface which balances privacy, amenity, passive surveillance and streetscape quality. High front fences are not proposed.</p>



Issue	Response
<p>vi. Lack clarity: The typical street section shows a 3m setback from the road reserve boundary. The reduction of street setback to 3m may only be acceptable if the ground-level units are elevated (by no more than 1m) above the footpath with screen planting along the frontage to increase privacy. The proposed minimum setback of 2m on average on main streets is ambiguous. Reduced setbacks are acceptable if non-residential uses are provided on the ground floor. For a residential interface, the street setback should be a minimum of 5m as per Council's Urban Design Guidelines (Section 4.4.2).</p>	<p>The Ivanhoe Masterplan Design Guidelines prescribe a 2m landscaped setback to neighbourhood streets and an average 2m setback to ground level on Main Street. This aligns closely with the recommendations of 'City of Ryde Urban Design Guidelines Ivanhoe Estate Redevelopment', which proposes a 2m landscape treatment for privacy beyond which is a 3m landscaped edge to the street. The only difference from Ryde's diagram is that the 3m landscaped edge is proposed within the public domain (in a wider footpath) rather than within the private domain.</p> <p>Envelope plans show zero setback to the streets to allow flexibility in the design on steeply sloping sites, but all future detailed Das will need to comply with the design guidelines.</p>
<p>vii. Building C4/D4 with respect to the Creek: No clear dimensions have been shown on the envelope control plan to indicate the actual width of land along the creek. A survey plan needs to establish these dimensions with respect to the edge of the creek. If the edge of riparian zone as shown on the plan is taken to be accurate then a clear 10m setback for the buildings are required as a natural buffer from the riparian zone in accordance with Urban Design Guide for Ivanhoe Estate Redevelopment. This will also assist with a reasonable and meaningful separation of the built form and basement from the open space on the edge of the Creek.</p>	<p>The envelopes have been revised to provide an increased setback from Shrimptons Creek. The proposed setback is a minimum of 5m from the Riparian zone corridor which is 20m from the centreline of the creek. The setback has been further increased in key locations to ensure the retention of existing trees. The average setback is equivalent in area to a consistent 10m setback.</p>
<p>viii. Setback from the Creek: The DCP requires a 20m setback from the side of the creek line plus a 10m buffer to protect the riparian corridor zone. However, the proposal only provides a 5m setback to the corridor. The proposed open space along the creek does not retain/improve some of the existing facilities i.e. skate park. The required setbacks should be provided as this is a major community asset.</p>	<p>The Macquarie Park Corridor section of RDCP requires a 5 metre setback from any riparian corridor. This 5 metre setback has been provided at ground level and is increased to 8 metres at upper levels. However, on average along the entire Shrimpton's creek frontage a 10m setback has been achieved with varying areas of open space</p>
<p>ix. Lack of adequate setback along Epping Road frontage to protect trees. The proposed setback to Epping Road complies with the DCP controls; however, the proposed building envelopes will have an adverse impact on the existing Turpentine-Ironbark Forest. It is recommended that the setback be increased where necessary to protect this threatened ecological community.</p>	<p>The Epping Road setback has been increased to allow for retention of additional trees and native vegetation. This is described further in the Biodiversity Assessment Report at <b>Appendix I</b>.</p>
<p>x. Upper level setbacks:</p> <ul style="list-style-type: none"> <li>The proposed 4.75m upper level setback from the lot boundary on residential streets is inadequate. The proposed upper level setback is even less than Council's required street setback of 5m.</li> <li>The proposed nil upper level setback is not supported. Council's design guidelines (section 4.4.1) clearly specify that a lower-scale definition should be provided at street frontage.</li> <li>Due to the significant heights of future buildings within the site, it is essential to provide upper level setbacks to all towers to break up the verticality of the built form and articulate the façades. The upper level setback should be a minimum of 3m from the façade of the podium levels. This will also help create a human-scale streetscape character and visual relief. At corner locations, slender vertical forms without any upper level setback are encouraged to mark the street corners.</li> </ul>	<p>Upper level setbacks have been carefully designed to ensure:</p> <ul style="list-style-type: none"> <li>appropriate building separation across streets,</li> <li>lower scale definition to neighbourhood streets</li> <li>Civic scale to main street and the village green, and</li> <li>Lower scale definition to Shrimptons Creek</li> </ul> <p>On neighbourhood streets and Shrimptons Creek, upper levels are set back from 2.75-3m behind the street wall.</p> <p>On Main Street and the village green, upper levels are not set back but lower levels are recessed to provide a civic scale.</p>
<p>d. Building length</p> <p>The proposed building lengths are substantially greater than the maximum (40m) specified in Council's design guidelines (Section 4.4.2). For example:</p> <ul style="list-style-type: none"> <li>Building A1 is over 60m long.</li> <li>Building B1.2 is over 75m long.</li> <li>Buildings B3, C3, D2, D3 and D4 are up to approximately 55m long.</li> </ul>	<p>The indicative design has been reviewed to provide more articulated massing. All proposed buildings taller than 14 storeys adopt stepped forms in either plan, or section, or both.</p>

Issue	Response
<ul style="list-style-type: none"> <li>Building C4 is over 70m long.</li> </ul> <p>Although some buildings show attempts to articulate the façades, the proposed measures are insufficient to break up the perceived bulk effectively. Buildings A1, B3, C3, D2, D3 and D4 are particularly concerning due to their excessive building dimensions, continuous massing and the lack of height variation; whereas Buildings C1, C2 and C4 appear more successful with a clear step-down of height from 20 storeys to 14 storeys.</p> <p>A sketch is attached showing possible measures that can be applied to improve the built form outcomes. (See Attachment 2). This is to illustrate the principles of built form articulation only and not intended to be taken literally for building design and dimensions.</p> <p>Furthermore, the majority of the proposed buildings contain 12 to 14 units off a circulation core on a single level, which is 50% to 75% over the recommended maximum number by the Apartment Design Guide (Objectives 4F-1).</p> <p>The inappropriate built form dimensions will lead to a range of adverse outcomes such as visual impacts and overshadowing which are discussed below.</p>	
<p>e. Visual Impacts</p> <p>The proposal presents substantial bulk when viewed from important vantage points in the public domain (refer to VIA report), including:</p> <ul style="list-style-type: none"> <li>Buildings A1 and A3 in viewpoint 1</li> <li>Building B3 in viewpoint 3</li> <li>Building D4 in viewpoint 7</li> </ul> <p>The view impacts are a consequence of the excessive bulk and scale of the proposal, which lacks physical breaks in the built form, creating a continuous 'wall' of developments. Council's design guidelines have specified that "slender built forms" should be provided and the proposal has clearly failed to deliver the intended outcome. The proposal should reduce the length of each building to no more than 40m and allow for meaningful physical separation between tall towers to reduce the perceived bulk.</p>	<p>A revised Visual Impact Assessment has been prepared by Virtual Ideas and Ethos Urban, which finds that the proposal will continue to result in a medium visual impact.</p> <p>Future buildings within the building envelopes will be subjected to detailed design in accordance with the ADG and the Ivanhoe Masterplan Design Guidelines.</p>
<p>f. Solar Access and Overshadowing</p> <ul style="list-style-type: none"> <li>As drawing DA21.MP.100 and the Solar Access Study on page 157 of the design report show, the Town Plaza receives little direct sunlight on the winter solstice from 9am to 3pm. The Town Plaza is expected to be a vibrant retail spine with a high concentration of outdoor dining opportunities. The quality of such an important public space will be significantly compromised due to an unpleasant micro climate caused by overshadowing.</li> <li>The Shrimptons Creek Parklands corridor and the proposed Forest playground are overshadowed and has limited solar access on the winter solstice. Ground-level communal open spaces (e.g.C4 and D4) will also receive limited amount of sunlight.</li> <li>Council understands that the Department applies the ADG solar requirements to each building rather than the development as a whole. This means 70% of the total units in each building should receive a minimum of 2 hours solar access in mid-winter. The presented solar access and shadow impact analysis diagrams demonstrate a non-compliance. In addition, it is questionable if the units marked as compliant with balconies in a deep configuration could even receive sufficient solar access during the day as the design seriously limits the opportunity of direct sunlight into the internal living space.</li> </ul>	<p>The town plaza has been consolidated with the village green to provide significantly enhanced solar access to the public open space. 78% of the enlarged village green will receive greater than 2 hours solar access on the winter solstice.</p> <p>65% of the forest playground will receive more than 2 hours solar access on the winter solstice</p> <p>On the winter solstice, overshadowing to Shrimptons Creek is no worse than LEP compliant envelopes.</p> <p>Solar access to apartments has been re-tested, accounting for the recently approved development at 137-143 Herring Road. While the site as a whole will achieve 70% solar access, buildings A2 and A3 will have less than 70%. Apartments in these buildings have been designed with improved amenity such as dual core small floorplates, larger apartments and apartments orientated away from the neighbouring development.</p>


Issue	Response
<p>g. Cross-ventilation</p> <ul style="list-style-type: none"> <li>The 'natural ventilation' diagram on page 104 of the design report claims that "60% of dwellings within the first nine storeys of the building have dual or corner aspects and will be naturally cross ventilated". This is incorrect. Many apartments are labelled as "cross-ventilated" units, however, they are in fact single-aspect units which will not be able to achieve cross ventilation. The actual percentage of cross-ventilated units is much lower than 60% which means the proposal will not meet the ADG's minimum requirements for cross ventilation.</li> <li>It is also questioned whether the indicative proposal complies with the cross ventilation requirements as some of the units are single aspect and can't rely on small slots for ventilation.</li> </ul>	<p>The preliminary assessment against the ADG indicates that the Indicative Design Scheme is capable of achieving the recommended criteria for cross ventilation. Detailed designs for future stages will provide appropriate demonstration of cross ventilation compliance.</p>
<p>h. Indicative internal layout and amenity</p> <p>iv. Residential entry points located adjacent to vehicular access points are to be avoided.</p> <p>v. Some units appear to have a depth of over 18m which is excessive.</p> <p>vi. Balconies in deep narrow configurations (4-6m) lead to poor internal amenity would not be supported in any future Stage 2 design.</p> <p>vii. It is noted that some of the indicative studio apartments have poor proportions, which will create poor amenity outcomes.</p> <p>viii. Many of the common corridors are excessively long, for example – Building C4 has an unarticulated corridor of approximately 55m. The buildings should generally have multiple cores to reduce the length of common corridors and allow for cross-through apartments.</p>	<p>The Indicative Design Scheme is preliminary only and is provided to illustrate potential future development on the site. All future buildings on the site will be subject to detailed assessment as part of a separate development application.</p>
<p>i. Street interface</p> <p>i. The proposed street sections don't correlate to the design guidelines.</p> <p>ii. The lack of adequate street setbacks for residential ground level development will lead to an undesirable streetscape character and poor amenity for ground floor units. Greater street front setbacks should be introduced and implemented to achieve an acceptable level of amenity, generous terraces, courtyards and landscape space for ground floor units and to avoid high fencing to these units due to privacy issues.</p> <p>iii. The undercroft treatment and lack of setbacks to towers could lead to severe wind effects.</p> <p>iv. The proposal aims to achieve a human-scale street wall height of 2-4 storeys which is supported. However, the proposed design guidelines facilitate towers rising full height from the ground level with no podium or streetwall to moderate scale at all. A review of the proposed urban design guidelines is required to ensure this is provided.</p> <p>v. Podium design to the public domain spaces, in particular, is required to provide an appropriate scale transition to the main street, village green, etc.</p>	<p>Envelopes and design guidelines have been revised to provide clarity on the proposed landscaped setbacks and upper floor setbacks.</p> <p>Neighbourhood Streets are provide with 2m landscaped setback and a further 2.75m upper floor setback.</p> <p>Main Street and the Village Green are proposed with a more civic response of taller buildings coming to ground. Wind effects will be mitigated by appropriate awnings and other mitigation measures to be determined through detailed design.</p>
<p>j. Streetscape design and vehicle access;</p> <p>i. The proposed vehicular access points, with lengthy ramps accessed from the throat of the proposed Garden Mews, result in a poor streetscape character and creates safety concerns for pedestrians.</p> <p>ii. The vehicle entry points close to the proposed town square and major public open space should be relocated to give better separation.</p> <p>iii. Multiple vehicular access points seem to be provided with each block. This is excessive and seems unnecessarily intrusive in the public domain. These should be consolidated into fewer points to achieve an improved pedestrian environment and streetscape character i.e. C4.2-4.3, D4.1-4.2.</p> <p>iv. The proposed ramps built to the building edges create large blank wall facades and inactive edges to communal open spaces. It presents a poor design outcome and should be reconsidered.</p> <p>v. It appears that the basement design doesn't correlate to the accessing points proposed on the ground level.</p> <p>vi. It appears quite a number of the proposed vehicular entry points could be deleted due to the interlinked basement design.</p>	<p>In developing future detailed DAs, the ground plane interface of buildings will be developed to provide:</p> <ul style="list-style-type: none"> <li>One vehicle entry per lot per tenure</li> <li>Separation of pedestrian and vehicular entries</li> <li>Location of vehicular entries away from public open spaces</li> <li>Vehicle entries perpendicular to the street frontage to minimise black wall facades and inactive edges.</li> </ul> <p>Where possible, basements will be interlinked to minimise the number of vehicle access points which are required to accommodate a 4.5m high waste truck</p> <p>The Shrimptons Creek bridge is proposed with upper and lower levels to provide an active interface for pedestrians underneath the road bridge.</p>

Issue	Response
<p>vii. The proposed segregation of new road and pedestrian bridge crossings over the creek creates a visual clutter and it is recommended to be consolidated into one if the levels permit.</p> <p>viii. One-side street parking is not an ideal outcome. Street parking on both sides of the street is recommended.</p>	<p>Two sided parking is proposed to Main Street with one sided parking proposed to neighbourhood streets.</p>
<p>k. Landscape design, open space and deep soil</p> <p>i. The proposed landscape strategy “Forest to Neighbourhood” have the forest character permeate and integrate with the urban grid. Council supports and encourages this concept, however, this has not translated well into the concept Master Plan. The proposed configuration, length and proximity of towers on the edge of the Shrimptons Creek riparian corridor limits the opportunity to extend and integrate the forest into the precinct. It is recommended that the Master Plan is revisited to achieve this concept.</p> <p>ii. The proposed removal of the Sydney Turpentine-Ironbark Forest to facilitate the development is not supported. This identified threatened ecological community (DA01.MP.200(3)) should be retained, enhanced and incorporated into the Master Plan design.</p> <p>iii. The DCP requires the subject site to provide a new park with active open space to the Shrimptons Creek Corridor with co-located community facilities and active frontages to the open space. The proposal fails to achieve the above strategy instead locating a new village green and main street in the centre of the site. This serves the development itself well but does not encourage support for the neighbouring areas or assist in integrating this development into the area as a whole. Council is of the view that this is not an acceptable offset for the required new park and activity adjacent to the creek.</p> <p>iv. The proposed basement car park built to the street/lot boundaries and part of side boundaries is not supported. This limits the opportunity for deep soil planting to site edges and within most of the open spaces. The reliance on planter boxes to achieve landscaped outcomes on site and for the communal open spaces is a poor outcome, particularly given the site size. The site will be developed by stages. It is Council's view that each proposed lot division (DA01.MP.100[3]) should achieve a min. 7% deep soil zone as per the ADG requirements and that this deep soil should coincide with site boundaries of public and communal open spaces.</p>	<p>The Masterplan and Public Domain concept have been revised to create an improved interface to Shrimptons Creek. The revised Masterplan also allows for the retention of additional Sydney Turpentine Ironbark Forest, as well as increased areas of deep soil planting throughout the site. This is demonstrated on the Masterplan Drawings at <b>Appendix C</b> and the Supplementary Design Report at <b>Appendix D</b>. The percentage of deep soil provided on a site-wide basis has been increased to 17%, as shown on DA01.MP.200. Open space has been located throughout the site to benefit from a central location where activity will be maximised, as well as high levels of solar access. Open space is provided adjacent to Shrimptons Creek, with connectivity through to the Village Green in the centre of the site.</p>
<p><b>5. Suggested Amendments to the proposed Development Design Guidelines:</b></p> <p>Appendices L of the Environmental Impact Statement includes development design guidelines for the Ivanhoe Estate prepared by Bates Smart and Hassell. To ensure a good design outcome is achieved through the current Master Plan and in future DA's Council is of the view that these guidelines should be amended as follows:</p>	-
<p>a. Deep soil zone (Provision 03)– Amend Provision 1 to “The area of deep soil within each lot (as per DA01.MP.100[3]) should be no less than 7%.</p>	<p>Deep soil zone compliance is proposed to be assessed on sitewide rather than a lot-by-lot basis. The percentage of deep soil provided on a sitewide basis has been increased to 17% as shown on DA01.MP.200</p>
<p>b. Active frontages (05) – Amend Provision 2 to “Building C1 and C2 should accommodate retail uses at ground level fronting the Town Square. Communal uses should not occupy the majority of the frontages.”</p>	<p>No longer relevant as the Town Square and Village Green have been consolidated.</p>
<p>c. Pedestrian and vehicular entry locations (06).</p> <ul style="list-style-type: none"> <li>• Add a provision to state that “vehicular access should not be located adjacent to pedestrianised space or entries”.</li> <li>• Delete provision 5 to avoid potential garbage collection on streets as this is not supported by Council.</li> </ul>	<p>The updated Design Guidelines include provisions to minimise conflicts between vehicles and pedestrians. Vehicle entries will be located to avoid Main Street and loading zones will be located in the basement where possible. Where internal loading docks are not possible, on-street loading zones for temporary garbage collection will be provided in a discreet location.</p>
<p>d. Issues with Street wall height and setbacks – Provisions (07, 08, 09)</p> <ul style="list-style-type: none"> <li>• Street sections don't correlate with each other.</li> <li>• The proposed undercroft areas have the potential for significant wind effects and wind testing is required.</li> <li>• The sections suggest nil or narrow (2m) street front setback to lower levels of buildings even with residential ground level uses. This is not a sufficient setback and may result in towers being built to the front boundary when facing the main street and main open spaces as well as to other streets. These guidelines should be</li> </ul>	<p>Street sections have been revised.</p> <p>Wind testing will be provided with all detailed DAs</p> <p>Neighbourhood streets proposed 2m landscape setbacks with additional landscaping proposed within the public domain.</p>

Issue	Response
<p>carefully reconsidered as they create a poor amenity for ground level units and leave no opportunity for deep soil/landscape on both sides of the residential streets within setback areas. This is inconsistent with Ryde DCP2014 Part 4.5 and also the Ivanhoe Estate Redevelopment Design Guideline prepared by Council.</p>	<p>Main Street proposes 0m landscaped setback to provide a more civic hard landscaped interface with retail and community uses.</p> <p>Buildings fronting public open spaces include generous landscaped frontages in both private and public domain.</p>
<p>e. Rooftops (10)</p> <ul style="list-style-type: none"> <li>Change Objective A - To maximise opportunities to use roof space for residential accommodation and open space to "To maximise opportunities to provide communal open space on podium level or ground level. On a site this size, reliance on roof terraces should not be required."</li> <li>Delete Provision 1 and add "roof levels are to provide interesting silhouettes with no residential accommodation allowed above the maximum height."</li> </ul>	<p>Communal open space will be provided at ground level and podium level <u>and</u> on roof tops. As this design guideline relates to rooftops we propose to retain Objective 1 and provision 1.</p>
<p>f. Façade expression and materials (11)</p> <ul style="list-style-type: none"> <li>Provision 2 – delete "white" so it reads "Render should be avoided as the primary façade material."</li> </ul>	<p>The Guidelines have been updated to make this change.</p>
<p>g. Design excellence (12)</p> <ul style="list-style-type: none"> <li>Change Provision 2 – No architect can design more than five blocks to "No architect can design more than 2 buildings."</li> <li>Add: Design of major open spaces is to undergo a design competition.</li> </ul>	<p>A Design Excellence Strategy has been prepared for the site and is provided as part of the Response to Submissions. This strategy addresses the approach for procuring multiple and varied architects across the site.</p>
<p><b>6. Impact on trees</b></p> <p>Council has reviewed the proposed tree removal from the site and its potential cumulative ecological impacts on the STIF Community. The review has also looked at the negative impact to the established landscape character of the site and locality due to the extent of tree removal in critical locations and the failure to represent this appropriately within the documents provided to Council.</p>	<p>Setbacks have been adjusted to allow for greater retention of trees to the Epping Road frontage. Tree removal in other locations will be reduced due to the modification in the proposal. Refer to the Biodiversity Assessment Report (<b>Appendix I</b>) and Arboricultural Impact Assessment (<b>Appendix H</b>).</p>
<p>It is noted for reference that a large number of trees (547 trees) located on site within the central areas have already been approved for removal as part of the demolition works to remove existing structures, roadways and services under Part 5 of the EP&amp; A Act by the NSW Land &amp; Housing Corporation.</p>	<p>Noted.</p>
<p>The proposal under the current Master Plan is to necessitate the removal of a total of 311 additional trees located within the site, including along the Epping Road frontage and Shrimptons Creek corridor. It should be noted however that this is an estimate only given a number of trees have been grouped together with no details of total numbers, species breakdown or technical data.</p>	<p>An updated Arboricultural Assessment is provided at <b>Appendix H</b>, which describes the tree survey method. AS4979-2009 Clause 2.3.5 Arboricultural Impact Assessment states - <i>Groups of trees with overlapping tree protection zones (TPZ's) may be included within a single protection area.</i> This methodology has been applied at the time of survey. The number of the trees has not been estimated but is shown in a group.</p>
<p>The primary concerns raised relate to the extensive building footprints resulting in a high level tree of removal on site. It is considered that a more sympathetic building arrangement could permit the retention of important groups of trees, particularly along the Epping Road corridor and site boundaries. Furthermore, concerns have been raised in relation to the limited areas of deep soil provided which will not accommodate a meaningful replacement planting strategy that compensates effectively for the loss of trees and associated amenity on site.</p>	<p>The Master Plan has been revised to retain an increased number of trees. 17% of the site will be provided as deep soil planting, in accordance with the requirements of the Apartment Design Guide.</p>
<p>In addition to the above, concerns have also been raised in relation to the negative impact to the established landscape character of the site and locality due to the extent of tree removal in critical locations and the failure to represent this appropriately within the visual impact assessments. Commentary has also been provided in</p>	<p>As indicated within the Arboricultural Assessment (<b>Appendix H</b>) and Masterplan Drawings (<b>Appendix C</b>), many of the existing trees along the perimeter of the site will be retained, or will be offset by replacement trees.</p>

Issue	Response
relation to the importance of detailed and well considered replacement planting on site to offset and mitigate tree loss and landscape impacts.	<p>Specifically, along Herring Road, the proposed loss of existing trees will be offset by replacement trees. While for Epping Road, despite the proposed removal of some trees, existing trees to be retained will continue to provide continuous vegetation coverage. Detail on type, size and specific location of replacement trees will be provided as part of the future SSD Applications, which will aim to offset and mitigate tree loss and landscape impacts. It should also be noted that the development will result in a net increase in trees.</p> <p>Despite limitations with the accuracy of the photomontages, retaining the stands and vegetation coverage of existing trees in the photomontages is considered to provide the closest representation of the proposed visual character setting to assess the visual impact of the proposal.</p>
Issues have also been raised with the Arboricultural Impact Assessment submitted which is not considered sufficient for assessment purposes and should not be relied upon to approve the concept Master Plan due to inadequacies.	An updated Arboricultural Assessment is provided at <b>Appendix H</b> .
The total number of trees to be removed is an estimate only with actual numbers unable to be determined given the AIA has grouped large numbers of trees together with no individual breakdown of tree numbers, species or technical data etc.	An updated Arboricultural Assessment is provided at <b>Appendix H</b> and outlines the tree survey method. AS4979-2009 Clause 2.3.5 Arboricultural Impact Assessment states - <i>Groups of trees with overlapping tree protection zones (TPZ's) may be included within a single protection area</i> . This methodology has been applied at the time of survey. The number of the trees has not been estimated but is shown in a group.
The following specific issues are identified: a. Concept Master Plan Proposal:	-
311 trees to be removed located within the site, adjoining street verge and Shrimptons Creek corridor, forty-five (45) of which are of high retention value. It is noted that this is an estimate only, see note below for further details. A total of 858 trees would be removed from the site including 547 trees approved under the demolition approval by Land and Housing Corporation.	The Masterplan has been refined to allow for increased retention of trees and native vegetation, as described in the covering Response to Submissions Report.
b. Building Footprints and trees along Epping Road:	-
Concern is raised in relation to the extent of the building footprints and the lack of regard for the existing trees located to the periphery of the site. Extensive basement car parking is to result in the removal of a significant number of trees across the site due to excavations necessary for construction. This is clearly demonstrated visually below whereby the extent of basement car parking is illustrated.	The Masterplan has been refined to allow for increased retention of trees and native vegetation, as described in the covering Response to Submissions Report.



Issue	Response
	
<p>Figure 3. Plan showing the extent of the basement over whole site</p>	
<p>Of particular importance are the stands of trees located along the Epping Road frontage and north-eastern boundaries. These stretches of buffer planting are considered to be a high priority for retention due to their contribution to the landscape character of the site and locality and its ability to provide screening and softening to the proposed built form along the corridor of Epping Road and other site boundaries. It is considered that these tracts of vegetation should be strengthened as part of the proposal rather than diminished as is currently the case.</p>	<p>The Masterplan has been refined to allow for increased retention of trees and native vegetation, as described in the covering Response to Submissions Report. The vegetation along Epping Road will continue to provide a green corridor at this interface.</p>
<p>The building footprints are not sympathetic to the existing vegetation on site and it is considered a more sensitive approach which considers trees as an important asset would result in a reduced level of tree loss. Given there appears opportunity to modify building envelopes, increased setbacks to Epping Road and the north-eastern boundaries are recommended.</p>	<p>Building footprints are sympathetic to existing vegetation. This is achieved through an increased setback is provided to Epping Road to allow for increased tree retention. This also results in the area of Sydney Turpentine Ironbark Forest being removed reducing to only 0.28 hectares.</p>
<p>c. Additional Tree Impact not taken into account:</p>	
<p>The Arboricultural Impact Assessment prepared by Eco Logical Australia dated 30th November 2017 does not appear to have taken into consideration the full extent of basement excavations necessary for construction nor the extent of works associated with civil roadway construction. Based on the concept plans submitted, it is considered likely that a number of additional trees along the Epping Road frontage and adjoining the proposed buildings will require removal due to unsustainable levels of incursion to the Tree Protection Zones. Accordingly, the extent of tree removal required is likely to be increased over that stated.</p>	<p>This matter is addressed in the updated Arboricultural Impact Assessment and accounts for all trees to be removed in alignment with the basement.</p>

Issue	Response
d. Arboricultural Assessment inadequate	
The Arboricultural Impact Assessment (AIA) prepared by Eco Logical Australia dated 29th November 2018 is considered to contain a number of errors and anomalies which does not allow a proper understanding of the extent and impact of the proposal in relation to those trees to be removed. The following concerns are raised with regards to the AIA submitted:	Changes to Epping Road frontage have been incorporated for greater tree retention (refer to <b>Appendix C</b> and <b>H</b> )
<ul style="list-style-type: none"> <li>No details have been provided anywhere within the AIA with relation to the assessed trees form, structure, condition, age class or landscape significance. Additionally, no assessment or recording has been provided relating to the Useful Life Expectancy (ULE), Safe Useful life Expectancy (SULE) or estimated life expectancy. Given this information is the primary indicator to determine retention value, it is unclear how retention values have been attributed to trees across the site.</li> </ul>	The assessment was undertaken as described in Appendix C – Tree retention assessment method at <b>Appendix H</b> .
<ul style="list-style-type: none"> <li>The majority of trees identified within Table 2 of Section 3 do not have appropriate retention values based upon the applied methodology (Institute of Australian Consulting Arboriculturists (IACA) Significance of a Tree, Assessment Rating System) stated within Section 2.2. Accordingly, the retention values attributed within the AIA are not considered relevant.</li> </ul>	Trees in this table state High, Medium or Low retention values associated with the STARS methodology.
<ul style="list-style-type: none"> <li>Two groups of trees identified within the assessment as 'Polygon A' and 'Polygon B' have been described as being subject to a high impact (&gt;20% of the TPZ) and unable to be retained. Whilst the primary species within these groups have been noted, there is no breakdown provided within the AIA to identify the exact number of trees to be removed nor their location or technical details to determine their potential for retention. Given a number of those species noted within these Polygons form part of Endangered Ecological Communities within the City of Ryde, it is considered inappropriate to group these trees together as the full extent tree removal impact is not clear.</li> </ul>	AS4979-2009 Clause 2.3.5 Arboricultural Impact Assessment states - <i>Groups of trees with overlapping tree protection zones (TPZ's) may be included within a single protection area.</i> This methodology was applied at the time of survey. This methodology has since been updated to count all individual trees on the site.
Based on the above omissions and errors, the Arboricultural Impact Assessment cannot be relied upon and there is insufficient information available to determine the level of impact of the proposal in relation to trees.	An updated Arboricultural Impact Assessment is provided at <b>Appendix H</b> .
e. Epping Road Access The location of the proposed roadway access on the Epping Road frontage will significantly interrupt and disconnect the important corridor of existing trees which form a strong buffer and defined edge to the Epping Road frontage. As demonstrated in the photo below, the north-eastern edge of Epping Road is characterised by a strong alignment of mature vegetation. The proposed roadway and access will not only result in a large number of trees requiring removal but also dissect the vegetation corridor diminishing its avenue-like continuity and resulting the proposed development being more highly visible from the streetscape of Epping Road.	The roadway access comprises a small portion of the vegetation buffer along Epping Road, a significant amount of which will be retained. Overall, the continuity of the vegetation corridor will be maintained and enhanced through additional tree planting throughout the public domain.
f. Ecological Impact As identified within the Biodiversity Assessment Report and Offset Strategy prepared by Eco Logical Australia dated March 2018 and shown in the figure below, the site contains a large tract of Sydney Turpentine-Ironbark Forest located along the Epping Road frontage. This vegetation community is listed as a threatened ecological community under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and should therefore be treated as a priority for tree retention on site. As discussed previously, the location of the proposed building footprints will require the removal of significant portions of this tract of vegetation to enable construction.	The Masterplan has been designed to be sympathetic to the presence of the Sydney Turpentine Ironbark Forest. The latest round of refinements to the Masterplan have allowed for increased retention of trees and native vegetation.



Issue	Response
<p>The reports state "A key focus of Ivanhoe Estate is to reduce the negative impacts on the sites' ecological value as a result of the development. We aim to minimise harm and enhance the quality of local ecology, particularly around the Turpentine Ironbark Forest along Shrimptons Creek. Initiatives to enable this currently include: - Protecting the existing Turpentine Ironbark Forest" The proposed tree removal of STIF contradicts this outcome. The large scale removal of this threatened community that exists along this corridor will significantly impact the ecological integrity within the area from its removal along Epping Road. The Master Plan's 'offset' plan as a priority will do zero to assist the local bushland lost and ecological survival of species in this area who rely upon these links to connect to the Lane Cove National Park for survival. Mapping provided by Ecological in the Arboriculture Report demonstrate the tiny amount of remaining STIF community in the local government area and developments with footprints this size contribute to significant loss. It is not supported that Aspire/ Frasers are genuinely 'protecting and enhancing' this STIF community. Despite stating that they will rehabilitate the Shrimptons Creek area and promote native vegetation this has been inadequately demonstrated in this Master Plan.</p>	<p>The Masterplan has been refined to allow for increased retention of trees and native vegetation and biodiversity offsets will be provided in accordance with the relevant biodiversity framework, as outlined in the Biodiversity Assessment Report and Response to Submissions.</p>
<p>Accordingly, given the importance of this vegetation community within the City of Ryde local government area, further consideration should be given to increasing the setback of the proposed building form and basement car park along the Epping Road frontage to reduce the level of impact and prioritise the retention of an increased area of this threatened ecological community.</p>	<p>An increased setback has been provided to Epping Road to allow for increased retention of the Sydney Turpentine Ironbark Forest.</p>
<p>g. Biodiversity offsets</p> <ul style="list-style-type: none"> <li>• As referenced in the 'Sustainability Report' under the NSW SEARS for ' Intergenerational equity and conservation of biological diversity and ecological integrity' should prioritise ensuring minimal tree removal and avoidance where possible to ensure compliance of this principle as stated by Aspire/ Frasers on the development site.</li> <li>• 2:1 offset planting for those species that are unavoidable in being removed and not just bought up in 'offset credits'. Location should be sort locally as a priority before offset to a location that will not benefit local environment. The intent should be to support green corridor prioritisation links that are aligned with the Cities outcome under the Greater Sydney Commission and corridor links and support Council's outcome under the Ivanhoe Estate Urban Design Guidelines to strengthen and rehabilitate the Shrimptons Creek corridor (inclusive of the surrounding site);</li> <li>• Retention of Sydney Turpentine Ironbark forest as a priority along Epping Road. Trees within this corridor and bushland provide a critical link to Shrimptons Creek and adjoining green pockets for Ryde. Large scale removal of this community will have significant impacts detrimental to the long term survival of this critical link. These species are identified as being 'good to moderate' in health and size.</li> <li>• Calculations on the actual retention numbers and those proposed for removal is conflicting in various sections of the arboricultural and biodiversity reports.</li> <li>• An accredited ecologist should be on site prior to removal is to occur to assess all hollow bearing species and stop works should a hollow be identified as active habitat. No works to commence until after assessment has been conducted and species identified as linked to endangered and listed communities.</li> <li>• An accredited assessor should visit the site to confirm species and credit species prior to any works, removal or disturbance</li> <li>• Retiring and offsetting of credits – as the project will be undertaken in stages, when will Aspire/ Frasers register to purchase the credits? Will this be staged over the life of the project or cumulatively at the end delivery of the project? If at the end, this will be years without the credits purchased and retired. Concerns over this duration resulting in further net loss of biodiversity support impacted on by this project. There is no</li> </ul>	<p>All biodiversity impacts will be offset as per the requirements of the NSW Framework for Biodiversity Assessment (FBA) in accordance with the NSW Biodiversity Offsets Policy for Major Projects.</p>

Issue	Response
<p>stipulated timing for this and it should be provided up front with a preference to offset as soon as project commencement.</p>	
<p>h. Landscape Character As demonstrated in the picture below, Ivanhoe Estate currently contains a moderate-high level of canopy cover across the Shrimptons Creek corridor, Epping Road corridor and extensive internal streetscape and open space plantings. With a significant proportion of the existing tree population site requiring removal to accommodate the current proposal, canopy cover and associated amenity is likely to be diminished when viewed in context of the surrounding locality.</p>	<p>The revised Masterplan allows for the retention on an additional 119 trees, resulting in 350 trees being retained across the site. This will contribute to the maintenance of the tree canopy. In addition to this, significant tree replacement planting is proposed in accordance with the Public Domain Masterplan, the majority of which will be delivered in the first two detailed stages of the development.</p>
<p>Given the overall impact to existing trees and the inability of the site to accommodate large tracts of deep soil planting or provide a 1:1 replacement planting ratio, the proposal is considered likely to have a negative impact to the landscape character of the site and locality. This will be particularly evident during the short-medium term following construction whereby existing mature vegetation will be replaced with juvenile trees of low visual prominence resulting in a high visual impact.</p>	<p>This project will provide a net increase in trees on the site. The refined Masterplan allows for increased tree retention and tree replacement planting will be provided as part of the future public domain works. It is noted that the majority of existing trees around the perimeter of the site will be maintained and that views to the site from the public domain will not be significantly altered.</p>

Issue	Response
<div data-bbox="159 240 1234 1098"></div> <p data-bbox="159 1106 1209 1129">Figure 5. Aerial image with site outlined red indicating moderate-high canopy cover (Source: Google Map 2018)</p> <p data-bbox="159 1145 1209 1294">It is also considered important to note that the photomontages of the indicative building massing within the Visual Impact Assessment prepared by Virtual Ideas dated 12th December 2017 &amp; Ethos Urban dated 14th December 2017 include significant stands of existing tree and vegetation cover which provide a high level of screening and softening of the built forms. Given the majority of these trees are to be removed as part of the proposal, it is not considered the photomontages are an accurate reflection of the proposed development when constructed (refer to Figure below).</p>	<p data-bbox="1234 1145 1991 1219">As indicated within the Arboricultural Assessment (<b>Appendix H</b>) and Masterplan (<b>Appendix C</b>), many of the existing trees along the perimeter of the site will be retained, or will be offset by replacement trees.</p> <p data-bbox="1234 1243 1991 1391">Specifically, along Herring Road, the proposed loss of existing trees will be offset by replacement trees. While for Epping Road, despite the proposed removal of some trees, existing trees to be retained will continue to provide continuous vegetation coverage. Overall, this will retain a high level of screening and softening of built forms as part of the proposed visual character from viewpoints along Herring and Epping Roads.</p>

Issue	Response
	Despite limitations with accuracy, retaining the stands and vegetation coverage of existing trees in the photomontages is considered to provide the closest representation of the proposed visual character setting to assess the visual impact of the proposal.
<p>i. Deep Soil Zones</p> <p>Relating to the concerns of extensive building footprints and the associated impact on trees, the building layouts, basements footprints and internal roadway networks result in a very limited scope for the provision of meaningful deep soil zones across the site. The lack of deep soil provided on site effectively reduces the potential for a significant compensatory planting strategy to offset the tree removal taking place. Whilst the concept plans give the appearance of a highly vegetated site, a review of the basement envelopes indicates that a high percentage of the landscaped area will be provided on podium. Accordingly it is considered likely that the proposal will result in a significant nett loss of large scale mature canopy trees on site and thus see a negative impact to the landscape character of the Ivanhoe Estate and locality.</p>	17% of deep soil planting is provided across the site, as demonstrated on the deep soil drawings provided at <b>Appendix C</b> .
<p>j. Replacement Planting</p> <p>Given the significant level of tree removal to take place on site and some already approved under the demolition works, it is considered critical that consideration and a high priority be given to the provision of an extensive compensatory and replacement planting scheme within site and adjoining Shrimptons Creek corridor. This is to ensure the effective management of trees as a natural resource within the City of Ryde to maintain the benefits of the collective tree population and mitigate impacts to the established urban forest canopy and landscape character of Macquarie Park. This should include further rehabilitation and restoration works within Shrimptons Creek corridor as well as strengthening the remnant patches of Threatened Ecological Communities identified on and adjacent the site.</p>	The Masterplan has been refined to improve the Shrimptons Creek corridor, resulting in additional trees being retained. Design for the rehabilitation of Shrimptons Creek will be undertaken as part of a future stage of development and will be provided in accordance with the relevant guidelines for riparian corridors.
<p><b>7. Need for more active recreational open space</b></p> <p>Considering the site's proximity to the university and business zone as well as the social housing component and a school within the site, there are needs for more substantial active recreational facilities on the site.</p>	<p>The Ivanhoe redevelop meets best practice requirements for open space in high density areas through providing:</p> <ul style="list-style-type: none"> <li>• Access to open space within 250m for residents</li> <li>• 2.4 hectares or nearly 30% of the site as public open space, not including communal and private open space</li> <li>• Multi-functional and diverse play and recreational spaces suited to a range of age groups and all abilities</li> <li>• Shared use of school open space and recreational facilities.</li> </ul> <p>Given the demographics of the future population and the fact participation rates in structured sporting activities decline significantly after age 17, the greatest demand for open space from the future population at Ivanhoe will be for passive, unstructured open spaces. The amount of open space provided will allow university students and workers in the area to utilise these spaces and facilities.</p> <p>The site has been redesigned to include a village green &amp; proposed community centre that is large enough to incorporate active open space, but provision of sporting fields on the site would not meet best practice. Active recreational space is best provided in sports hubs with multiple sporting fields, rather than single fields sprinkled throughout communities. Sporting hubs both provide a focus for the community and allow structured sporting activity to be organised efficiently.</p>

Issue	Response
<p>It is noted that existing sports fields in the Macquarie Park area are already being used to capacity and have limited ability to absorb the additional demand likely to be generated by the Ivanhoe development. Council's preference is that this development is to meet its own needs for active open space, rather than rely on facilities in the surrounding area.</p>	<p><b>Meeting need for active open space on site</b>  The design of the Ivanhoe redevelopment has been revised to incorporate a larger village green of approximately 6,000m<sup>2</sup>.</p> <p>Best practice planning for open space recognises that it is often not practical, nor efficient to incorporate active open space in higher density developments. This is due to the fact that active recreational space is best provided in sports hubs with multiple sporting fields that both provide a focus for the community and allow structured sporting activity to be organised efficiently.</p> <p>Therefore, our view is that the better approach for meeting additional demand for active open space is to boost capacity of existing sporting fields in the area.</p>
<p>Council recommends the applicant to explore opportunities to accommodate active recreational spaces by reconfiguring and redistributing the built form. Ideally, it should directly connect or integrate with other open space such as the Shrimptons Creek Parklands.</p>	<p>The refined Masterplan includes additional setbacks to the riparian corridor, allowing for increased green space to be provided for recreation activities. This green space will be connected to the primary communal open space located in the centre of the site through the integrated public domain design, illustrated at <b>Appendix D</b>.</p> <p>The location of the additional open space was explored near Shrimptons creek and Wilga park however due to a number of factors such as lack of solar access, slope, existing trees, restriction of uses / works allowed in the riparian corridor and the existing thoroughfare traffic the location was deemed unsuitable, as the opportunity to create excellence amenity was limited.</p> <p>Alternatively, the proposed location in the middle of the Ivanhoe site provided the best opportunity to create a large, essentially flat open space with excellent solar access whilst also working in synergy with the proposed surrounding school, retail and community centre to create a truly active heart.</p>

It would seem that the demand for open space have been under estimated in the reports accompanying the application. The report from Elton Consulting uses a projected occupancy figure of 6,885 people. However, it would seem that this is an underestimation given that the development proposes 3,500 residential apartments and a school for 1,000 students. Using the occupancy rate per apartment of 2.6 (2016 Census data), the derived total population is projected to be over 9,000 people, in addition to the school population that will serve a greater catchment. It would also seem that the school will be without any dedicated large playground. In light of the above Council seeks that a full sized sports field be provided within the Ivanhoe Estate site.

#### **Demand for open space**

The demand for open space has been calculated based on the projected future population for the Ivanhoe redevelopment.

Council proposes using the average household size for the City of Ryde in 2016 (2.6 people) to project the future population at Ivanhoe. However, this approach is unlikely to provide an accurate projection given it does not account for a number of factors including:

- The general trend towards smaller household sizes into the future
- The significantly different age profile and household mix in Macquarie Park as compared to the City of Ryde as a whole
- The particular demographic profile of social housing residents in Ivanhoe.

Given these issues, we have developed population estimates specifically for the:

- Market and affordable housing at Ivanhoe – these are based on population projections provided by .id for the City of Ryde. The projected average household size in 2036 for Macquarie Park is 2.01 (<http://forecast.id.com.au/ryde>). We have used this figure given the development will not be completed for a number of years.
- Social housing at Ivanhoe – these are based on data from the NSW Housing Register provided by the NSW Department of Family and Community Services. We used the current average household size for social housing applicants in the allocation zone that includes Macquarie Park (1.86).

Using this approach we have developed a projected occupancy figure of 6,885 people. This estimate is based on the best evidence we have currently about the likely future population at Ivanhoe.

#### **School population**

There are opportunities to provide significant open space within vertical school developments. This can include active open space, such as basketball courts and tennis courts. Best practice vertical school designs locate open space throughout these buildings to provide accessible space that does not compete with general learning areas. Open space may be located at the podium level, on rooftops and elsewhere.

In addition to these spaces, incorporated into the built form there will also be ground level external plays areas and the school will benefit from the spaces within Ivanhoe which include the village green, forest playground, Shrimptons Creek - all which have been increased in size from the exhibited masterplan. In addition, the school will have access to the proposed Ivanhoe community centre which will include a 25m indoor pool, gymnasium and community spaces.

More broadly the school like many other schools will utilise both private and public local opens space to supplement formal sporting needs as and when



Issue	Response
	<p>required. Through all of these spaces the open space and recreational requirements of the school will be accommodated.</p> <p>We note that the open space provided within the school will be accessible to the Ivanhoe community through a shared use agreement.</p>
<p>The Aspire Consortium has signalled that it is willing to make financial contributions to improve local sports fields such as Wilga Reserve and ELS Hall Reserve and intensify their use. Council has indicated there is very limited opportunity to meet the demand for the proposed development by relying on other nearby smaller pockets of open space.</p>	<p>The VPA has been revised to omit these two items, and it has been confirmed by Council.</p>
<p>Educational facilities also need to incorporate open space for student play and recreation generally at a rate of 10m<sup>2</sup> per student. The application states that some of these needs will be satisfied by local open space and facilities to be provided within the Ivanhoe site, while others will be addressed by accessing facilities in the wider district and more broadly in the region. This is not a satisfactory outcome.</p>	<p>The vertical school will be designed to have a series of breakout spaces, external terraces, roof top gardens/courts, internal lower level gymnasium and courts. In addition to these space incorporated into the built form there will also will be ground level external plays areas and the school will benefit from the spaces within Ivanhoe which include the village green, forest playground, Shrimp tons Creek all which have been increased in size from the exhibited masterplan. In addition the School will have access to the proposed Ivanhoe community centre which will include a 25m indoor pool, gymnasium and community spaces. More broadly the school like many other schools will leverage of both private and public local opens space to supplement formal sporting needs as and when required. Through all of these spaces the open space and recreational requirements of the school will be accommodated.</p>
<p>The Town Plaza and the Village Green are two important public spaces in the neighbourhood, yet they lack visual and physical connections with each other. It is recommended to provide a through connection in Building C2 to link the two spaces together.</p>	<p>The Masterplan has been redesigned to create a unified, enlarged Village Green that benefits from activation from the retail and community centre and connections to pedestrian paths throughout the site.</p>
<p><b>8. Contaminated Land</b> A number of contamination investigations have been carried out by DLA Environmental Services Pty Ltd (DLA). These include:</p> <ul style="list-style-type: none"> <li>• Summary of In-Ground Contamination – Ivanhoe Estate, Cnr Herring and Epping Roads, Macquarie Park (Report No. DL3531_S0055491 dated 11 October 2016)</li> <li>• Supplementary Site Investigation – New Property Acquisition - Ivanhoe Estate – 2 Lyon Park Road, Macquarie Pak (Report No. DL3953_S007076 dated July 2017)</li> <li>• Supplementary Site Investigation – Ivanhoe Estate, Corner of Herring Road and Epping Road, Macquarie Road (Report No. DL3953_S008115 dated February 2018)</li> </ul> <p>The October 2016 report reviewed the results of a previous detailed site investigation carried out by JBS &amp; G in 2016 ('the DSI'). According to this report there was limited evidence of historical contaminating activities on the site and soil sampling found that all contaminants of potential concern were at levels less than the assessment criteria, with the exception of benzo(a)pyrene which exceeded the ecological criteria at one sample location. However, this was not considered to present an unacceptable ecological risk.</p>	<p>Noted.</p>
<p>It was also noted that the 26 sample locations used was less than the minimum number specified in the Sampling Design Guidelines (NSW EPA, 1995) for site characterisation, but according to the review the number was considered adequate given the past history of the site and the targeted nature of the sampling program.</p>	<p>Noted.</p>
<p>The review also identified a number of areas of 'altered topography' that required further investigation.</p>	<p>Noted.</p>

Issue	Response
<p>The July 2017 report considered the suitability of a narrow corridor of land at 2 Lyonpark Road for re-development as a road reserve. The report concludes that the site is suitable for the proposed use from a contamination perspective.</p> <p>The February 2018 report examined the areas of 'altered topography' that were identified in the October 2016 report and found elevated levels of total recoverable hydrocarbons (TRH) in the vicinity of borehole BH8. The report concludes that:</p> <ul style="list-style-type: none"> <li>• The combined data presented in the DSI and this supplementary report is considered sufficient to allow assessment of the suitability of the site for future land use in accordance with the general requirements of SEPP 55.</li> <li>• Based on the results of the current investigation data, DLA concludes that the area of the site in the vicinity of borehole BH8 is not currently suitable for the proposed redevelopment from a contamination perspective due to the presence of TRH in soil.</li> <li>• Although the site is not considered suitable for the proposed land use in its current condition, DLA considers that the site can be made suitable with further assessment and the implementation of an appropriate remediation strategy.</li> </ul>	Noted.
<p>Should the Department be of a mind to approve this application, Council is of the view that the following condition should be imposed:</p> <ul style="list-style-type: none"> <li>• A detailed Environmental Site Assessment must be submitted with any subsequent application. This assessment must comply with the Guidelines for Consultants Reporting on Contaminated Sites (EPA, 1997) and demonstrate that the site is suitable for the proposed use, or that the site can be remediated to the extent necessary for the proposed use.</li> <li>• If remediation is required the report should also set out the remediation options available for the site and whether the work is considered to be category 1 or category 2 remediation work.</li> </ul>	Noted.
<p><b>9. Noise Issues</b></p> <p>An acoustic assessment report has been prepared by Acoustic Logic. The report concludes that the potential impacts can be appropriately managed. However, further analysis of noise must be addressed as part of each stage of development.</p>	Noted.
<p><b>10. Stormwater Management</b></p> <p>The stormwater aspect of the proposal has been reviewed by Council Engineers and the following comments are provided:</p> <ul style="list-style-type: none"> <li>• The trunk drainage system will need to be implemented at the initial stage of works to provide a trunk drainage system to service the development in the upper reaches of the site. The implementation of the trunk drainage infrastructure which is to be dedicated to Council under public roads, will require conceptual road alignment plans to ensure the nominated levels of these services are consistent with the satisfactory road levels.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>• The nominated OSD design rational is supported as the adopted approach (elected to achieve a Green Star Credit Rating) is considered conservative in comparison to Council's requirements.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>• Each of the stages will warrant on-site detention which ideally should be provided at the lowest point of the site prior to the point of discharge. The OSD storage (whether it be comprised of a tank or basin) must be designed in accordance with Council's DCP part 8.2 (Stormwater and Floodplain Management).</li> </ul>	Noted.



Issue	Response
<ul style="list-style-type: none"> <li>The analysis has nominated that public road and driveway areas are 80% impervious (Section 3.1.1 of the report). Further justification is warranted for these figures, particularly road pavements which are considered as 100% impervious. It is understood these areas may comprise of (or partially be comprised of) permeable pavers however should be clarified.</li> </ul>	<p>The road sections include vegetated landscape areas. Further details around landscape treatments within proposed public roads will be provided in conjunction with future stage applications and the impervious calculations will be reviewed and modified if necessary.</p> <p>It is noted that, as per the Stormwater and Drainage Assessment, the roads are neither detained nor treated (as per Council's advice – refer to Stormwater and Drainage Assessment for further commentary). As such, this number has no impact on any results in the report.</p>
<ul style="list-style-type: none"> <li>The WSUD measures nominated include "end-of-line" treatments (ie implemented at the point of discharge) as well as implementation of pit baskets in each of the kerb inlet pits. Such measures will significantly increase the level of Council resources required to maintain such devices. It is advised that the WSUD treatments of public domain areas be undertaken in accordance with Councils public domain/ sustainability section and suggested any such treatment be consolidated. Ideally the WSUD targets should be addressed by devices/ measures internal to the development themselves and such measures be implemented at the discharge point of</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>It is understood that the applicant is in the process of formalising the drainage system servicing the corner property (137 to 143 Herring Road). It is understood the developer of this site is currently seeking to formalise an easement through the Ivanhoe Estate and this matter is currently being considered by the Courts. It is advised that this development should make provision for an accessible, unobstructed flowpath and drainage services to be located between Stages 1 and 2 to the proposed new road and there does not appear to be any imposition on the applicant to provide this.</li> </ul>	Noted. The easement has been registered.
<ul style="list-style-type: none"> <li>The portion of land along the northern boundary are anticipated to be below the public trunk drainage system accommodated by Road 1. Accordingly a private drainage easement will be required to be formed along the northern boundary to service Stages 7, A &amp; B (in the anticipation these stages will be subdivided in separate lots). The land currently accommodates an easement and overland flowpath and this should be replicated in similar form through this region.</li> </ul>	Noted.
<p><b>11. Parking and Vehicle Access</b></p> <p>It is noted that parking will be provided in accordance with the DCP Part 9.3 (Parking Controls) for the Macquarie Park corridor. This is to be strictly complied to align with the transportation principles and objectives outlined in Council's RLEP2014 and the RDCP2014. However, the following issues are raised in relation to the variations proposed with respect to car parking:</p>	Noted.

Issue	Response
<p>a. Variation to visitor parking numbers not supported by Council: The car parking rate as provided in the RDCP2014 is already at a reduced rate as part of the most recent revisions of the parking rate in Macquarie Park. It is expected that additional parking is provided on the site in accordance with the DCP requirement.</p> <p>It has been noted that the number of visitor parking required for the development is being varied by 50%. This in real terms means approximately over 150 visitor car parking spaces not being provided on the site. Given that the development proposes 3,500 residential units, a variation of this scale is likely to result in major car parking storage for visitors.</p> <p>The variation is likely to result in a significant parking undersupply that would impact on-street parking availability in the area and would also place pressure on Council to alter parking restrictions in the surrounding area or potentially implement a permit parking scheme. These ramifications are unacceptable. Council seeks that a condition be imposed to ensure that the car parking requirement, including the number of visitor parking spaces is fully complied with and provided within the site distributed throughout the site in the basement. Visitor parking must be counted for any spaces provided on the proposed roads.</p>	<p>It is noted that the application seeks approval for a reduced parking rate for residential visitors of 1 space per 20 units. Adoption of this rate is deemed appropriate having regard to the high accessibility of the Site to public transport and is supported by DP&amp;E and TfNSW. Furthermore, the suppression of visitor parking will also reduce the availability of residents to utilise spare parking capacity thereby suppressing car ownership.</p> <p>On-street parking across the Ivanhoe Estate would also be available to visitors. The provision of this rate of visitor parking is fully compliant with the Maximum rates detailed in RDCP2014 and as stated by the RMS in their Submission will assist in reducing private vehicle trips.</p>
<p>b. Variations to Car Share City of Ryde Council strongly advocates the provision of car share parking on such major development sites as part of a commitment to sustainability and reducing private vehicle use for the journey-to-work.</p> <p>It is also noted that the number of car share spaces is being varied by 50%. Given that the development proposed 3,500 residential units, a variation of this scale is likely to result in more pressure on existing car parking and street parking spaces. Council seeks that a condition be imposed to ensure that the car share spaces be provided in accordance with RDCP2014 and that these spaces are:</p> <ul style="list-style-type: none"> <li>Publicly accessible 24 hours a day seven days per week;</li> <li>Located together in the most convenient locations;</li> <li>Located near and with access from a public road and integrated with the streetscape through appropriate landscaping where the space is external;</li> <li>Designated for use only by car share vehicles by signage;</li> <li>Parking spaces for car share schemes located on private land are to be retained as common property by the Owners Corporation of the site.</li> </ul>	<p>Noted.</p> <p>Car share spaces are to be provided in accordance with RDCP (ie: at a rate of 1 space per 50 spaces) within the basement of each of the individual residential buildings across the Ivanhoe Estate .</p>
<p>c. Loading/ service facilities Any loading / service facilities must be located on the site itself. In this respect, resident services are to be accommodated by an appropriate number of loading bays accommodating SRV vehicles and waste services are to accommodate Council waste vehicles. This will require a swept path to accommodate a 11m long vehicle with 4.5m height clearances.</p>	<p>Noted.</p>
<p>d. Pickup-drop off services for the proposed school It is considered crucial that the pick up-drop off services for the proposed school be provided internal to the school site, clear of the public domain. Often such facilities are implemented from the street frontage however come of cost of traffic congestion and jeopardising pedestrian safety. Accordingly such a service must be provided off the public road and within the site.</p>	<p>Internal drop-off within the school site cannot be accommodated and the design of Main Street has included provisions for loading zones and bus parking to service the school.</p> <p>On-street parking directly adjacent to the School will accommodate the moderate drop-off and pick-up demand. This parking would provide for short-term parking during the School arrival and departure peaks. It is considered that the provision of this on-street parking provides both an efficient and safe design outcomes. The provision of off-street spaces is not considered to be</p>

Issue	Response
	suitable due to the requirement for vehicles to leave the road network and cross pedestrian desire lines adjacent to the school access and bus pick up / drop off areas.
e. Pickup-drop off services for the proposed child care facility Similarly the child care centre to be implemented is to provide a circulatory parking area to facilitate safe and efficient pickup-drop off activities clear of the public domain.	The parking requirement for the Child Care Centres will predominately be provided within each Centre site, however, some on-street spaces are also proposed to enable ease of access. While the provision and design of these parking areas will be determined as part of future Development Applications, it is noted that the suggested provision of a circular drop-off/pick-up facility is not supported; Child Care Centres require (without exception) that parents/carers sign children in/out of a centre, which requires that they park (if they have driven), i.e. there is no drop-off or pick-up demand such as that at a school (where the parents/carer remains in their vehicles).
f. Proposal does not comply with AS2890 .1 The proposed driveway servicing Stages 6 & 8 is noted to be located on an intersection of the new Roads No. 2 & 3. The location of the driveway is not in accordance with AS2890 .1 and will potentially complicate intersection movements thereby creating an unsafe traffic environment. It is suggested that the driveway entry be relocated clear of the intersection (as per AS 2890.1) or otherwise subsequent DA recommend traffic controls to be implemented in this location to address the situation.	While not specifically indicated in the Masterplan, the underlying intention of the design is that the Stage 6 and Stage 8 access driveway would operate as a fourth approach to the intersection of Road 2 and Road 3 under priority control, a more than appropriate design within the local road context. The provision of a four-approach intersection with appropriate geometry, signage and sight distances can be determined in consultation with Council as part of a future Development Application. Furthermore, it is expected that any DA be approved with relevant conditions requiring the compliance with relevant Australian Standards.
<b>12. Traffic Issues</b> Council's Traffic Department has reviewed Transport Management and Accessibility Plan (TMAP), April 2018 and provides comments and conditions below.	-
a. Intersection Configuration along Road No. 1 On Page 17 - Transport Management and Accessibility Plan – The applicant has indicated that the series of connecting streets will serve as the "U-Turn" facility for vehicles on Herring Road heading northbound. This coupled with the inclusion of the school and shopping precinct will promote large traffic movements for those circulating the village centre. This can be attributed to people searching for parking spaces, as well as during the pick-up/drop-off school peak for those trying to locate spaces to safely pick-up/drop-off their children. The current configuration proposed does not allow for suitable opportunities to circulate the main road and hence promotes an unsafe environment that may result in drivers undertaking erratic movements.  To address this issue, the inclusion of roundabouts at the major intersections along the Road 1 must be provided to assist with internal traffic circulation during peak movement times.	The relevant U-Turn facility shall be constructed for both the Stage 1 and ultimate design in accordance with the previously agreed position with the RMS. Reference is made to the email from RMS to the Department dated 20/06/18 outlining this position.
Council seeks that a condition be imposed requiring the applicant/ developer to construct a roundabout at the intersection of Street No. 1/Street No. 2 and Street No. 1/Street No. 3. This must be incorporated as part of the appropriate stages of construction. Suitably prepared civil plans shall be submitted to and approved by the Certifying Authority (City of Ryde) prior to the determination of any detailed application relevant to the particular stage.	The relevant U-Turn facility shall be constructed for both the Stage 1 and ultimate design in accordance with the previously agreed position with the RMS. Reference is made to the email from RMS to the Department dated 20/06/18 outlining this position.

Issue	Response
<p><b>b. School Drop-off/Pick-up Facilities</b>  The new school being proposed relies heavily on the availability of parking within the local street and also is based on the assumption that majority of the attendees will be from the local vicinity or attend the school via public transport. The proposed school is likely to generate major trips in the morning and afternoon peak periods, especially considering the school is anticipated to accommodate 1,000 students.</p> <p>The design should be reconfigured to provide a drop-off/pick-up zone within the school boundary.</p> <p>Council seeks that a condition be imposed requiring an internal drop-off/pick-up zone within the school boundary to accommodate private vehicles and buses. If this is not possible with the Master Plan then this requirement must be complied with as part of future detailed application.</p>	<p>On-site school pickup is not possible without significant compromise and safety concerns for the students. All parking on Main Street has now been converted to timed drop off zones in the morning and afternoon, as well as a new dedicated bus zone large enough to fit two buses located in front of the RACF.</p> <p>On-street parking directly adjacent to the School will accommodate the very moderate drop-off and pick-up demand. This parking would provide for short-term parking during the School arrival and departure peaks. It is considered that the provision of this on-street parking provides both an efficient and safe design outcome and is preferred to off-street pick up / drop off spaces due to the conflicts between pedestrians and vehicles.</p>
<p><b>c. Herring Road/Ivanhoe Estate Traffic Signals</b>  The applicant consistently makes references to undertaking the installation of the traffic signals at the intersection of Herring Road/Ivanhoe Estate. However, no details have been provided to indicate the stage of development this is going to occur.</p> <p>Council seeks that this be imposed as a condition and the applicant/ developer must confirm the status of these signals; who will be delivering the project, when the installation is to occur and where the funding will be provided (i.e. the applicant or Roads and Maritime Services and Transport for NSW).</p>	<p>As per discussions and agreement with RMS, a contribution will be paid by the Aspire Consortium to the RMS for the required road and intersection upgrades at the intersections of Epping Road with Herring Road and Herring Road with Ivanhoe Place.</p>
<p><b>d. Lyonpark Road/Road No. 1 Intersection Treatment</b>  The report marginally addresses the intersection treatment of Lyonpark Road and proposed Street No. 1. It then dismisses the option to install a traffic signal at this location.</p> <p>The applicant must propose an alternative traffic management measure (e.g. a roundabout) as the circulation demand on this intersection is anticipated to be considerably high.</p> <p>The applicant shall construct, as a minimum, a roundabout at the intersection of Road No. 1 and Lyonpark Road, should the subsequent detailed intersection analysis confirm that traffic signals are unsuitable. Suitably prepared civil plans shall be submitted to and approved by the Certifying Authority (City of Ryde) prior to the release of any bonds associated with the civil infrastructure.</p> <p>Council seeks that the Master Plan be amended to indicate this roundabout at the location and a condition be imposed requiring details to be submitted as part of Stage 2 for approval by Council.</p>	<p>Further intersection modelling has been undertaken to assess the capacity of the Main Street and Lyonpark Road intersection. The proposed priority controlled intersection performed acceptably in the 2021 scenario. The preferred layout option incorporates a 70m dedicated right turn bay into Main Street and has a separate southbound through lane.</p> <p>SIDRA modelling demonstrates that a roundabout at this location would be expensive and unnecessary.</p>
<p><b>e. Lyonpark Road/Epping Road Intersection Treatment</b>  The report discusses the intersection treatment of Lyonpark Road and Epping Road. It then dismisses the option to upgrade the intersection to a traffic signal. No supporting modelling has been demonstrated within the report. This link has been modelled by Council and showed some benefits as a two-way road but its benefits would be strengthened by the signalisation of the Lyon Park Road/Epping Road intersection with full movements allowed. The inclusion of the signalisation upgrade of Lyonpark Road and Epping Road provides access for regional traffic to Macquarie Park, but also direct access to the Ivanhoe Estate precinct. In this regard, a "contribution" from the developer is expected to facilitate the future construction of the traffic signals, in the similar manner to the RMS signal plan (Reference No.: 0373.387.SP.0001, Sheet No.: 001)</p>	<p>Following discussion and agreement with RMS, the proposed signalisation was not pursued due to the resultant delays and queues during the PM peak on Lyonpark Road. Furthermore, traffic modelling demonstrated queues in excess of 450m and a resulting Level of Service F (compared to a LoS A under the 2021 Base Case model) due to the required left turn signalisation. This option is therefore not proposed as part of the network upgrades that form part of this application.</p>

Issue	Response
<p>f. Completion of Shared User Path (SUP) along Epping Road The report does not provide details regarding the required SUP along Epping Road, connecting the existing SUP, east of the site frontage, to Herring Road.</p> <p>This connection will provide a critical link in the pedestrian and cycle network and is required to be delivered as part of the public domain upgrades of the Epping Road frontage of the site. Mandatory Condition:</p> <p>Council seeks that the applicant construct a Shared User Path (SUP) link along the Epping Road frontage of the development site, connecting to the existing SUP on-ramp to Shrimptons Creek (southern boundary of the site) to the Herring Road signalised intersection, to a minimum width of 3.0 metres. This should be shown on the Master Plan.</p>	<p>The implementation of this request would require removal of additional areas of endangered ecological community. It is noted that Council is currently constructing a shared user path on the opposite side of Epping Road, and the construction of a duplicate path in the requested location would not be logical.</p>
<p>g. Traffic Generation The applicant's consultant has stated the following volumes to be generated from the site (as per the table below). The values indicated, in particular the generation of the school, is considered significantly underestimated. The consultant has assumed a rate of 95 vehicles in the peak AM for a school servicing approximately 1,000 students. Council's assessment, as per the RMS Trip Generation Surveys Schools, Analysis Report, would consider the school to produce 510 vehicle trips in the AM peak hour, based on average trip generation rate of 0.51 vehicle trips per student.</p> <p>Additionally, the child care centres are documented as producing 30 vehicles in the peak periods. RMS Guide stipulates a rate of 0.8 trips per child for AM peak hour and 0.7 trips per child for PM peak hour. Therefore based on 150 children, traffic generation for the child care centre could be 120 and 105 vehicle trips during the AM and PM peak hours, respectively.</p> <p>This changes the overall generation of the site from the consultant's figure of 538 vehicle trips during the AM peak hour, to the Council's assessed figure of 1,043 vehicle trips per hour in the AM peak periods. Applying trip reduction factor of 20 to 25 percent for internal trips within the Ivanhoe Estate precinct, the external traffic generation due to the development is still in the order of 800 vehicle trips during the AM peak hour. This level of difference is expected to have a major impact on the serviceability of the local streets and the operation of Macquarie Park.</p>	<p>Refer to Table 1 of the Transport Management and Accessibility Plan Addendum which provides updated trip generation agreed with DP&amp;E following discussions and analysis.</p> <p>The updated table has been used for further modelling analysis following discussions and agreement with DP&amp;E and RMS on the methodology and results are presented in the Addendum.</p> <p>It is noted that the school trip rate referred to by Council relates to schools that are not well serviced by public transport. The trip rate adopted for the school has been established through extensive surveys of similar developments which it is noted is the RMS's preferred method of predicting future trips.</p>

## Issue

## Response

Table 20: Adopted Trip Generation

Land Use	Approximate Yield	AM Trip Rate	PM Trip Rate	AM Generation (veh/hr)	PM Generation (veh/hr)
<i>Residential Land Uses</i>					
Market Dwellings <sup>1</sup>	2,324	0.14 / unit	0.12 / unit	325	282
Social Dwellings	875	0.03 / unit	0.05 / unit	26	44
Market Independent Living Units	132	0.10 / unit	0.10 / unit	13	13
Social Independent Living Units	141	0.03 / unit	0.05 / unit	4	7
Affordable Units	128	0.12 / unit	0.10 / unit	15	13
Residential Aged Care Facility <sup>2</sup>	120	0.10 / unit	0.10 / unit	12	12
Residential Sub-total				395	371
<i>Non-Residential Land Uses</i>					
High School	1000 students	survey	survey	95	15
Child Care	150 children	0.1 per child + 15 staff	0.1 per child + 15 staff	30	30
Office	571m <sup>2</sup>	1 / 100m <sup>2</sup>	1 / 100m <sup>2</sup>	6	6
Ancillary Retail	1,240m <sup>2</sup>	1 / 100m <sup>2</sup>	1 / 100m <sup>2</sup>	12	12
Non-Residential Sub-total				144	63
<b>Total Estate Generation</b>				<b>538</b>	<b>434</b>

<sup>1</sup>) Approximated market dwelling yield has been increased by 100 to allow a contingency in the traffic trip generation rates.

<sup>2</sup>) Beds not included in indicative yield.

Prior to further consideration of this application, Council is of the view that the Transport Management and Accessibility Plan (TMAP) must be updated to reflect the impact of 800 vehicle trips during the AM peak hour.

#### h. Internal Road Assessment

TMAP does not address the mid-block and intersection capacity of the proposed internal roads within the Ivanhoe Estate development.

It is recommended that the TMAP be updated to include an assessment of the internal roads within the Ivanhoe Estate development taking account of Council's comments on traffic generation estimate. In particular, a single lane street may not be adequate to cater for 510 vehicle trips during the AM peak hour, attempting to utilise school drop-off/pick-up facilities.

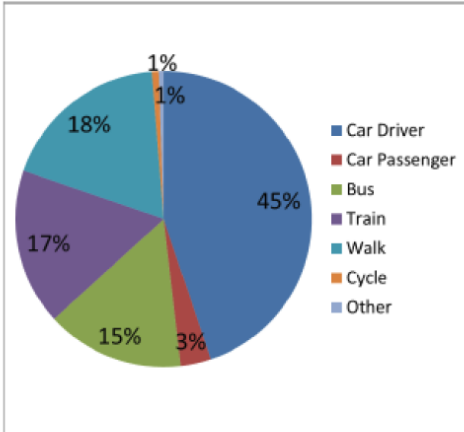
Refer to the updated drawings provided by Bates Smart and contained in the Transport Management and Accessibility Plan Addendum.

Issue	Response
<p>i. Pedestrian Crossings</p> <p>There are plan inconsistencies between Figure 5 (page 15) and Figure 9 (page 18) of the Transport Management and Accessibility Plan.</p> <p>Council supports, in principle the current plan illustrating three raised pedestrian crossings on Road No. 1 (location to be confirmed during detailed design).</p> <p>Road No. 2 showing a single raised pedestrian crossing. Council requires an additional raised pedestrian crossing (location to be confirmed during detailed design).</p> <p>Road No. 3, east of Road No. 2 requires a raised pedestrian crossing.</p> <p>Further pedestrian facilities are likely to be required under a 40km/h High Pedestrian Activity Area.</p> <p>The applicant is to undertake necessary actions to obtain approval from RMS for the implementation of a 40km/h HPAA zone throughout the Ivanhoe Estate to ensure maximum safety for all road user types.</p> <p>Council is of the opinion that any approval should be conditioned to require the applicant to construct raised pedestrian crossings at the following locations.</p> <ol style="list-style-type: none"> <li>three crossings on Road No. 1, consist with Figure 5 of Transport Management and Accessibility Plan;</li> <li>two crossings on Road No. 2, including an additional crossing</li> <li>an additional crossing on Road No. 3, east of Road No. 2.</li> </ol> <p>Exact locations must be confirmed with City of Ryde during detailed design stage.</p>	<p>Three (3) raised pedestrian crossings have been provided across Main Street, and one (1) raised pedestrian crossing has been provided on Road 2. This crossing on Road 2 is located along the 'Green Link' pedestrian and cycle route. Due to the removal of the Town Plaza, the second pedestrian link is not required. A raised pedestrian crossing has been provided on Road 3, west of Road 2. An additional three (3) pram ramps have been provided between the raised crossing and Road 1 for pedestrian access.</p>
<p>j. Footpath/Shared User Path (SUP)</p> <p>The applicant has identified on Page 4 Transport Management and Accessibility Plan – “A high quality active network will be provided throughout Ivanhoe Estate through continuous shared paths and crossing facilities at key locations”.</p> <p>The SUP cross section provided along all internal networks and connections appear to be lacking. Also, the applicant is to address the pedestrian desire lines and provide appropriate pedestrian crossings. There is also the requirement to provide connecting pathways to link to Epping Road.</p> <p>Footpath clear widths shall be amended in line with the NSW Bicycle Guidelines for shared paths:</p> <ul style="list-style-type: none"> <li>• 2.0m where pedestrian access is only intended</li> <li>• 4.0m where a shared user path or cyclist access is anticipated.</li> </ul>	<p>A 1.8m wide footpath has been provided along all pedestrian only streets. This width is sufficient for passing wheelchairs and prams.</p> <p>The Main Street design allows for a 4m wide shared path, with 300mm offset to non-frangible objects. Due to the multiple community focused buildings fronting Road 1 (school/ aged care) the design intent is to reduce cycle speed and increase pedestrian safety.</p>
<p>k. Developer Bus Services</p> <p>The applicant has identified on Page 4 of the Transport Management and Accessibility Plan – “Implementation of a new developer funded community bus connecting the development with Macquarie Park employment zones and other local services”</p> <p>TMAP does not however address this item. Further emphasis needs to be provided and details of how this is anticipated to be implemented and operated, on an ongoing basis. Council requests the applicant to amend the TMAP with further details as to how this bus service is expected to operate within the business park with details on bus stop amenity provisions et cetera.</p>	<p>A development funded bus will be provided to Mission Australia Housing to run as a community service.</p> <p>A Green Travel Plan will be developed for the site and monitored on an annual basis consistent with similar approvals for major developments. The Community Bus is a component of that plan. The internal road network has been designed to accommodate the relevant bus requirements including minimum 3.5m travel lanes and 3.0m wide bus parking bays.</p>



Issue	Response
<p><b>l. Level of Service Results</b> Page 106 of the Transport Management and Accessibility Plan – The author has used AM and PM numbers from the 2016 RMS model for the 2021 situation (Epping Road and Herring Road LoS – E). The Macquarie Park Bus Priority and Capacity Improvements Program, however indicates LoS – F for PM peak periods.</p> <p>The consultant has identified that the upgrade of the intersection of Epping Road and Herring Road (to be delivered as part of the Macquarie Park Bus Priority and Capacity Improvement Project) results in a significant improvement in the operation of the intersection in the medium term.</p> <p>The information provided by the consultant is deemed misleading in that the Level of Service (LoS) of the intersection continues to operate at 'F' being that the operation of the intersection fails in accordance with the RMS LoS Guidelines.</p> <p>In general, the values used by the consultant are not in accordance with the Macquarie Park Bus Priority and Capacity Improvements Program values. Council requests the applicant to amend the TMAP to reflect accurate results in accordance with the 2016 RMS model for the 2021 proposed scenario.</p>	<p>Ason Group has been liaising with DP&amp;E's traffic consultant as well as the developer of RMS's Aimsun model to ensure accurate and robust methodology and results. In relation to Council's comments, whilst the LoS remains at F, the delays have considerably reduced at key intersections due to the proposed upgrade works resulting from the Bus Priority and Capacity Improvement Project as well as the improved accessibility achieved through the provision of the proposed bridge connection to Lyonpark Road.</p> <p>Reference should be made to the revised modelling outputs included in the Transport Management and Accessibility Plan Addendum.</p>
<p><b>m. Bus Serviceability</b> It is stated on Page 70 of the Transport Management and Accessibility Plan –in order to develop and protect bus corridors within Ivanhoe Estate to facilitate bus permeability the site has been designed to accommodate bus movement.</p> <p>There is no indication of how this has been incorporated into the proposed layout. Council requests the applicant to update the TMAP to identify how the bus movement can accommodated within the Ivanhoe Estate corridor.</p>	<p>The internal road network has been designed to accommodate the relevant bus requirements including minimum 3.5m travel lanes and 3.0m wide bus parking bays.</p>
<p><b>n. School Parking Requirements</b> The School appears to have provided inadequate parking facilities for teachers.</p> <p>As part of Council's DCP requirements, the School is required to provide at least 30 parking spaces for the teachers. Further, the teacher's numbers have not been appropriately addressed. It appears as though there is a great reliance that attendees will be using Public Transport. Council requests the applicant to revise the TMAP to properly address the requirements of the school including teacher numbers, parking provisions, etc.</p>	<p>RDGP2014 requires the provision of 1 space per 2 employees and 1 space per 10 students over the age of 17. With regards to the employee parking requirement, it is proposed that a total of 30 parking spaces be provided on-site, which would provide compliance with the employee parking requirement of RDGP2014. However, there is no proposal to provide for student parking on-site due to the sites' proximity to public transport and it's designation as a transit oriented development. It is proposed to restrict student trips to public and active transport as well as passengers drop-offs, as is the policy for other vertical schools in similar urban locations.</p>
<p><b>o. Journey to Work Mode Share</b> The applicant has compiled a Journey to Work (JTW) profile of the proposed development. This has been compared with the Macquarie Park Bus Priority and Capacity Improvements Program. Whilst it is noted that both reports are using the same JTW stats from 2011, the values are significantly different without adequate justification.</p>	<p>The JTW modes reported in the MPBP report are (as stated in the Council Submission) taken from the 2011 Journey to Work data-set; however, the forecast JTW modes reported in the TMAP (Table 15) reflect the Sustainability Targets based on NSW State Government and indeed Ryde Council initiatives to reduce car driver percentages. It is noted that these travel mode forecasts are almost identical to the forecast travel modes determined in the North Ryde Station Precinct Project - Transport Management and Accessibility Plan, which was subsequently approved and is currently under construction.</p>



Issue	Response																					
<div><p>Source: ABS Census 2011</p><table><tr><th></th><th>MPBPICP</th><th>Ivanhoe AM</th></tr><tr><td>Car driver</td><td>45</td><td>27</td></tr><tr><td>Car Passenger</td><td>3</td><td>14</td></tr><tr><td>Bus</td><td>15</td><td>11</td></tr><tr><td>Train</td><td>17</td><td>21</td></tr><tr><td>Walk</td><td>18</td><td>25</td></tr><tr><td>Cycle /Other</td><td>2</td><td>2</td></tr></table></div>		MPBPICP	Ivanhoe AM	Car driver	45	27	Car Passenger	3	14	Bus	15	11	Train	17	21	Walk	18	25	Cycle /Other	2	2	
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Cycle /Other	2	2																				
<p>Council is of the view that the applicant is to validate the difference between JTW statistics adopted in the TMAP and Macquarie Park Bus Priority and Capacity Improvements Program and the TMAP must be updated accordingly.</p>	Noted.																					
<p>p. Road Infrastructure Hand-Over Staging</p> <p>Based on the length of construction activity anticipated, it is envisaged that a large volume of construction traffic will be required to travel over the newly constructed roads and infrastructures.</p> <p>Council seeks that the developer/ applicant dedicate to the Council Road No.1, Road No. 2 and Road No.3 prior to issue any Occupation Certificate for Stage 8. This matter can be negotiated as part of the Voluntary Planning Agreement that the applicant has offered to enter into with Council</p>	Noted.																					
<p>q. Indented Parking Bays on Road No. 3</p> <p>The indented parking bays on Road No. 3 close to the Epping Road slip lane are considered high risk due to its proximity to the deceleration lane. There is a high chance of rear end collisions for those exiting off Epping Road and those attempting to park.</p> <p>The applicant should relocate the indented parking bays closer to the Road No. 2. If no suitable location can be accommodated, the deletion of this space would be recommended.</p>	<p>The provision of indented parking bays in proximity to the Epping Road slip lane can be determined as part the of future detailed design process.</p>																					

Issue	Response
<p>r. Ivanhoe Estate Redevelopment (Urban Design Guide) – Deficiencies</p> <p>The Ivanhoe Estate Redevelopment – Urban Design Guide requests the installation of a section of Shared User Path to join the link from the proposed bridge, along Lyonpark Road, connecting to the section already constructed at the intersection of Lyonpark Road and Giffnock Avenue.</p> <p>Council requests the applicant to update the TMAP to include the shared path connection between the proposed overbridge and Giffnock Avenue along the western side of Lyonpark Road as detailed in the Ivanhoe Estate Redevelopment – Urban Design Guide.</p>	<p>The Ivanhoe Estate Redevelopment – Urban Design Guide requires the provision of a Shared User Path linking the proposed bridge with the section of Shared User Path currently under construction at the intersection of Lyonpark Road and Giffnock Avenue. The Masterplan has appropriately been updated to include the provision of this Shared User Path.</p>
<p>s. Serviceability of All Sites</p> <p>The applicant has not addressed the serviceability of the site. Waste and removalist vehicles are to be considered as part of the road network and access to sites.</p> <p>Council seeks that the applicant shall provide swept path diagrams of Council's 11.0m waste vehicle.</p>	<p>Loading/service vehicle areas will be provided within each of the individual sites across the Ivanhoe Estate, i.e. there would be no on-street servicing. The design of the loading/service areas will be determined in future Development Applications, and account for the actual service vehicle demands (i.e. the number of service bays therefore required) as well as the appropriate design vehicle, noting that the majority of vehicles servicing high density residential sites such as proposed have turning radii and height characteristics 'lower' than suggested.</p>
<p>t. SEARS</p> <p>The SEARS response previously prepared by Council raised a concern regarding the Mitigation Measures in the assessment.</p> <p>The applicant has not addressed this request to provide a sensitivity assessment for all infrastructures being delivered by third parties. Council requests the applicant to provide a sensitivity assessment to identify the impact of traffic in the instance that external infrastructures are delayed or not delivered.</p>	<p>All infrastructure improvements include in the assessment are being delivered by RMS / TfNSW as part of the Bus Priority and Capacity Improvement Project or by the Aspire Consortium.</p>
<p><b>13. Public Domain</b></p>	
<p>With regards to the public domain areas to be delivered under this proposal, Council already has predetermined standards for the public domain. These are contained within Council's Public Domain Technical Manual. These standards do not appear to have been recognised. These standards must be used to ensure consistency with the rest of Macquarie Park.</p>	<p>The detailed public domain design will be delivered as part of future stages of development. Consistency with the Public Domain Technical Manual will be demonstrated at this stage.</p>
<p>a. General requirements for Public Domain</p> <p>Public Domain Requirements: The development is subject to the standards and requirements of the City of Ryde Development Control Plan DCP 2014 Part 4.5 Macquarie Park Corridor, and the City of Ryde Public Domain Technical Manual (PDTM) Section 6 – Macquarie Park Corridor.</p>	<p>Noted.</p>
<p>New Roads layout: The pavement of the footway is to be designed according to the requirements of the Public Domain Technical Manual, Section 6 - Macquarie Park Corridor. The new public roads Road No.1, 3 must be in accordance with figure 6.1.1 and Road No. 2 must be in accordance with figure 6.3.1.</p>	<ul style="list-style-type: none"> <li>• The materiality of the paving is consistent with the public domain technical manual – paving to be granite paving – full width.</li> <li>• Road 01 - The overall kerb layout is consistent with the public domain technical manual. Departures are as follows; <ul style="list-style-type: none"> <li>- Traffic lane increase from 3m to 3.5 to allow for bus access</li> <li>- Footpath increase from 3m to 4m to allow for pedestrians, cyclists and on-street</li> </ul> </li> <li>• Road 02 - The overall kerb layout is consistent with the public domain technical manual. Departures are as follows; <ul style="list-style-type: none"> <li>- Footpath widths have been adjusted from an uneven allocation of 3.5 and 2.5 – to 3m on both sides. This is to provide equitable access for all pedestrians.</li> </ul> </li> </ul>

Issue	Response
<p>b. Required road widths, layout and alignment</p> <p>According to Figure 4.1.1 Access Network in the City of Ryde Council DCP 2014 Part 4.5 Macquarie Park Corridor, the new public roads identified on the submission as Road No. 1 and Road No. 3, shall be 20m wide, and Road No. 2 shall be 14.5m wide. The layout is to be in accordance with Part 4.5 of DCP 2014.</p>	<p>RMS have advised that they will not support a left-turn movement out of the subdivision onto Epping Road for the final option, accordingly, south bound travel on Road No 3 is limited to between Main Street and Road No 2. Due to the RMS imposing a no left-turn condition, the objectives of the DCP in using Road No 3 as another site exit point cannot be met. Due to the fact that Road No 3 will now act as a Local Street and not a Collector Street, a width of 14.5m is suitable and in accordance with Council's DCP.</p>
<p>c. Alignment and Adjustment to Council infrastructures</p> <p>The new public roads shall be constructed by the Developer in accordance with Council's public domain standards and specifications. The alignments of the new roads, Road No.1 and Road No.3, shall connect with the existing levels of Herring Road, Lyon Park Road and Epping Road. The existing kerb and gutter associated with any necessary road pavement in Herring Road, Epping Road and Lyon Park Road shall be reconstructed. The applicant shall redesign the finished levels for all Council's infrastructures elements in order to ensure a smooth transition will be achieved.</p>	<p>Noted.</p>
<p>d. Access from Epping Road</p> <p>RMS New Access: The main vehicles access from Epping Road to the proposed development through Road No. 3 shall be designed in accordance with Road and Maritime Services (RMS) specifications and requirements.</p>	<p>Noted.</p>
<p>e. Engineering Design Requirements</p> <p>Full Design Engineering plans: The applicant shall provide Council's City Works &amp; Infrastructure Directorate suitably prepared engineering plans providing details of the new roads including the smooth connections to existing infrastructure along Herring Road, Epping Road and Lyon Park Road. Council seeks that this be done for all stages of development.</p>	<p>Noted.</p>
<p>f. Underground Utility and Services</p> <p>Underground Utility Services: The relocation/adjustment of all public utility services affected by the proposed works shall be clearly indicated in proposed design. Written approval from the applicable Public Authority shall be submitted to Council along with the public domain plans submission. All of the requirements of the Public Authority shall be complied with.</p> <p>Underground Utility Services: All telecommunication and utility services are to be placed underground along the new Roads.</p>	<p>Noted.</p>
<p>g. Street Lighting</p> <p>Streets lighting: Street lighting shall be provided along all new roads and pedestrian links in accordance with the City of Ryde Public Domain Technical Manual Section 6 – Macquarie Park Corridor. Reference shall also be made to Council's Street Lighting Schema for Macquarie Park and Design Guide for Council-owned Street Lighting</p>	<p>Noted.</p>

Issue	Response
<p>h. Shared Pathways/ bike path</p> <p>Share Path: According to Section 3.3 Access Network – Cycleway Strategy of the City of Ryde Public Domain Technical Manual - Section 6 Macquarie Park Corridor, the bicycle network is to be implemented as off-street shared cycleway along Regional Bicycle Route in Epping Road and Shrimpton's Creek pathways. Cycleways are to be located, as per approved concept plan from Council's Traffic Transport and Development Department adjacent to the property, to minimise conflict with street trees, lighting, signage and other public domain elements. The Local Bicycle Network is to be implemented as off-street shared cycleway in accordance with the Ryde Bicycle Strategy 2014 refer Figure 4.3.1 Cycleways.</p>	Noted.
<p>i. Structural Details for Lyon Park Road Bridge and Barriers</p> <p>The Applicant should submit structural design details from a Chartered qualified and experienced structural engineer for the proposed suspended bridge and any required balustrade/barriers. The following information is to be addressed by the consulting engineer:</p> <ul style="list-style-type: none"> <li>• The minimum overall width of the bridge is to be 14 metres in order to accommodate two laneways (3.5mX2), a shared path on the northern side (4.0m), a footpath on the southern side (2.0m) and the required barriers on both edges (0.5m X2).</li> <li>• To prevent structural damage from flooding, the proposed structure must be designed to withstand inundation and overland flows, including debris and buoyancy forces as appropriate.</li> <li>• The provision of a suitable guardrail along both edges of the bridging structure that complies with Section 2.4.5.3 of AS2890.1-2004 and RMS requirements.</li> </ul> <p>In this regard the Master Plan is to be amended to reflect the width of the bridge.</p>	<p>Noted. The proposed bridge forms part of the Stage 1 Development Application and details will be submitted as part of a future detailed application. The roads and bridge structure are shown on the Masterplan drawings and Concept Engineering Plans, provided as part of this Response to Submissions.</p> <p>The current proposed bridge width is 12m, increasing to 14m wide at certain points as illustrated on the Concept Engineering Plans at <b>Appendix U</b>.</p> <p>It should be noted that any footpath on the northern side will not be able to be extended beyond the bridge initially due to the existing crib wall on the northern boundary of the adjoining site and the acquisition area not being wide enough to accommodate shifting the whole road to the south. However, the shared path will be maintained for the whole length of the bridge on the southern side.</p>
<p>j. Public Trunk Drainage System</p> <p>If the Department are of the mind to approve the application, the following conditions are recommended:</p>	-
<p>Electronic copies of the input and output files of the RAFTS and DRAINS models shall be submitted to Council in a form compatible with Council's computer software along with the plan and a hard copy of the input and output data.</p>	Noted.
<p>Drainage system in Public Roads that will be handed over to the Council of City of Ryde must be designed in accordance with Council's Stormwater and Floodplain Management DCP 2014 Part 8, Stormwater and Floodplain Management Technical Manual, NSW Floodplain Management Manual, Australian Rainfall and Runoff 2016 and any other relevant Australian Guidelines.</p>	Noted.
<p>Longitudinal sections for proposed public drainage systems shall be drawn preferably at a scale of 1:100 or 1:200 horizontally and 1:10 or 1:20 vertically and shall show all crossing services, pipe size, class and type, pipe support type in accordance with AS 3725 or AS 2032 as appropriate, pipeline road chainages, pipeline grade, hydraulic grade line and any other information necessary for the construction of the drainage system. Detailed design drawings shall be submitted to Council for approval.</p>	Noted.
<p>Scour protection works at the proposed outlets to the creek are to be designed and constructed in accordance with the principles found in the publication "Guidelines for Outlet Structures on Waterfront Land", published by the NSW Office of Water, while having regard to the requirements of the publication "Managing Urban Stormwater – Soils and Construction (4th Edition, 2004). Detailed design drawings shall be submitted to Council for approval.</p>	Noted.
<p>The applicant shall comply with the recommendations within the stormwater and drainage assessment report prepared by ADW Johnson Pty Ltd dated 27 February 2018. A certificate from a suitably qualified Engineer shall</p>	<p>Noted. An updated Stormwater and Drainage Assessment is provided as part of this application to confirm that the refined Masterplan is consistent with the findings of the original assessment.</p>

Issue	Response
be submitted to the Certifying Authority stating compliance with these recommendations prior to the issue of the Subdivision Certificate.	
<b>14. Overland flow path and flooding</b> The extension of Road No. 1 bridging of Shrimptons Creek will need to be mindful of flooding occurring along the Shrimptons Creek flowpath. It appears the concept design has nominated bridge soffit levels to be elevated above the PMF flowpath and this is appropriate, so as to maintain safe and effective public accessibility through the road network during extreme storm events, though will warrant detailed modelling at later stages and possibly require the abutment to incorporate culverts allowing the conveyance of flow through this area. Additional issues are:	Noted.
There appears to be a discrepancy in Table 5.1 "Peak Flood Levels Results" within the Flood Impact Assessment for Ivanhoe Estate Master Plan. This will need to be amended.	This discrepancy has been addressed in the updated Flood Impact Assessment.
An electronic copy of the input and output files of the Tuflow model shall be submitted to Council in a form compatible with Council's computer software along with the plan and a hard copy of the input and output data.	A copy of the files will be provided to Council.
It would appear that the proposed child care centre to be constructed as part of Stage 7 has been located within the area identified as H5. Section 5.3.1 "Emergency Planning and Evacuation Considerations" of the report does not provide an evacuation strategy for minors and elderly who may be entering and leaving the child care centre. The applicant shall consider all possible options of relocating the child care centre to an area that is not affected by H3, H4, H5, or H6 hazard classification thresholds. The flood maps provided within the report for various storm events in particular for peak flood depths, v*d product and hazard classifications for both pre and post development conditions shall be amended to show the study area at a narrower scale in other words zoomed in to the targeted area.	Through refinement of the Masterplan, the child care centre has been relocated and there is no longer a centre in this location.
The applicant shall comply with the flood recommendations provided in the Flood Impact Statement prepared Rev 03 by BMT WBM dated December 2017. A certificate from a suitably qualified Engineer shall be submitted to the Certifying Authority stating compliance with these recommendations prior to the issue of the Subdivision Certificate.	Noted.
Detailed design drawings and a report shall be submitted to Council for the proposed bridge structure to be built across Shrimptons Creek connecting the proposed development to Lyon Park Road, and to include, but not limited to, the following details:	Detailed design of the bridge structure forms part of Stage 1 and will be submitted at the time of lodgement of this application.
Provide the minimum height of the trafficable, including vehicle & pedestrian, areas of the bridge. From a stormwater perspective, the report shall clearly demonstrate the impact of the proposed bridge including but not limited to abutments, piers, wing walls etc.	Detailed design of the bridge structure forms part of Stage 1 and will be submitted at the time of lodgement of this application.
Maintain the height of the lowest structural element of the bridge at the 100 YR ARI flood level + 500mm freeboard as a minimum.	Detailed design of the bridge structure forms part of Stage 1 and will be submitted at the time of lodgement of this application.
The report shall assess the impact of embankment works on both north-western and north-eastern sides of the bridge on the proposed approach roads and the surrounding properties to ensure any adverse impact from ponding of water (if any) is alleviated.	Detailed design of the bridge structure forms part of Stage 1 and will be submitted at the time of lodgement of this application.
The report shall recommend treatments to minimise any adverse impact of the bridge on the riparian corridor of Shrimptons Creek.	Detailed design of the bridge structure forms part of Stage 1 and will be submitted at the time of lodgement of this application. This assessment will address in-bank velocities and any associated risks.
The submitted cross section for the proposed bridge shows the left side of the embankment is likely to partially block the floodway.	Further consultation will be undertaken with Council to determine an appropriate solution to this matter as part of the Stage 1 SSD DA.

Issue	Response
Concept drawings, correspondence and approvals from utility authorities shall be provided to Council with regards to any utility services that will need to be installed in the proposed bridge.	Noted.
<p><b>15. Water Sensitive Urban Design Requirements</b></p> <p>The WSUD assessment approach incorporating a number of stormwater quality treatment devices as detailed within the Stormwater and Drainage Assessment report Issue E dated 27/02/2018 prepared by ADW Johnson Pty Ltd is acceptable to City of Ryde, in principle. An electronic copy of the input and output files of the MUSIC model shall be submitted to Council in a form compatible with Council's computer software along with the plan and a hard copy of the input and output data.</p>	Noted.
Detailed design for the WSUD components including but not limited to batters, levels, underdrains, high flow bypass details, clean out points, filter media details, mulching details, material specification, planting details, inlet scour protection areas, maintenance access ramps and maintenance schedule(s) shall be prepared by a suitably qualified professional engineer experienced in Water Sensitive Urban Design in accordance with the approved plans, approval conditions, Council DCP 2014 and relevant Australian Standards and submitted to Council for approval prior to the issue of a Construction Certificate.	Noted.
An Operational Management and Maintenance Report is required to be submitted to Council prior to the issue of a Subdivision Certificate to provide an outline of the proposed long term operational management and maintenance requirements of the stormwater quality management system on the site. A schedule or timetable for the proposed regular inspection and monitoring of the devices, maintenance techniques, reporting and record keeping requirements and associated rectification procedure shall be included in the report. Council recommends a visual inspection at least 2 times per year. Inspection should be made not less than 24 hours and not more than 72 hours after the cessation of rainfall if the total rainfall on any day exceeds 30mm.	Noted.
<p><b>16. Soil and Water Management measures</b></p> <p>Any approval should be conditioned as follows:</p> <ul style="list-style-type: none"> <li>• A Soil and Water Management Strategy should be provided with any subsequent application. This should address the potential flood impacts and an understanding of the potential flood heights and velocities for a range of flood events should be provided.</li> </ul>	Noted.

**17. Infrastructure Contribution and Voluntary Planning Agreement**

Council received a letter from Frasers Property on 26 February 2018 outlining Public Benefit items that could be the basis of a Voluntary Planning Agreement with Council. Those items included:

**Within Development**

- Construction and dedication to council of internal road network including bridge across Shrimpton's Creek with vehicular connection to Lyon Park Road;
- Multipurpose hall facility (i.e. basketball/futsal courts, gymnasium) within the proposed vertical high school with shared access arrangement in place with school provider;
- Community Centre;
- Public Swimming Pool (25m) and associated facilities with reduced cost for use by Ivanhoe Estate residents;
- Village green – open space area to remain in private ownership with public access easements in place; and
- Forest Park – open space area to remain in private ownership with public access easements place.

**Beyond Development**

- Upgrade/rehabilitation of Shrimpton's Creek Reserve area in line with dedication plan issued to Council 17 October 2017;
- Dedication of Shrimpton's Creek to Council;
- Upgrade and improve connection of Shared user path under Epping Road, focus on safety for pedestrians;
- Skate Park area under Shrimpton's Creek Bridge;
- ELS Hall Park Upgrade works; and
- Quandong + Wilga + Cottonwood Reserve Upgrade works

Council responded on 19 March 2018 stating its interest in the above items, however no formal offer has been forthcoming to date. Nevertheless Council officers met with Frasers on 26 April 2018. It is anticipated a Draft Offer will be made prior to the formalisation of the Master Plan or approval of the Concept Plan.

As such it is difficult to provide any further information on a potential Planning Agreement until such time a formal offer is made. Such an offer is expected to contain the nature and extent of the public benefits offered, timing of their delivery and evidenced with valuations/Quantity reports.

Once the formal offer is accepted by Council prior to the approval of the Concept Plan, Council understands that the details of the terms of such VPA will be resolved as part of the detailed design of the proposal during the Development Application stage when that is submitted to Council.

Council makes no agreement in advance of any determination for the project. Negotiations for any future VPA and works-in-kind will be in accordance with Council's policy and procedures for Voluntary Planning Agreements. It must be noted that works considered necessary and consequential for the functioning of the proposed development will not be supported within any forthcoming Voluntary Planning Agreement offer. Any determination made for the Concept Plan should ensure that all applicable contribution levies will be paid.

Council seeks that:

- a. The applicant make a formal offer (letter of offer – detailing the contribution items that will form part of the VPA);
- b. The Concept Approval be subject to a condition requiring the following:
  - i. Prior to the determination of the first detailed development application for the site pursuant to this Concept Plan, the Proponent shall provide written evidence to the Secretary that it has executed a Voluntary Planning Agreement with Council, with terms outlined in the offer letter and as agreed with Council to include the following items:

A letter of offer to enter into a Voluntary Planning Agreement was submitted to the City of Ryde on 18 July 2018 and Council have confirmed that this offer has been received.



- Construction and dedication to council of internal road network including bridge across Shrimpton's Creek with vehicular connection to Lyon Park Road;
- Multipurpose hall facility (i.e. basketball/futsal courts, gymnasium) within the proposed vertical high school with shared access arrangement in place with school provider;
- Community Centre;
- Public Swimming Pool (25m) and associated facilities with reduced cost for use by Ivanhoe Estate residents;
- Village green – open space area to remain in private ownership with public access easements in place; and
- Forest Park – open space area to remain in private ownership with public access easements place.
- Upgrade/rehabilitation of Shrimpton's Creek Reserve area in line with dedication plan issued to Council 17 October 2017;
- Dedication of Shrimpton's Creek to Council;
- Upgrade and improve connection of Shared user path under Epping Road, focus on safety for pedestrians;
- Skate Park area under Shrimpton's Creek Bridge;
- ELS Hall Park Upgrade works; and
- Quandong + Wilga + Cottonwood Reserve Upgrade works
- The VPA to include and outline the process for, and timing of, the payment of the Development Contribution and that part of the contribution may be made in the form of works in kind or dedication of land.

Issue	Response
<p><b>18. Waste Management Issues</b></p> <p>Waste General</p> <p>Evaluation of the Ivanhoe Estate Redevelopment has been made on the Concept Plans provided to Council on 17/4/18. As these are only concept plans most of the evaluation is based on the Waste Management Plan provided by Elephants Foot dated 23rd February 2018.</p> <p>The development states that there will be approx 3,500 dwelling, however the Waste Management Plan shows 3,474 units across 14 buildings over 8 stages.</p> <p>All domestic rated properties are to be serviced by Council's waste contractor and no private contractors are permitted. There will be no compaction of waste or recycling.</p>	<p>Noted. An updated Waste Management Plan is provided as part of the Response to Submissions.</p>
<p>Waste Services</p> <p>Dual chutes are to be installed in each core, one for waste and a separate one for recycling. These will be discharged into 1100L waste bins and 660L recycling bins.</p> <p>The plans do not show the number of cores in each building, so unsure of the number of chutes.</p> <p>The 1100L waste bins will be serviced 3 times per week and 660L recycling bins will be serviced twice per week.</p> <p>The bins will need to be transferred to a collection point adjacent to the loading bay in each building.</p> <p>A bulky waste storage room is required in the basement of each building for the storage of unwanted household items awaiting the Household Cleanup Collection. The size of each bulky waste room should be based on the below sliding scale cubic metres.</p> <p>The bulky waste room is required to be adjacent to the loading bay, or a separate area should be allocated for the building caretaker to take the items to the area prior to the booked collection.</p> <p>Residents should have easy access to the bulky waste storage rooms.</p> <p>All doorways to bin storage rooms need to be wide enough to allow the bins to fit through the openings including the door.</p> <ul style="list-style-type: none"> <li>• 1100L Bins – width 1.4m, depth 1.1m, height 1.4m</li> <li>• 660L Bins – width 1.3m, depth 0.8m, height 1.3m</li> </ul> <p>Bin numbers and bulky waste storage areas are demonstrated in the following table.</p>	<p>Noted. Detailed waste arrangements will be subject to future separate applications for each building.</p>

Issue						Response
Stage	Building	No of Units	No of 1100L Waste service 3 times per week	No of 660L recycle bins serviced 2 times per week	Bulky Waste Storage Area	
Stage 1	A1	269	10	16	25 cubic m	
	C1	467	17	28	45 cubic m	
			27	45		
Stage 2	A2	109	4	7	10 cubic m	
	C2	183	7	11	15 cubic m	
	C3	165	6	10	15 cubic m	
			17	28		
Stage 3	A3	244	9	15	25 cubic m	
	D1	362	13	22	35 cubic m	
			22	37		
Stage 4	D2	218	8	13	20 cubic m	
Stage 5	D3	260	9	16	25 cubic m	
Stage 6	D4	438	16	27	45 cubic m	
Stage 7	B1	86	3	5	10 cubic m	
	B3	156	6	9	15 cubic m	
			9	15		
Stage 8	C4	415	15	25	40 cubic m	
Stage A	B1 3/4	102	4	6	10 cubic m	
<b>TOTAL</b>		<b>3474</b>	<b>118</b>	<b>197</b>		
<p>Waste &amp; Recycling Collection Vehicles and Access</p> <p>The waste and recycling will be serviced within the building to ensure that the amenity of the building is not compromised and the residents are not affected by the noise.</p> <p>The height clearance required will be 4.5m for an 11m long truck. The trucks will service the bins utilising a rear load vehicle. Swept paths for the above truck sizes are required to ensure that they can enter and exit the loading bay in a forward direction.</p> <p>As trucks will be entering the building to service the bins, a Positive Covenant will be required for Onsite Waste Collection.</p>						Noted.
<b>19. Clarification Required</b>						

Issue	Response															
a. Number of Dwellings The applicant's consultant has varied the expected number of dwellings to be provided. Early pages indicate 3,600 dwellings, whereas other pages indicate 3,500.	The estimated number of dwellings is 3,400, as outlined in the covering Response to Submissions report.															
b. Page 23 – Proposed Transport Targets The applicant is required to provide a table comparing the proposed transport targets against Council's Integrated Transport Strategies.	As detailed in 7.3.1 of the TMAP: <table><tr><th colspan="3">Journey to Work Modal Share Targets 2031 Macquarie Park</th></tr><tr><th>Mode</th><th>Council %</th><th>Ivanhoe Estate %</th></tr><tr><td>Active Transport</td><td>6</td><td>29</td></tr><tr><td>Public Transport</td><td>34</td><td>32</td></tr><tr><td>Private Vehicle</td><td>60</td><td>41</td></tr></table>	Journey to Work Modal Share Targets 2031 Macquarie Park			Mode	Council %	Ivanhoe Estate %	Active Transport	6	29	Public Transport	34	32	Private Vehicle	60	41
Journey to Work Modal Share Targets 2031 Macquarie Park																
Mode	Council %	Ivanhoe Estate %														
Active Transport	6	29														
Public Transport	34	32														
Private Vehicle	60	41														
c. Page 39 – Walking Distance to/from Macquarie University Train Station It is indicated on Page 39 – Macquarie University Train Station is approx. 400m from the site. Distance between Ivanhoe Place at Herring Road is 400m from Macquarie University train station. However, the actual school facilities are approximately 720m from the nearest train station. TMAP should be amended to reflect the mean walking distances between the development and the nearest train station.	This is incorrect. The TMAP states, "The Integrated Public Transport Service Planning Guidelines, Sydney Metropolitan Area (TfNSW, December 2013), states that train services influence the travel mode choices of areas within 800 metres walking distance (approximately 10 minutes) of a train station. It is therefore noteworthy that the main access of the site is located approximately 400 metres from Macquarie University railway station, on the future Sydney Metro Northwest line (currently referred to as the Chatswood to Epping Rail Link). Accordingly, a significant proportion of future commuters travelling from the site would be expected to use train services."  Figure 13 shows 10 minute (800m) distances.															
d. Page 80 – Forecast AM Peak Hour Mode Share Table 17 appears to be inaccurate. Please re-check the values. Table 17 does not identify which year forecast it relates to.	Refer to Table 1 of the Transport Management and Accessibility Plan Addendum which provides updated trip generation based on agreed mode share following discussions with DP&E and further analysis.  The updated table has been used for further modelling following discussions and agreement with DP&E and RMS and the methodology and results are presented in the Addendum.															
e. Construction Traffic Management Plan (CTMP) Page 6 of CTMP states that the typical construction day will be 16 hours. Council's conditions generally approve construction activities between 7.00am and 7.00pm. The applicant is required to clarify how the construction traffic will be managed to coincide with these hours.  Page 9 of CTMP – A plan showing the allocation of parking spaces within the site boundary should be provided. At no time during any stage of works will construction workers be permitted to use on-street parking.	Noted. A detailed Construction Traffic Management Plan will be prepared for each stage of development which considers these issues.															
<b>20. Environmental Sustainability</b> Council seeks that the following requirement be incorporated in any future detailed design of the project:	-															
a. Green Star Accreditation • Ensure that 6 Star Green Star will be registered and certified by the GBCA.	Noted.															
Passive designs can minimise the need of these through provision of trees, double glazing and sustainable design and these user groups on site should be considered.	Noted.															

Issue	Response
Many of these can be achieved through thoughtful design and will ensure a resilient community is achieved once the proponent vacates the site in perpetuity. This is especially relevant where by social housing occupants will only have access to ceiling fans to ensure reduced costs. Ensuring adequate ventilation for heating and cooling should be design considerate. Similarly in winter social housing residents are to be provided with 'radiant heaters' – sufficient insulation, draft proofing mechanisms, curtains and flooring to maximise thermal comfort and reduce reliance on appliance based heating/ cooling. This will reduce GHG production from the site.	Noted.
Pg; 8 "As part of Aspire's Sustainability Benchmark 1 we will 'look' to incorporate the following initiatives;" this statement is too broad with no firm commitment to undertake these however refers to these sustainability outcomes in other EIS documentation. Many of the Greenstar accreditation, sustainability report and even EIS are conflicting in what is proposed and what is aimed for. This provides minimal clarity in what will be achieved with many of the Greenstar certification outcomes achieved for a financial/ economic benefit rather than long term community sustainability and resilience considering the environment. The documents should be consistent in outcomes.	Frasers Property Australia remains committed to a 6 Star Green Star Communities rating and a 5 Star Green Star Design and As-Built rating, in addition to the imbedded infrastructure solution to be implemented throughout the site. These sustainability initiatives will be implemented throughout detailed design.
b. Building envelope/ Footprint: Council requests that the applicant consider potentially any solar deficiencies impacting on the neighbouring creek corridor and negative impacts on flora from the proposed building footprint adjoining the creek. This should be confirmed via a flora and fauna assessment.	The Biodiversity Assessment Report at <b>Appendix I</b> considers the potential impacts as a result of shadowing and proposed to mitigate any potential impacts through the implementation of a Vegetation Management Plan.
c. Solar Systems: There are no details provided anywhere on the provision of a 1.5mWh Solar system on 50% of rooftops in the plans but mentioned throughout various documents. This will contribute to site GHG reductions.	Solar panels will be provided with future stages of development to contribute to achieving the sustainability targets for the development.
d. Transport: Council seeks that bike and bike share parking provisions to be included on the site. Also the completion of a TMAP, Green Travel Plan to demonstrate commitment of reduction in private car use and options for occupants on the site to utilise other transportation means and submission to Council for a Travel Plan as per Council's requirements for new developments submitted as part of the development Application.	Noted.
e. Water: i. Seek landscaping design that promotes permeable surface inclusion in passive areas over impervious, hard surface to maximise water capture on site and minimise urban heat impacts for the community on site; ii. Utilise on site real-time data monitoring to minimise water and energy waste; iii. Blackwater recycling system for the site. Given the increase in sewer volume and footprint of the new development and occupancy level expected. iv. Refer to Sydney Water's Best practice guidelines for cooling towers in commercial buildings (where relevant), v. Consider greywater reuse for toilet flushing; vi. Include BMS Monitoring and submetering for all major equipment and achieve at a minimum the following WELS ratings (in accordance with NSW Government Resource Efficiency Policy, July 2014); vii. Automatic Pool Cover system for pool to reduce energy; viii. Backwash Reuse System and UV Treatment system on site (where suitable and volume dependant); ix. Under Section 9 Ecologically Sustainable Development (ESD) for "The Residential Flat Building/Retail Development/Seniors Living and High School Components of the development to comply with Ryde's Energy Smart Water Wise DCP requirements"	Noted.
f. Energy use on site: Offsetting energy consumption from the site should not be prioritised via purchasing of carbon credits. Under the Green Star Communities Scorecard there is no provision noted by Aspire/Frasers to obtain any energy efficiency	Noted.

Issue	Response
from; infrastructure lighting, renewable energy production or heating and cooling. This should be explored before carbon credit purchase.	
<p>g. Materials:</p> <ul style="list-style-type: none"> <li>• Comply with Green Star recommendations for recycling and reuse of materials on site to minimise waste from demolition of the existing site.</li> <li>• Consider production and life cycle of materials procured and used on the site.</li> <li>• Use permeable materials in passive locations towards cooling the site against the impacts of urban heat island from paved and impermeable surfaces.</li> </ul>	Noted.
<p><b>21. Affordable Housing</b></p> <p>The Environmental Impact Statement on page 75 and 81 identified that the affordable housing will be used for a minimum of 10 years under the management of a community housing provider. While it is acknowledged that this is consistent with SEPP ARH, Council had the understanding that the affordable housing would be provided in perpetuity. Clarification is sought in respect of this aspect.</p>	Affordable housing will be provided in accordance with the ARH SEPP and in coordination with Land and Housing Corporation.
<b>3. Roads and Maritime Services</b>	
Since the proposal seeks to undertake road widening works for a deceleration lane along Epping Road (Classified Road) this application triggers Road and Maritime consent in accordance with Sections 87, and 138 of the <i>Roads Act 1993</i> .	Noted.
Roads and Maritimes have reviewed the submitted information and would provide consent for the subject development under Sections 87 and 138 of the <i>Roads Act 1993</i> subject to the following conditions being included in any consent issued by the Department.	Noted.
A strip of land has previously been dedicated as Public Road by private subdivision (DP596275) along the Herring Road frontage of the subject property, as shown by yellow colour on the attached Aerial – “X”. Roads and Maritime has also previously resumed and dedicated a strip of land as road along the Epping Road frontage of the subject property, as shown by grey colour on the attached Aerial – “X”	Noted.
The subject property is affected by a road proposal for the Macquarie Park Bus Priority Stage 1 project as shown by red colour on the attached Aerial – “X”. All new building or structures together with any improvements integral to the future use of the site are to be erected clear of the land required for the road and wholly within the freehold property (unlimited in height or depth) along Herring Road and Epping Road boundaries.	Noted.
The proposed deceleration lane along the full frontage of the property boundary in Epping Road shall be designed to meet Roads and Maritime requirements and endorsed by a suitably qualified practitioner. The design requirements shall be in accordance with ASUTROADS and other Australian Codes of Practice. The certified copies of the civil design plans shall be submitted to Roads and Maritime for consideration and approval prior to the release of the Construction Certificate by the Principal Certifying Authority and commencement of road works.	Noted.
The developer may be required to enter into a Works Authorisation Deed (WAD) for the abovementioned works. Please note that the WAD will need to be executed prior to Roads and Maritime assessment of the detailed civil design plans.	Noted.
Roads and Maritime fees for administration, plan checking, civil works inspections and project management shall be paid by the developer prior to the commencement of works.	Noted.
Generally, Roads and Maritime preferred the deceleration lane to be constructed with the property boundary. However, Roads and Maritime would support the proposed deceleration lane be constructed within the existing	Noted.

Issue	Response
road reserve subject to dedication of same amount of land (same length & width) within the property boundary for future. The land should be divided as a separate lot in any future sub-division plan and dedicated as road to Roads and Maritime.	
All works and regulatory signs associated with the above should be at no cost to the Roads and Maritime.	Noted.
Any realignment boundary to facilitate a footway resulting from the proposed road widening works must be dedicated as road at no cost to the Roads and Maritime.	Noted.
Detailed design plans and hydraulic calculations of any changes to the stormwater drainage system in Epping Road are to be submitted to Roads and Maritime for approval, prior to the commencement of any works.	Noted. A condition of consent should be imposed requiring this matter to be addressed as part of the Construction Certification application for the relevant stage.
A plan checking fee will be payable, and a performance bond may be required before Roads and Maritime approval is issued. With regard to the Civil Works requirement please contact the Roads and Maritime Project Engineer, External Works PH: 8849 2114 or FAX: 8849 2766.	Noted.
In future the developer has to submit design drawings and documents relating to the excavation of the site and support structures to Roads and Maritime for assessment, in accordance with Technical Direction GTD2012/001.	Noted.
The developer is to submit all documentation at least six (6) weeks prior to the commencement of construction and is to meet the full cost of the assessment by Roads and Maritime.	Noted.
If it is necessary to excavate below the level of the base of the footings of the adjoining roadways, the person acting on the consent shall ensure that the owner/s of the roadway is/are given at least seven (7) days' notice of the intention to excavate below the base of the footings. The notice is to include complete details of the work.	Noted.
All demolition and construction vehicles are to be contained wholly within the site and vehicles must enter the site before stopping. A construction zone will not be permitted on Herring Road & Epping Road	Noted.
A Road Occupancy Licence should be obtained from Transport Management Centre for any works that may impact on traffic flows on Epping Road & Herring during construction activities.	Noted.
A Construction Traffic Management Plane (CTMP) detailing construction vehicle routes, number of trucks, hours of operation, access arrangements and traffic control should be prepared in consultation with Sydney Coordination Office (SCO) of the Transport for NSW and submitted to Roads and Maritime & Council for approval prior to the issue any Construction Certificate.	Noted.
Developer's contribution for Road/Transport improvements:	
As you are aware, in accordance with the Herring Road Urban Activation Precinct ( <i>Herring Road Macquarie Park Finalisation Report, May 2015</i> ) which was assessed by the Department, a number of transport infrastructure measures are required to support future development. This includes signalisation of the Herring Road & Ivanhoe Place roundabout. The Department should ensure that appropriate mitigation measures are in place to address the impact from the proposed development on road and transport infrastructure as a result of the development. Such mitigation measures should be to Roads and Maritime's satisfaction and would include intersection upgrade works at the Herring Road/Ivanhoe Place, and Epping Road/Herring Road intersections. The Herring Road/Ivanhoe Place intersection is to be signalised prior to issue of the Occupation Certificate for Stage-1 development of Ivanhoe Estate. Roads and Maritime will continue discussions with the applicant and the Department on acceptable mitigation measures prior to the grant of consent for Stage 1.	<p>As per discussions and agreement with RMS, a contribution will be paid by the Aspire Consortium to the RMS for the required road and intersection upgrades at the intersections of Epping Road with Herring Road and Herring Road with Ivanhoe Place.</p> <p>The delivery of the internal road network (including the proposed bridge connection to Lyonpark Road) will be delivered by the Aspire Consortium as part of the Stage 2 development works.</p> <p>The relevant Conditions of Consent should be updated to reflect this agreement.</p>



Issue	Response
<p>'U-Turn' facility for local access for developments on the western side of Herring Road at Stage-1 of the Ivanhoe Estate development:</p> <p>As per submitted Transport Management and Accessibility Plan (TMAP) a 'U-Turn' facility is to be provided as part of Stage-1 development. If the existing roundabout at Herring Road/Ivanhoe Place would be required to be replaced with traffic signals prior to completion of Stage-1 development, it will be necessary to construct the 'U-Turn' facility in Ivanhoe Place prior to the commencement of Stage-1 construction works. Roads and Maritime will provide the developer advice on when the 'U-Turn' facility should be completed.</p>	<p>Until such time that roads associated with future stages of the Ivanhoe Estate are constructed — at the completion of Stage 1 — a strategy has been developed to enable sufficient access and turning areas to accommodate the U-turn manoeuvre with the provision of turning heads at the end of the proposed north and south roads (Main Street and Neighbourhood Street), consistent with the RMS requirements</p> <p>It is noted however, that these works cannot be completed prior to the completion of Stage 1 due to the need to restrict access to the site to vehicles associated with the construction of the Stage 1 works only. This is an integral part of the CTMP and will ensure that suitable levels of safety and security are achieved and enable construction activities to occur on-site (eg truck and contractor parking) without impacting the wider road network.</p> <p>Accordingly, should the RMS seek to retain access to all properties on the western side of Herring Road, the signalisation of the intersection should be coordinated with the opening of the Stage 1 development and road network.</p>
<p>New bridge over Shrimptons Creek and removal of temporary turning head in Ivanhoe Place:</p> <p>It has been proposed to remove the 'U-Turn' facility in Ivanhoe Place following construction of a new bridge (for all traffic movements) over the Shrimptons Creek in Stage-2 development. However, there may be still high demand for the 'U-turn' facility in Ivanhoe Place. In this regard, prior to the removal of the 'U-turn' facility an assessment (including site monitoring, traffic modelling) should be undertaken to identify the potential impact with the removal of the 'U-turn' facility and a subsequent mitigation measure should be proposed.</p>	<p>The relevant U-Turn facility shall be constructed for both the Stage 1 and ultimate design in accordance with the previously agreed position with the RMS. Reference is made to the email from RMS to the Department of Planning dated 20/06/18 outlining this position.</p> <p>The purpose of the travel time assessment is only to identify the travel times of residents on the western side of Herring Road during the PM peak period (assessed to be approximately 40 vehicles per hour based on surveys of the existing roundabout) that would be affected due to the signalisation of Ivanhoe Place intersection (a condition of the Herring Rd rezoning).</p> <p>A comparative analysis of the two possible access options (being via a new roundabout or the proposed bridge connection to Lyon Park Road) was previously undertaken by Ason Group and presented to RMS and Department of Planning. The analysis demonstrated that fastest route to access the western side of Herring Road was via the proposed new bridge connection which was approximately 1 ½ minutes faster than via an internal roundabout (see page 14 of the attached document).</p> <p>Notwithstanding, 2 potential locations for the provision of a roundabout were identified within the site. The impacts on development yield as a consequence of the construction of a roundabout at these two locations was undertaken by Frasers and summarised below:</p>

Issue	Response
	<ul style="list-style-type: none"> <li>Location 1: loss of 98 Social ILU's, 52 social dwellings and 24 market dwellings = -174 dwellings</li> <li>Location 2: loss of 98 social ILU's and 48 market dwellings = -146 dwellings</li> </ul> <p>This impact appear grossly disproportionate to the number of vehicles potentially affected particularly given it also results in longer travel times than that which would otherwise be achieved.</p>
<p>Roads and Maritime provides the following advisory comments for Department's consideration during determination to this application:</p> <p>Roads and Maritime strongly supports development which will reduce car dependency and increase the use of sustainable modes of travel including the use of trains, buses, bicycles and walking. The Department and Council should consider reducing car dependency on developments in Macquarie Park (including the subject site) due to the proximity of Sydney Metro Stations and Bus Interchange; which could be achieved by significantly reducing number car parking spaces, introducing car-share scheme and implementing Green Travel Plan.</p>	<p>The development has adopted the rates embodied within Council's Macquarie Park DCP which stipulate maximum parking rates. Parking for all land uses proposed on-site comply with these maximum parking rates, which as stated by the RMS will further assist in reducing car dependency.</p>
<b>4. Transport for NSW</b>	
<p>TfNSW has reviewed the subject SSD application and provide the following comments:</p> <p>An approval condition should be included requiring future development applications to be accompanied by a traffic and transport report, which assesses each stage within the context of the masterplan and cumulative impacts of prior developments.</p>	<p>Noted.</p>
<p>The Stage 1 road network should be revised to include an allowance for a cul-de-sac, to facilitate publicly accessible turnaround, providing ease of access to residential dwellings at Saunders Close and university colleges along Herring Road, from the northeast, following the signalisation of the Herring Road and Ivanhoe Place intersection.</p>	<p>An allowance for the cul-de-sac within the Ivanhoe development has been allowed, as documented in the relevant staging plans included in the TMAP and Addendum Report prepared by Ason Group.</p>
<p>Main Street should be bus capable to ensure options are available for future bus service planning, should be designed with minimum 3.5m travel lanes and be able to accommodate 14.5m buses. Any kerbside lanes/indented bays for bus stops should be 3.0m in width.</p>	<p>The carriageway width is 3.5m and accommodates 14.5m buses. This is maintained along the entire length of Main Street, including along the bridge and through to Lyon Park Road. 3.0m wide bus bays are provided.</p>
<p>It is unclear whether priority control at the intersection of Main Street and Lyonpark Road would be suitable in the future. Further intersection modelling should be undertaken, which assesses the capacity of this intersection during the AM and PM peak periods for the 2021 scenario.</p>	<p>Refer to revised Transport Management and Accessibility Plan Addendum.</p>
<p>The proposed land uses under the Herring Road Urban Activation Precinct had been assessed by DP&amp;E to require the signalisation of the Herring Road with Ivanhoe Place roundabout, with the Applicant to deliver these works. Any approval should be subject to the Applicant delivering the intersection in accordance with the network requirements stipulated by Roads and Maritime.</p>	<p>An agreement between the RMS and Aspire Consortium has been reached in which the Aspire Consortium will pay a contribution to the RMS for these works.</p>
<p>The future public domain design should incorporate a wayfinding plan, which will direct residents and visitors to key points of interest, active transport and public transport routes.</p>	<p>Noted.</p>
<p>The proponent should clarify how the proposed Sustainable Travel Measure of providing preloaded \$20 Opal cards to new residents would be implemented in the long-term, recognising that there would be a regular movement of residents in and out within the range of accommodation types.</p>	<p>A Green Travel Plan will be developed for the site and monitored on an annual basis consistent with similar approvals for major developments. The offer of a preloaded Opal card to is apply only to the initial occupants of the development, acknowledging that it would not be realistically manageable to</p>

Issue	Response
	implement the strategy for future occupants moving into and out of the development. Notwithstanding, the provision of the preloaded cards for initial residents would provide an important 'kick-start' to encouraging public transport trips, and it is noted that students of the School would be provided with opal cards providing free travel to and from school.
<p>Attachment A – Detailed Comments on SSD 87 Additional traffic and transport assessments for construction of stages</p> <p><u>Comment:</u> Land use composition, as envisaged within the masterplan, other land uses outside the estate and transport networks nearby to the site may change as the site is developed over the subsequent stages. Future applications to construct the relevant stage should be supported by a traffic and transport report, which assesses each stage within the context of the masterplan and cumulative impacts of prior developments. The proponent should provide further transport infrastructure improvements where required.</p> <p><u>Recommendation:</u> Should DP&amp;E approve the proposed masterplan application, an approval condition should be included requiring future development applications (to construct) to be accompanied by a traffic and transport report, which addresses the above.</p>	Noted.
<p>Stage 1 internal road network</p> <p><u>Comment:</u> With reference to Appendix Z – Concept Engineering Plans, the Stage 1 road network should include provisions for vehicle turnaround (i.e. cul-de-sac) on Main Street. This would allow for vehicles seeking to access residential dwellings at Saunders Close and university colleges along Herring Road, from the northeast, following the signalisation of the Herring Road and Ivanhoe Place intersection. The mentioned signalisation will remove the ability for vehicles to undertake U-turn movements, which has been identified as an issue following consultation with the community; undertaken as part of the Macquarie Park Bus Priority and Capacity Improvements project.</p> <p><u>Recommendation:</u> The staging plan should be revised to include an allowance for a cul-de-sac, to facilitate publicly accessible turnaround and maintains access to the abovementioned properties, following signalisation of the Herring Road with Ivanhoe Place intersection.</p> <p>This turnaround facility should be maintained until such time that the bridge over Shrimptons Creek is delivered and publicly accessible, as shown in the Stage 2 works. This bridge must be completed prior to issue of Occupation Certificate for the Stage 2 works</p>	The relevant U-Turn facility shall be constructed for both the Stage 1 and ultimate design in accordance with the previously agreed position with the RMS. Reference is made to the email from RMS to the Department dated 20/06/18 outlining this position.
<p>Bus capability of Main Street</p> <p><u>Comment:</u> The proposed Main Street will form one of the few internal precinct links between Herring Road and the south-eastern portions of Macquarie Park. It will provide access to the proposed high school, which is expected to utilise bus services for various school activities and transport options. Furthermore, future public bus services may utilise this road, if required.</p> <p>As such, Main Street should be bus capable (standard 14.5m buses) to ensure options are available for future bus service planning.</p> <p><u>Recommendation:</u></p>	The revised Concept Plan design incorporates an allowance for 2 bus bays to be provided on the northern side of Main Street between the proposed school and Herring Road. This has been designed in accordance with the requirements of TfNSW. Accordingly, a condition relating to this as recommended by TfNSW is acceptable.

Issue	Response
Main Street should be designed with minimum 3.5m travel lanes and be able to accommodate 14.5m buses. Any kerbside lanes/indented bays for bus stops should be 3.0m in width	
<p>Assessment of priority-controlled intersection of Main Street and Lyonpark Road.</p> <p><u>Comment:</u> The Transport Management and Accessibility Plan (TMAP) does not include an assessment of the capacity of the future priority-controlled intersection of Main Street with Lyonpark Road. It is unclear whether priority control would be suitable in the future having regard for the estimated traffic volumes at this intersection during the AM and PM peak periods. The TMAP forecasts 1,274 and 1,736 vehicles (of which there are 902 right-turning movements from Lyonpark Road into Main Street) passing through this intersection during the respective AM and PM peak periods. Alternative intersection control may be required to ensure safe and efficient operations at this intersection</p> <p><u>Recommendation:</u> Further intersection modelling should be undertaken, which assesses the capacity of Main Street with Lyonpark Road during the AM and PM peak periods for the 2021 scenario.</p>	Refer to updated Transport Management and Accessibility Plan Addendum.
<p>Signalisation of Herring Road with Ivanhoe Place roundabout</p> <p><u>Comment:</u> It is noted that the provision for the signalisation of the Herring Road with Ivanhoe Place roundabout, as proposed under the MPBPCI, was determined in response to future growth within the Herring Road Precinct, including the development of the Ivanhoe Estate. The delivery of the concept plan will result in additional density to that originally planned as the proposal seeks a variation in the floor-to-space ratio from 2.9:1 to 3.6:1. Furthermore, the proposed land uses under the Herring Road Urban Activation Precinct had been assessed by DP&amp;E to require a number of transport infrastructure measures to support the future population. This included the provision for the signalisation of the subject roundabout, with Land and Housing Corporation to deliver these works<sup>1</sup>.</p> <p><u>Recommendation:</u> That any approval should be subject to the Applicant delivering the signalisation of the Herring Road with Ivanhoe Place roundabout in accordance with the network requirements stipulated by Roads and Maritime. This would be in accordance with the findings of the Herring Road Finalisation Report and should be delivered prior to occupation of Stage 1.</p> <p>It should be recognised that there could be a difference in timing for when the Applicant would undertake the works (such as prior to Construction or Occupation Certificate for the relevant stage) and the timing requirements to deliver the MPBPCI works, as stated within the relevant project documents. As such, the Applicant will need to coordinate with Roads and Maritime regarding the subject intersection works</p>	Noted.
<p><b>Wayfinding</b></p> <p><u>Comment:</u> The internal road network will need to be supported by an appropriate wayfinding strategy to assist residents and visitors in utilising active and public transport methods; with the objective of increasing the mode share of walking and cycling.</p> <p><u>Recommendation:</u> The future public domain design should incorporate a wayfinding plan, which will direct residents and visitors to key points of interest, active transport and public transport routes.</p>	Noted.

Issue	Response
<p>Travel Behaviour Measures</p> <p><u>Comment:</u> As part of the Sustainable Travel Strategy (Section 6.4.1 of the TMAP), it is proposed that each household is to be provided with a preloaded \$20 Opal card to 'encourage uptake of public transport by new residents from day one.'</p> <p>Whilst TfNSW would support this measure, clarification should be provided with regards to whether this measure would apply to all <u>new</u> residents, including:</p> <ul style="list-style-type: none"> <li>• Market, social and affordable housing tenants who would be leasing an apartment, e.g. issued to lessees as part of the tenancy agreement;</li> <li>• Senior residents within the aged care facility; and</li> <li>• Residents who own and live within their own dwelling.</li> </ul> <p>It should be recognised that travel demand management strategies are ongoing measures and there would be a regular movement of residents in and out of the future dwellings.</p> <p><u>Recommendation:</u> The proponent should clarify how the abovementioned measure would be implemented in the long-term, recognising that there would be a regular movement of residents in and out.</p>	<p>The offer of a preloaded Opal card is to apply only to the initial occupants of the development, acknowledging that it would not be realistically manageable to implement the strategy for future occupants moving into and out of the development. Notwithstanding, the provision of the preloaded cards for initial residents would provide an important 'kick-start' to encouraging public transport trips, and it is noted that students of the School would be provided with opal cards providing free travel to and from school.</p>
<p>Attachment B – Recommended conditions of approval</p> <p>The following conditions of approval have been recommended. Further recommendations could be made following review of the Applicant's Response to Submissions.</p>	<p>The recommended conditions are noted and will be reviewed when draft conditions are issued by the Department.</p>
<p>Construction Traffic Management</p> <p><u>Recommended Condition:</u> For each subsequent development application to construct:</p> <p>The applicant must prepare a Construction Pedestrian and Traffic Management Plan in consultation with the Sydney Coordination Office (SCO) within TfNSW and be endorsed by the SCO prior to any construction activity on the site. The Construction Pedestrian and Traffic Management Plan (CPTMP) should take into account the potential impacts of the proposed development on the establishment, operation and removal of Station Link (formally known as the Epping to Chatswood Temporary Transport Plan), if required. This may include limits on the number of construction vehicle movements to/from the site during peak periods.</p> <p>The CPTMP must address the following matters:</p> <ul style="list-style-type: none"> <li>• Traffic and public transport customer management in the vicinity of the development.</li> <li>• Location of all proposed work zones;</li> <li>• Construction vehicle access arrangements;</li> <li>• Proposed construction hours;</li> <li>• Estimated number and type of construction vehicle movements including volume, time of day and truck routes.</li> <li>• Construction program highlighting details of peak construction activities and proposed construction 'Staging';</li> <li>• Any potential impacts to general traffic, cyclists, pedestrians and bus services within the vicinity of the site from construction vehicles during the construction of the proposed works;</li> </ul>	<p>Noted.</p>

Issue	Response
<ul style="list-style-type: none"> <li>Cumulative construction impacts of projects in the Macquarie Park precinct. Should any impacts be identified, the duration of the impacts;</li> <li>Timing of and reinstatement standards for footpath and road openings; and</li> <li>Measures proposed to mitigate any associated general traffic, public transport, pedestrian and cyclist impacts should be clearly identified and included in the CPTMP</li> </ul> <p>Reason: There are a number of ongoing or planned NSW government projects and private development projects within the Macquarie Park precinct during the estimated construction duration of the Ivanhoe Estate. As such, there is a need for coordinated construction traffic management to minimise impacts on the transport network and maintain safety for all road users</p>	
<p><b>Bicycle Parking</b> Recommended Condition: All future residential dwellings (affordable, social and market housing) should be provided with 1 bicycle parking space per unit and designed in accordance with AS2890.3.</p> <p>Reason: The abovementioned bicycle parking rate is in accordance with the recommended sustainable travel measures mentioned within the TMAP</p>	Noted.
<b>5. EPA</b>	
<p><b>Shrimptons Creek</b> The EPA notes with concern the proximity of Shrimptons Creek which adjoins the development site to the east and over which a road bridge is proposed to be constructed. And, expects that the proponent would ensure that it does not cause or permit pollution of Shrimptons Creek, particularly during the course of development of the project.</p>	Noted.
<p>The EPA anticipates potential water quality impacts on Shrimptons Creek can be avoided by implementing appropriate erosion and sediment controls and adopting water sensitive urban design principles during the project demolition/construction and operational phases respectively.</p>	<p>Noted. A condition of consent should be imposed requiring these matters to be addressed as part of the Construction Certificate application for the relevant stage.</p> <p>Water Sensitive Through Urban Design controls have been included in the Masterplan concept and will be incorporated into the final development. Erosion and sediment control plans will be completed for each stage of construction.</p>

Issue	Response
<p><b><i>EPA guidance also applies to demolition</i></b>  The Land and Housing Corporation is a 'public authority' within the meaning of the Protection of the Environment Administration Act 1991. And further, that the EPA has general responsibility under that Act for amongst other things:  (a) ensuring that the best practicable measures are taken for environment protection in accordance with the environment protection legislation and other legislation, and  (b) coordinating the activities of all public authorities in respect of those measures.</p> <p>For instance, Table 1 to the EPA's Interim Construction Noise Guideline clearly identifies the best practicable measures in respect of standard hours of construction. Thus, the proponent should ensure that (in the absence of strong justification for undertaking activities outside standard hours) demolition activities as well as construction should only be undertaken during the standard hours.</p>	Noted.
<p>The EPA understands that demolition of existing structures, roadways and infrastructure/utilities may be undertaken under a separate assessment process. The EPA further notes that if the consent authority for demolition is the local council, section 4.33 (1) (b) of the Environmental Planning and Assessment Act 1979 prohibits council from imposing a condition on its consent "... except with the approval of the applicant ...".</p>	Noted.
<p>The EPA emphasises that any council consent would not preclude the EPA from exercising its powers in the event that demolition activities for or on behalf of the proponent (or another public authority) results in the emission of noise that, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted.</p>	Noted.
<p>Similarly, the EPA anticipates that although demolition of existing structures and infrastructure on the development site would be the subject of a separate assessment process, the proponent must ensure that that any demolition work is undertaken in a manner consistent with the recommendations in this submission concerning site preparation, bulk earthworks, construction and construction-related activities.</p>	Noted.
<p><b><i>Seamless transition of environmental controls</i></b>  The EPA acknowledges that the proponent may consider it useful to engage different contractors to undertake demolition, site preparation, bulk excavation, and construction stages of the project. The EPA thus expects the proponent to adopt all such means as may be necessary to ensure a seamless transition of environmental impact mitigation measures between demolition, site preparation, bulk excavation, and construction stages of the project, particularly if different contractors are to be engaged for some or stages of the project.</p>	Noted.
<p><b><i>Proposed high school (community use)</i></b>  The EPA understands that the concept plan includes a proposed mixed-use development that involves amongst other things a new high school on development block B2.</p> <p>The EPA anticipates significant noise impacts on adjoining and nearby residences from high school activities, particularly from community use of school facilities outside normal school hours.</p>	Noted. The updated Acoustic Assessment at <b>Appendix W</b> includes recommendations to mitigate noise impacts from the proposed development.



Issue	Response
<p><b>General</b> The EPA has identified the following site-specific concerns based on the project information available on the Department of Planning and Environment major projects web site:</p>	-
(a) the need for a more detailed assessment of potential site contamination, including information about groundwater and a detailed assessment of the footprint and surrounds of existing buildings, roads and infrastructure following their demolition;	Where required, additional investigation will be undertaken in accordance with the recommendations of the Contamination Assessment and subsequent to any necessary approvals.
(b) the need to identify and manage any hazardous materials (including asbestos containing material) in existing structures and infrastructure on the development site;	Demolition is being undertaken subsequent to a separate application made by Land and Housing Corporation.
(c) construction phase noise and vibration impacts (including recommended standard construction hours and intra-day respite periods for highly intrusive noise generating work) on noise sensitive receivers such as surrounding residences;	Noted. These impacts would be addressed as part of future detailed applications.
(d) construction phase dust control and management,	Noted. These impacts would be addressed as part of future detailed applications.
(e) construction phase erosion and sediment control and management;	Noted. These impacts would be addressed as part of future detailed applications.
(f) operational noise impacts on noise sensitive receivers (especially surrounding residences on adjoining and adjacent holdings) arising from operational activities at the proposed high school such as public address/school bell systems, community use of school facilities, waste collection services and mechanical services (especially air conditioning plant);	Noted. These impacts would be addressed as part of future detailed applications.
(g) the need to assess feasible and reasonable noise mitigation and management measures (including time restrictions on the use of the facilities proposed to be available for community use) to minimise operational noise impacts on surrounding residences;	Noted. A detailed Acoustic Assessment will be undertaken prior to each stage of development to ensure that mitigation measures are implemented to manage any potential noise impacts.
(h) the need to minimise demolition, construction and operational water quality impacts on surface waters, especially Shrimptons Creek (a tributary of the Lane Cove River);	Noted. These impacts would be addressed as part of future detailed applications.
(h) practical opportunities to implement water sensitive urban design principles, including stormwater re-use; and	Noted. WSUD measures will be implemented throughout the development and will be detailed in future detailed applications.
(i) practical opportunities to minimise consumption of energy generated from non-renewable sources and to implement effective energy efficiency measures.	Noted. Sustainability measures are outlined in the Sustainability Report and will assist in targeting a 6 Star Green Star rating for the development. These measures will be further detailed as part of future applications.
<b>6. Office of Environment and Heritage</b>	
OEH recommends the following in relation to the biodiversity assessment:	
<ul style="list-style-type: none"> <li>Retention of the existing threatened ecological community and adjoining vegetation community along Epping Road, which would require modifying the proposed construction footprint and development layout; and</li> </ul>	The development footprint has been modified to reduce impacts to both threatened ecological communities and adjacent native vegetation. Details of the new development footprint are contained within the Biodiversity Assessment Report as part of the covering Response to Submissions.

Issue	Response
<ul style="list-style-type: none"> <li>That the deficiencies in the BAR as described in Appendix 1 are addressed.</li> </ul>	<p>Any omissions as identified in Appendix 1 of the OEH submission have been addressed. Details of each change are provided within this response below.</p>
<p>It is also noted that the BioBanking Credit Calculator was not submitted with this application, so OEH has not been able to review the data used to determine the offset requirements.</p>	<p>The BioBanking Credit Calculator (BBCC) for this project was available upon request through contact with the accredited assessor. ELA has submitted the BBCC for the updated development footprint for review.</p>
<b>Biodiversity Assessment</b>	
<ul style="list-style-type: none"> <li>The site area is 8.2ha in total and comprises 1.64ha of Sydney Turpentine Ironbark Forest (STIF) on site which is an endangered ecological community (EEC) under the Biodiversity Conservation Act 2016 (BC Act) and also a critically endangered ecological community under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).</li> </ul>	<p>Noted.</p>
<ul style="list-style-type: none"> <li>Page 21 of the BAR mentions that a habitat assessment was carried out, but no detail is provided on this assessment.</li> </ul>	<p>The BAR has been updated to include additional information regarding the habitat assessment within the site.</p>
<ul style="list-style-type: none"> <li>The BAR mentions in a number of sections that there are seven hollow-bearing trees on site, but this information is limited, and it is scattered throughout the document. The BAR states that five of the trees are to be impacted by the proposed development, and that they are &gt;300 mm in diameter. Such hollows may be suitable habitat for the Powerful Owl (<i>Ninox strenua</i>), a species which has been recorded a number of times in the vicinity of the site. However, there is no mention in the BAR that this species was a candidate species and there is no discussion of potential impacts.</li> </ul>	<p>The BAR has been updated to include additional information regarding the location of and impacts to hollow-bearing trees.</p> <p>ELA notes that Powerful Owl is an ecosystem species under the FBA, and was not predicted within the BBCC as likely to occur. Notwithstanding this, ELA acknowledges the importance of habitat for this species. As such the development site has been amended and will now retain five of the seven hollow-bearing trees onsite.</p> <p>The Biodiversity Management Plan for the site will be prepared and will include pre-clearing surveys for species that utilise hollow-bearing trees. Should pre-clearing studies identify breeding habitat for Powerful Owl the proponent will seek to avoid impacts to habitat for this species.</p>
<ul style="list-style-type: none"> <li>Section 5.3.3. of the BAR states that no threatened plant species were observed on the development site. However, <i>Me/a/euca deanei</i> is listed in Appendix A (Plot and transect data) as occurring in plot 5, and Figures 4 and 5 identify this plot as occurring within the construction footprint. This species is listed as vulnerable under the BC Act and the EPBC Act.</li> </ul>	<p>The inclusion of <i>Melaleuca deanei</i> in Appendix A is a typographical error. The species does not occur onsite, and the BAR has been amended to include <i>Melaleuca decora</i>.</p>
<ul style="list-style-type: none"> <li>Table 11 of the BAR states that for <i>Acacia pubescens</i>, there is no habitat within the development site and the species requires no further assessment because "there are no gravelly soils or ironstone within the development site". However, as the BAR points out, this species can occur on a range of substrates including the intergrade between shales and sandstones. The site contains shale and sandstone substrates, and there are several BioNet records for this species nearby. Therefore, more justification should be provided for discounting the likelihood of this species occurring on site.</li> </ul>	<p>ELA maintains that the degraded condition of vegetation along Epping Road precludes the occurrence of <i>Acacia pubescens</i>.</p> <p>The best quality vegetation within the site is dominated by a mid-storey matrix of <i>Lantana camara</i> and <i>Ligustrum sinense</i>, and is subject to extensive litter and trampling impacts from the neighbouring roadway and development site.</p> <p>Notwithstanding this assessment of condition, surveys have been conducted throughout the vegetation onsite and confirmed that this species does not occur within the site.</p>

Issue	Response
<ul style="list-style-type: none"> <li>Table 11 of the BAR states that for <i>Syzygium paniculatum</i> (Magenta Lilly Pilly), there is no habitat within the development site and the species requires no further assessment because "there are no grey soils over sandstone, and there are no remnant stands of littoral rainforest". However, this species is known to occur in the Cumberland and Pittwater IBRA subregions, and is known to be associated with Turpentine - Grey Ironbark open forest on shale in the lower Blue Mountains, Sydney Basin Bioregion (plant community type (PCT) ME041), with all of these elements being represented at the site. The BioNet Atlas also contains a record for this species at an adjacent site along Herring Road. As such, the site likely contains habitat for this species.</li> </ul>	<p>ELA maintains that the degraded condition of vegetation along Epping Road precludes the occurrence of <i>Syzygium paniculatum</i>.</p> <p>The best quality vegetation within the site is dominated by a mid-storey matrix of <i>Lantana camara</i> and <i>Ligustrum sinense</i>, and is subject to extensive litter and trampling impacts from the neighbouring roadway and development site.</p> <p>Notwithstanding this assessment of condition, surveys have been conducted throughout the vegetation onsite and confirmed that this species does not occur within the site.</p>
<ul style="list-style-type: none"> <li>Appendix A has incorrectly labelled a number of species: <i>Glochidion ferdinandi</i> (Cheese Tree) is identified as exotic (but it is native), <i>Corymbia citriodora</i> (Lemon-scented Gum) and <i>Grevillea robusta</i> (Silky Oak) are indicated as being native (but they are naturalised), and as stated above, <i>Melaleuca deanei</i> is not identified as a threatened species.</li> </ul>	<p>The BAR has been amended as requested.</p>
<ul style="list-style-type: none"> <li>The BAR identifies the development site as being wholly within the Cumberland IBRA sub-region, however it is partly in Cumberland and partly in Pittwater IBRA sub-regions. Similarly, the BAR states the site is wholly within the Pennant Hills Ridges Mitchell Landscape, but the site is partly within Pennant Hills Ridges and partly within Port Jackson Basin. Acknowledgement of this should be included in the BAR, as well as justification for selection of the relevant IBRA sub- region and Mitchell landscape.</li> </ul>	<p>The BAR has been amended to clarify the extent of occurrence of each IBRA subregion and Mitchell Landscape within the development site.</p>
<ul style="list-style-type: none"> <li>No roads or drainage lines, including Shrimptons Creek, are identified on any of the figures.</li> </ul>	<p>Roads, drainage lines, and Shrimptons creek are all now shown on the Site Map in the amended BAR.</p>
<b>Impact Assessment</b>	
<ul style="list-style-type: none"> <li>The concept development proposal involves the removal of 311 trees, including hollow bearing trees along Epping Road and the removal of 0.46ha of moderate to good condition STIF is to be removed. A total of 229 trees are to be retained. The 2.93ha of unavoidable impacts of the project and Biobanking Credit Calculation for this proposal generates the need for 32 ecosystem credits. It is proposed that offsets are to be retired in a staged manner- approximately 10 stages.</li> </ul>	<p>ELA notes the quantum of impact has now reduced through project redesign.</p>
<ul style="list-style-type: none"> <li>The extent of EEC to be removed needs to be clarified, as the consultant's report states the project will remove approximately 0.46ha of the EEC but the EIS says 0.34ha.</li> </ul>	<p>The project has been redesigned and the total direct impacts to EEC are now 0.28 ha.</p>
<ul style="list-style-type: none"> <li>Principle 1 of the NSW Biodiversity Offsets Policy for Major Projects states that "Before offsets are considered, impacts must first be avoided, and unavoidable impacts minimised through mitigation measures. Only then should offsets be considered for the remaining impacts." It is considered that the proposed development fails to avoid direct impacts on threatened ecological communities. It is not considered that adequate planning/siting of the proposal has been carried out as per the Framework for Biodiversity Assessment (FBA). Specifically, the FBA requires proponents to identify and avoid direct impacts to threatened ecological communities (TECs). An alternative footprint design could avoid impacting on the EEC particularly the STIF EEC primarily located along the perimeter of the sites southern boundary. There is opportunity to reduce the building footprint than currently shown in Figure 1 below and this could be achieved with higher building forms, with increased buffers and setbacks to this EEC or relocation of development.</li> </ul>	<p>The proponent has redesigned the project and has avoided areas of EEC, where possible. The reduced design is presented within the updated BAR.</p> <p>The reduced footprint includes consideration of ecological value, as well as other design constraints for the site.</p>
<p>Further, the consultant's Eco Logical Australia Biodiversity Assessment Report and Offset Strategy dated February 2018, Section 6.1.3 Table 14 states as follows - the Major Project should be located in areas where the native vegetation or threatened species habitat is in the poorest condition (i.e. areas that have a lower site value score) or which avoid an EEC or</p>	<p>As above, the proponent has redesigned the project and has avoided areas of EEC, where possible. The reduced design is presented within the updated BAR.</p>

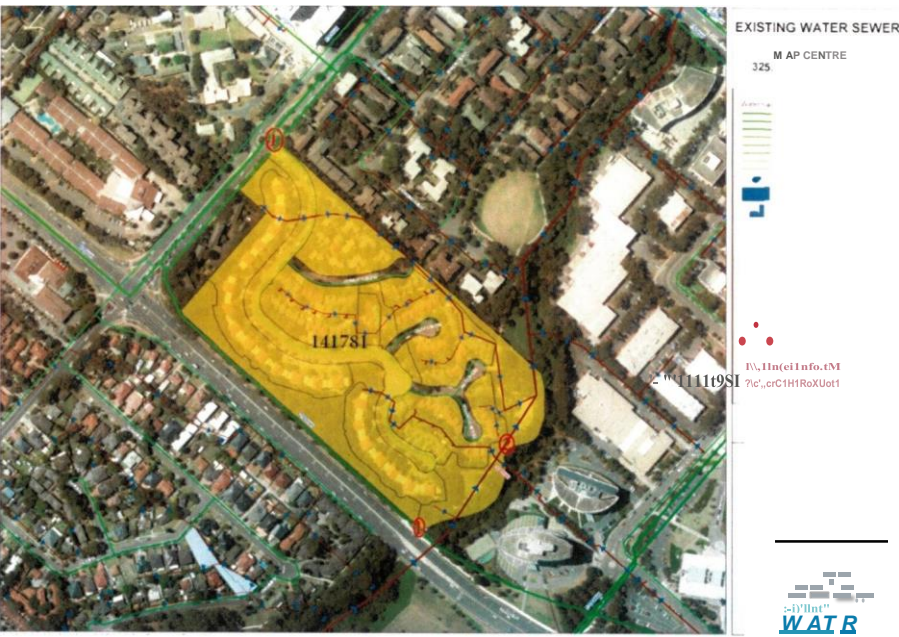
Issue	Response
CEEC... minimise the amount of clearing or habitat loss - the Major Project (and associated construction infrastructure) should be located in areas that do not have native vegetation, or in areas that require the least amount of vegetation to be cleared (i.e. the development footprint is minimised, and/or in areas where other impacts to biodiversity will be the lowest.	The reduced footprint includes consideration of ecological value, as well as other design constraints for the site.
OEH suggests the development footprint could be reduced and higher building heights could be proposed to preserve more STIF. It is noted that a 65m height control (equivalent to 21 storeys based on 3m floor to ceiling heights) is proposed along the southern boundary to Epping Road, refer to Figure 2 below. The consultant's report does not assess what the impact is on the vegetation remaining from overshadowing and limited light especially vegetation along Epping Road where a 65m height is proposed and where good quality STIF is located. The proponent should calculate the reduction in the conservation value of the remaining patch of vegetation not just the areas that are removed.	<p>As above, the proponent has redesigned the project and has avoided areas of EEC, where possible. The reduced design is presented within the updated BAR.</p> <p>The reduced footprint includes consideration of ecological value, as well as other design constraints for the site.</p> <p>ELA notes that the existing development currently shades portions of the STIF onsite. The future development may exacerbate this impact, however the effects of this are difficult to quantify. In addition, the FBA does not assess impacts of a proposal that are not associated with clearing of vegetation. ELA recommends implementing a monitoring program (as specified in future VMP for the site) to assess ongoing impacts to STIF.</p>
<ul style="list-style-type: none"> <li>The BAR appears to understate the degree of proposed impact on site. Table 12 of the BAR states that "Impacts to EECs have been minimised by locating the proposed development on land that is currently developed." However, Table 4 shows more than half of the EEC, which corresponds to the ME041 PCT, will be removed under the current proposal. Table 12 also states "There are limited hollow-bearing trees" but as previously mentioned, seven large hollows have been identified on-site, with five of these being earmarked for removal. The number of hollow-bearing trees that are present on site is significant, particularly given its small size and residential setting. Also, Table 12 states 'The vegetation within the development site ... will not be used as breeding or refuge habitat for threatened species' but there is no recognition that the hollows may provide breeding or refuge habitat for threatened species. Section 4.4 of the BAR states that 'there are no remnant soil characteristics within the current development', which does not appear to be correct given the number of native species present. In addition, a threatened species. (<i>Melaleuca deane1</i>) has been recorded in the surveys, as mentioned above.</li> </ul>	<p>The updated development footprint has reduced the area of impact to EECs, retained additional native vegetation, clarified impacts within riparian areas, as well as retains more hollow-bearing trees than previously proposed.</p> <p>The impacts of the updated development footprint have been clarified within the BAR.</p>
<ul style="list-style-type: none"> <li>OEH also considers more effort. Should be made to retain the connectivity of this vegetation along the Epping Road frontage, by removing the proposed access to the site off Epping Road which will sever this connectivity.</li> </ul>	<p>The proposed entrance to the site has been reconsidered by the proponent, and must remain in order to facilitate traffic ingress/egress requirements of the future development.</p>
<ul style="list-style-type: none"> <li>The proposal introduces the concept of a hierarchy of public spaces such as Forest to neighbourhood and the public domain plan shows areas earmarked as Forest thresholds with stepped terraces (identified as item 14 on the public domain plan Figure 3 below). The proposal should aim to minimise landform alteration in the forest areas and preserve existing trees and it is unclear whether the stepped terraces are proposed or are a natural element of the Forest landscape area.</li> </ul>	<p>Any landform alteration will be provided in further detail in subsequent DA's. ELA has conducted the assessment adopting the precautionary approach and calculated credits for the landscaped areas, with the understanding that future uses of this space will likely retain vegetation.</p>
<ul style="list-style-type: none"> <li>The consultant's report page 11 states "At the time of survey, the exact location of the development site was not known. As a result, plots were carried out within a contiguous patch of vegetation approximate to the development site location. As such, the location of the plots is outside of the development site but given the lack of environmental variation within the vegetation patch, the approach is considered suitable for the purposes of the assessment." The survey needs to be updated to ensure the site is adequately surveyed.</li> </ul>	<p>The location of the plot and transect surveys has been undertaken in areas that are most representative of the vegetation present. Given the narrow impacts (especially in Zone 1), it is not feasible to conduct a plot and transect survey within the area of direct impact.</p>

Issue	Response
<ul style="list-style-type: none"> <li>OEH supports the goal that Ivanhoe Estate will target a 6 Star Green Star Communities rating and 5 Star Green Star v1.1 for all buildings and will incorporate a range of environmental and sustainability measures, including photovoltaic solar power and water recycling plants with the aim of being carbon neutral in operation.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>The proponent may need to refer this concept proposal to the Commonwealth Government as a matter of national environmental significance given the Sydney Turpentine Ironbark Forest (STIF) on site is a CEEC under the EPBC Act.</li> </ul>	The proposal is currently under review via a referral to the Commonwealth Department of the Environment and Energy.
<ul style="list-style-type: none"> <li>A Biodiversity Management Plan (BMP), a weed management plan, a Construction Environment Management Plan (CEMP) and a Vegetation Management Plan to provide for management of retained areas of the EEC and this needs to be conditioned on any forthcoming development approval.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>A monitoring program is to be conditioned to measure the impacts of the project and must include baseline data capture to measure any effects of the project over time on the remaining STIF.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>Nest boxes are required to be conditioned to be installed to minimise impacts to arboreal mammals. It is recommended to replace all removed hollows with artificial nest boxes at a ratio of 1:4 (removed: replaced). A total of five (5) hollow bearing trees will be impacted. Nest boxes are to be installed within retained vegetation in Shrimptons Creek.</li> </ul>	Noted.
<b>Shrimpton's Creek Riparian Corridor</b>	
<ul style="list-style-type: none"> <li>Section 1.2.2 of the BAR mentions that the Masterplan includes a proposal to regenerate RE1 zoned land along Shrimptons Creek, and that the Shrimptons Creek corridor will be enhanced to provide a recreational and environmental green spine. OEH supports this action and recommends that the construction footprint is amended to provide a buffer to Shrimptons Creek and so avoid impacts to the existing vegetation along the creek, to increase the likelihood that the environmental outcomes that the Masterplan seeks to achieve, can be realised.</li> </ul>	Noted and further clarified in the updated BAR. The revised footprint clearly delineates those areas in which construction impacts will be realised, as well as those areas that will be subject to landscaping within Shrimpton's Creek.
<ul style="list-style-type: none"> <li>A shared path for cyclists and pedestrians within the 20m riparian corridor in the outer riparian zone. Details should be provided of how any impact s from runoff and other pollutants as well as active recreation will not adversely affect water quality, bank stability and conflict with the goal of rehabilitating Shrimptons Creek in the long term.</li> </ul>	ELA notes that it is unlikely that a cycle and pedestrian path would further adversely affect water quality within Shrimptons Creek, given the riparian zone currently includes exotic lawns, a bicycle and pedestrian pathway, skate park, and seating areas.
<ul style="list-style-type: none"> <li>It is recommended that the existing adjoining E2 zone be extended into the site within the riparian corridor as shown in Figure 4 below to protect both the adjoining corridor and the rehabilitated corridor in the long-term as this zone will ensure stronger protection.</li> </ul>	A riparian corridor will be provided adjacent to Shrimptons Creek in accordance with the OEH guidelines. This riparian corridor will ensure the long term protection of this riparian area.
<ul style="list-style-type: none"> <li>Condition the installation of sediment barriers, sediment ponds and stormwater management systems on any forthcoming development approval in accordance with Table 16 of the consultant's Eco Logical Australia's Biodiversity Assessment Report and Offset Strategy report dated February 2018.</li> </ul>	Noted.
<b>Biodiversity Offset Strategy (BOS)</b>	
<ul style="list-style-type: none"> <li>Section 11.1.1.1 and Appendix 7 of the FBA requires that a BOS be prepared as part of the BAR. It is noted that none of the minimum requirements for the BOS, as required in the FBA, have been included in the BAR. OEH recommends the BAR is amended to include a BOS, in accordance with the NSW Biodiversity Offsets Policy for Major Projects and the FBA.</li> </ul>	<p>To date, no land-based offset has been identified for this project.</p> <p>As proposed, an appropriate mechanism for compensating for direct impacts under the FBA is to purchase and retire biobanking credits.</p>
<b>Long term management</b>	
<ul style="list-style-type: none"> <li>OEH recommends that vegetation to be retained on site is managed in the long term through the preparation and implementation of a Vegetation Management Plan.</li> </ul>	Noted. The details of the VMP will be included post approval.

Issue	Response
<ul style="list-style-type: none"> <li>OEH also recommends that any regeneration or management of vegetation along Shrimptons Creek uses local provenance plants and the species selected are appropriate for the TECs and PCTs present.</li> </ul>	Noted. The details of the VMP will be included post approval.
<b>Aboriginal Cultural Heritage</b>	
OEH notes that a due diligence Aboriginal heritage assessment was undertaken for the proposal. Due diligence is not a substitute for undertaking an Aboriginal cultural heritage assessment. Due diligence is a legal defence against harm under the National Parks and Wildlife Act 1974 and is inadequate to assess the impacts of the proposed development on the Aboriginal archaeological and cultural heritage values of the subject land. Due diligence is not to be used for major projects, including state significant developments.	An Aboriginal Cultural Heritage Assessment Report is not required. This is discussed in the covering Response to Submissions report.
Further assessment of Aboriginal cultural heritage is recommended in the form of an Aboriginal Cultural Heritage Assessment Report (ACHAR), with formal Aboriginal community consultation and a staged program of archaeological test excavations, to inform the development and satisfy the project SEARs. From the information provided it is unclear why the ACHAR was not prepared prior to the exhibition of the proposal and OEH recommends that this be completed ahead of determination of the application, not in the post-approval phase.	An Aboriginal Cultural Heritage Assessment Report is not required. This is discussed in the covering Response to Submissions report.
<b>Floodplain Management</b>	
The following comments are made in relation to the report attached to the EIS at Appendix I - Flood Impact Assessment for the Ivanhoe Estate Redevelopment. No climate change modelling has been undertaken, however OEH notes that the subsequent development stages involving the detailed design would include climate change modelling.	As outlined in the updated Flood Impact Assessment, a Climate Change Assessment can be undertaken as required with future stages of development.
OEH considers that the report adequately addresses OEH requirements and addresses all impacts and emergency response issues. However, there are two minor issues that require clarification:	-
<ul style="list-style-type: none"> <li>In Table 5-1, the flood level results look to be out of order. It looks like an error has been made as the 20y levels are 1, 2, 3 etc and in the proposed development scenario 20y, 100y and PMF levels do not make sense. 20y levels are more than 2m higher than the 100y and PMF levels. It looks like the columns have been moved across by one. Please clarify this matter.</li> </ul>	This issue has been addressed in the updated Flood Impact Assessment.
<ul style="list-style-type: none"> <li>In Table 5-1 and 5-2, assuming that the error in the columns is clarified for Table 5-1, the locations that have NFI (No flooding indicated) are not consistent between the tables. For example, in the current PMF scenario at location 5 a flood level is indicated in Table 5-1 but in Table 5-2 it has NFI. Please clarify this matter.</li> </ul>	This issue has been addressed in the updated Flood Impact Assessment.
<b>7. OEH – Heritage Division</b>	
The Environmental Impact Statement prepared by Ethos Urban, dated 3 April 2018 has been reviewed. Given that the subject site is not listed on the State Heritage Register and is not an archaeological site no further comment is considered necessary from the Heritage Council.	Noted.
<b>8. Department of Industry</b>	
Works on waterfront land, including stormwater outlets and the proposed road crossing of Shrimptons Creek, should be conducted in accordance with the Guidelines for Controlled Activities on Waterfront Land (2012)	Noted.
The EIS has identified that the tenure of Shrimptons Creek is under investigation. Should the waterway be confirmed as Crown land, the proponent must consult with the Department of Industry – Lands with respect to requirements for authorisation and consent for the proposed works.	Noted.

Issue	Response
<b>9. Department of Education</b>	
It is noted that the final SEARs have incorporated the Department's request that the contributions addressed in the EIS should refer to a potential Special Infrastructure Contribution with the Department of Planning and Environment in addition to Section 94 and Voluntary Planning Agreements.	Noted.
The department has undertaken demographic and student enrolment projections for the proposed additional 3,500 dwellings within the Ivanhoe Estate. This is anticipated to result in an increase in government primary and secondary school enrolment demand.	Noted.
The Department's planning strategy for the anticipated growth is underpinned by announced projects within the area and the establishment of the Meadowbank Education Precinct (K- 12). This includes the current capital works for a new Smalls Road primary school and upgrades to Kent Road Public School, West Ryde Public school and Denistone East Public school. The provision of a new high school within the Meadowbank Education Precinct will also provide additional secondary teaching spaces within the area.	Noted.
The Department would however expect that a development contribution for education infrastructure should be provided in relation to the proposed density uplift and requests the opportunity to discuss such a contribution prior to approval of the SSD application.	<p>The Masterplan includes the provision of a new school, which will make a positive contribution to the availability of education infrastructure in the local area.</p> <p>Whilst Macquarie Park is nominated as an area to which a Special Infrastructure Contribution would apply, there is currently no mechanism via which a contribution could be levied. A Special Infrastructure Contribution was considered and not applied as part of the Priority Precinct rezoning. Retrospectively applying such a contribution would set a new precedent.</p> <p>It is also noted that the uplift sought is a result of bonuses available under the Affordable Rental Housing SEPP and Seniors SEPP. Residents living in dwellings provided as a result of these SEPPs are typically adults or retirees and are unlikely to generate a demand for school places.</p>
<b>10. Ausgrid</b>	
Ausgrid has reviewed the documents and notes that contact has been made with Ausgrid regarding options to connect the new development.	Noted.
From a safety perspective, the proponent will also need to identify a methodology for removal of the exiting Ausgrid assets due to the road realignment.	Noted.
<b>11. Sydney Water Response</b>	
<ul style="list-style-type: none"> <li>The proposed development site is traversed by 600mm wastewater main with an easement over it.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>Where proposed development works are in close proximity to a Sydney Water easement, the developer may be required to carry out additional works to facilitate their development in order to not encroach within the Sydney Water easement. The easement for sewerage purposes is not to be built over or encroached in without the consent of Sydney Water.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>Where proposed works are in close proximity to a Sydney Water asset, the developer may be required to carry out additional works to facilitate their development and protect the wastewater main.</li> </ul>	Noted.



Issue	Response
<ul style="list-style-type: none"> <li>Servicing options may involve adjustment/deviation and or compliance with the Guidelines for building over/adjacent to Sydney Water assets.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>Refer to a Water Servicing Coordinator for details of requirements.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>The existing 250mm and 500mm water mains on Herring Road have the capacity to service this development.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>For reliability of supply, a second connection to the exiting 250mm water main on Epping Road is proposed. Reticulations inside the development and any lead in mains should be designed according to current WSA Code - Sydney Water Edition.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>A detailed planning study must be carried out to determine whether augmentation of existing water infrastructure within the Macquarie University growth precinct is required. Figure 1 shows the proposed connection points.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>The existing 600mm sewer traversing through the development site has the capacity to service this development.</li> </ul>	Noted.
<ul style="list-style-type: none"> <li>A detailed planning study must be carried out to determine whether augmentation of existing sewer infrastructure within the Macquarie University growth precinct is required. Figure 1 shows the proposed connection point.</li> </ul> 	Noted.

Issue	Response
<p>This advice is not a formal approval of our servicing requirements . Detailed planning and servicing requirements, including any potential extensions or amplifications, will be provided once the development is referred to Sydney Water for a Section 73 compliance certificate, usually following assessment of the development application .</p> <p>More information about the Section 73 application process is available on our web page in the Land Development Manual.</p>	<p>Noted.</p>
<b>12.Fire and Rescue NSW</b>	
<p>Emergency vehicle access (including general access to specific sites and premises) and access around buildings or structures within the redevelopment shall be provided in accordance with FRNSW Policy No.4 GUIDELINES FOR EMERGENCY VEHICLE ACCESS-a copy of which is attached.</p>	<p>Noted.</p>
<p>It should be noted that the recommendation above is in addition to any specific provisions relating to the requirements for open spaces and vehicular access stipulated in the National Construction Code (NCC) Series Building Code of Australia (BCA) in force at the time any building work is proposed.</p>	<p>Noted.</p>