Attachment 4 – Design Verification Statement, SEPP 65 and RFDC Merit Assessment Considerations

1. Design Quality Principles Assessment

Principle 1: Context

Good design responds and contributes to its context. Context can be defined as the key natural and built features of an area.

Responding to context involves identifying the desirable elements of a location's current character or, in the case of precincts undergoing a transition, the desired future character as stated in planning and design policies. New buildings will thereby contribute to the quality and identity of the area.

Applicant Response:

Development surrounding the site comprises a mix of uses including; single dwellings, 2 storey student accommodation, University of Wollongong buildings, and Wollongong Botanical Gardens. The site is bounded by Northfields Avenue to the north and a secondary street to the south - Madoline Street.

To the north of the site is the UniCentre and main campus buildings beyond. To the east are UoW student accommodation buildings comprising 2 storey brick flats. To the south a residential neighbourhood characterised by freestanding one/two storey homes. The Wollongong Botanical Gardens is to the west with their service areas immediately adjacent the sites western boundary.

The University Masterplan for Northfields Avenue creates a prominent entry to the University with flagship or iconic architectural projects. The landscape and urban design quality of Northfields Avenue will be enhanced and the precinct developed as a higher density hub. Along Northfields Avenue and particularly around our site, the Masterplan facilitates the following:

- *Improved public transport hub to promote the use of public transport*
- *Improved pedestrian and bicycle safety with enhanced shared cycle ways*
- *Improved pedestrian and vehicular access with the proposal of a new footbridge over Northfields Avenue*
- *Provides a high level of security for students staff and visitors*
- *Reinforce the leafy pedestrian friendly campus character with buildings clustered around green landscaped spaces*
- *Improved support facilities such as a childcare centre*

It is around these principles and the future development of the campus that our site and proposed building responds to. The Site is fronted against Northfields Avenue with a future lower height and scale development planned behind. The Masterplan thus allows for a transition of scale to the residential typologies of Madoline Street.

The site slopes down from south to north and from west to east. With the eastern shorter leg being the flattest part of the site. As such the on grade carpark was ideally located in this portion of the site. The carpark also has frontage and access to Madoline Street. During design this was a major consideration as adding vehicular access to Northfields would result in creating congestion and traffic and pedestrian movement and safety issues.

The position of the building allows for the north south movement of pedestrians and cyclists linking the residential areas to the south, through the site, to the main campus. The western portion of the site allows for a future footbridge to be developed and in the meantime maintains a footpath through the site. A new pedestrian path is also located to the east of the carpark. Whilst the site has no fences provision of these paths with clear links to surrounding public footpaths would encourage people to use them instead of moving thorough the site.

Security of the student residents is an ongoing concern for the University, however an open 'fenceless' landscaped character is also something the University would like to keep. The main entrance on Northfields Avenue provides a single means of secure entry into the building. It is adjacent to the carpark and is also highly visible from Northfields Avenue making wayfinding easier. The administration office is directly behind the entry foyer and provides surveillance of the carpark and the adjacent communal areas. The vibrant northern communal courtyard is visually linked to the avenue but with a deep setback and change in level to provide security. It also means we can maintain some of the mature trees that line the avenue and enhance the frontage with more planting in the courtyard and in front of the carpark.

Planning Comment:

The proposed development is not considered to be inconsistent with the existing and future desired context and character of the area. The siting of the building is considered to reasonably respond to the location, topographic setting and site context. The development is proposed adjacent to UOWs existing main educational and services facilities within the University landholding to the north.

Principle 2: Scale

Good design provides an appropriate scale in terms of the bulk and height that suits the scale of the street and the surrounding buildings.

Establishing an appropriate scale requires a considered response to the scale of existing development. In precincts undergoing a transition, proposed bulk and height needs to achieve the scale identified for the desired future character of the area.

Applicant Response:

As touched on in the Context principle above, the Masterplan sets a building envelope of 25m along Northfields Avenue which reduces to 10m towards Madoline Street. This gives the building prominence along Northfields whilst transitioning to a more suitable height to respond to the southern residential forms. The smaller scaled development on the south of the site is envisaged to be a 2 storey childcare centre which is seen to respond better to Madoline Street in terms of use.

The site has a significant slope with Madoline Street being approximately 2 storeys higher than Northfields Avenue. The proposed building, when viewed from Northfields Avenue, is 6 and a half storey. However, the building will have the scale of 4 to 5 storey when viewed from Madoline Street due to the elevated aspect. And with the mature trees which exist on the southern portion of the site, the proposed building will be largely hidden from view.

The proposed building, whilst linear in form, is articulated by changes in material, use of colour in sun shading elements, divided by full length windows to the corridors, and slipped floor plates to reduce the perception of bulk.

Planning Comment:

The bulk and scale of the development is considered to be consistent with the ongoing redevelopment of the University and the surrounding area, noting that there is no applicable height or floor space ratio development standards for the site. A section of the subject development site and adjoining land has been provided and is included at Figure 1 below to demonstrate the proposed scaling down of development towards Madoline Street and the R2 Low Density Residential land use zone.

Principle 3: Built form

Good design achieves an appropriate built form for a site and the building's purpose, in terms of building alignments, proportions, building type and the manipulation of building elements.

Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook.

Applicant Response:

In keeping with the Masterplan for Northfields Avenue the main facade and building entry creates a gateway that express a vibrant and innovative image reflective of the University and will sit well with future developments in the Northfields corridor. The landscaped northern communal courtyard is visually permeable, engaging the street and contributing to the vibrancy of the place. The courtyard is positioned to maximise access from the internal communal spaces, with kitchen and dining linking to outdoor covered BBQ and seating areas. Opportunities for views to the landscaped courtyards, the botanical gardens and the surrounding scenery is realised through large full height windows to the accommodation. The long corridors typical of student accommodation is, where possible, broken by views to the surrounding landscape vista.

The use of contemporary façade materials, asymmetric elements, use of colour on window shades and balcony elements give the building a functional but sophisticated playful aesthetic. The highly articulated street edge façades not only establish a positive public domain interface but reduces the perceived bulk and length of the building.

Building identity and wayfinding elements will communicate to users a clear and inclusive message through the use of colours and materials, signage, the orientation of the entry and steps. The landscape design and interior design will support this cohesive identity through the choice of planting, the coordinated design of finishes and selection of both indoor and outdoor furniture and fixtures.

Planning Comment:

The proposal was referred to Councils Design Review Panel on 19 February 2015 and minutes provided to the applicant. A response has been provided to each matter identified within the meeting minutes and is included at Attachment 3 of the report.

The built form is not inconsistent with another recent student accommodation development by the University via DA-2009/1189 approved by the JRPP. The proposal is considered to be appropriate in terms of proportions, building type and alignment.

Principle 4: Density

Good design has a density appropriate for a site and its context, in terms of floor space yields (or number of units or residents).

Appropriate densities are sustainable and consistent with the existing density in an area or, in precincts undergoing a transition, are consistent with the stated desired future density. Sustainable densities respond to the regional context, availability of infrastructure, public transport, community facilities and environmental quality.

Applicant Response:

The building accommodates 254 postgraduate students, 6 visitors rooms and 1 resident manager. The density of the development is consistent with the University's recent student accommodation developments. The scale of the building is consistent with surrounding University buildings and as described previously will sit comfortably within its built form context and within the vision of the Masterplan.

The density of this development is consistent with the University's other recent student accommodation buildings and typical of other student accommodation across the country. The need for affordable student accommodation drives the requirement for higher densities when compared to other type of residential accommodation. The postgraduate population of this site requires a high proportion of studio type accommodation with fewer cluster shared accommodation types. It must be noted the quality the accommodation provided in particular the provision of a balcony to every studio unit and shared cluster accommodation. This provision stands out from other similar student accommodation and whilst costly, was deemed beneficial in providing private open space to every unit. The balconies, being a minimum 4m2 will add, when totaled, in excess of 900m2 of secure private open space

As discussed previously the postgraduate cohort differs from the undergraduate and the location of the site to the facilities of the main campus facilitates the schedule of a postgraduate student. The location of the building provides ease of access to public transport, the on campus retail, the University library, and other faculties being only across Northfields Avenue.

Planning Comment:

Whilst the land use zone does not have a Floor Space Ratio (FSR) density development standard within the WLEP 2009, the proposal is not considered to be inconsistent with the density objectives of the University (Notional Masterplan), the objectives of the SP2 Infrastructure land use zone and is consistent in scale and density to other recent student accommodation developments at the University.

Principle 5: Resource, energy and water efficiency

Good design makes efficient use of natural resources, energy and water throughout its full life cycle, including construction.

Sustainability is integral to the design process. Aspects include demolition of existing structures, recycling of materials, selection of appropriate and sustainable materials, adaptability and reuse of buildings, layouts and built form, passive solar design principles, efficient appliances and mechanical services, soil zones for vegetation and reuse of water.

Applicant Response:

The development makes use of a site that is being used as low density student housing and ancillary University facilities. With its close proximity to campus and public transport the site is more suited to the proposal. The existing buildings on the site are constructed of readily recyclable materials such as brick, glass, terracotta tiles and timber.

The development aims to reduce CO2 emissions by applying energy design principles and utilise low or zero carbon technologies to achieve maximum embodied carbon intensity rates in line with the University standards. Wherever possible, use of local subcontractors and locally produced materials will help to achieve lower embodied carbon rates.

Quality materials for the main building elements ensure long lifespans and minimise maintenance over that period. The metal profile cladding provide a façade that is textural and its large spans ensure ease of construction and building airtightness. The student accommodation and corridors will be naturally ventilated. Rainwater will be harvested for use in toilets flushing.

The buildings ongoing energy use will be constantly monitored through a Building Management System to pin point where further enhancements can be made throughout the life span of the building.

Photovoltaic cells on the roof will take advantage of the building's height and solar aspect.

The University has set a high bar in setting the briefed objectives for Ecologically Sustainable Design strategies. As student accommodation does not fall easily within the framework of existing rating tools (such as Green Star) the University has a maximum Embodied Carbon Intensity rating of 680kg/CO2/m2.

This measure flows through the full life cycle of the building and would be considered a higher bar than many of the Green Star requirements.

The planting design responds to the overall landscape context as well as the individual microclimate conditions and proposed function within the landscape. Species will be chosen for their particular characteristics, contribution to the surrounding uses, suitability to the site conditions, and ongiong maintenance requirements in accordance with horticultural best practice.

Planting areas will be used to capture run off from adjacent pave d areas and maximise infiltration within the boundaries of the site. The plants, native to the area, will not need any irrigation.

Planning Comment:

The proposal is considered acceptable with regard to sustainable design. A Water Sensitive Urban Design (WSUD) Strategy and BASIX certificate formed part of the application submission. Both documents have been assessed by Councils Environment Officer and found to be conditionally satisfactory.

Principle 6: Landscape

Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in greater aesthetic quality and amenity for both occupants and the adjoining public domain.

Landscape design builds on the existing site's natural and cultural features in responsible and creative ways. It enhances the development's natural environmental performance by co-ordinating water and soil management, solar access, micro-climate, tree canopy and habitat values. It contributes to the positive image and contextual fit of development through respect for streetscape and neighbourhood character, or desired future character.

Landscape design should optimise useability, privacy and social opportunity, equitable access and respect for neighbours' amenity, and provide for practical establishment and long term management.

Applicant Response:

The landscape design provides secure outdoor space for active and passive recreation. As the University is an 'open campus' the landscaping proposal does not include fences or barriers. Use of planting, level changes and other landscape elements reinforce the circulation strategies and pedestrian links to and around the site whilst maintain a 'barrier free' edge. By providing integrated communal facilities which transition from indoor facilities to outdoor courtyards further softens the development and provides improved visual amenity.

The development seeks maximise the retention of trees on site and integrates with the existing street canopy. New landscaping and planting is designed to enhance the street edge and follow the University landscaping masterplpan.

Planning Comment:

The proposal provides suitable landscaped areas and communal open space. Councils Landscape Officer has assessed the proposal and provided a satisfactory referral response. Draft conditions are recommended with regard to tree retention and removal, compensatory planting, tree protection and construction works.

Principle 7: Amenity

Good design provides amenity through the physical, spatial and environmental quality of a development.

Optimising amenity requires appropriate room dimensions and shapes, access to sunlight, natural ventilation, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts and service areas, outlook and ease of access for all age groups and degrees of mobility.

Applicant Response:

All the student accommodation in the development will be naturally ventilated with large operable windows. The large windows maximise the solar opportunities and views of the campus and surrounding parklands. Every room will have access to a private balcony. Generous communal areas will link to secure landscaped courtyards catering to active and passive recreation and socialisation. The communal facilities and range of outdoor spaces aims to support the wider needs of a postgraduate student. The accommodation mix and communal areas have been designed to suit not only single students but couples and even families.

The development not only supports the functional aspects of student life such as adequate bed/study space, laundry facilities, bike stores, and the like. It also promotes a collegiate environment and lifestyle supporting the social and development needs of the students. The planning of the facility considers the formal areas supporting a range of communal and group activity and also areas where informal interaction can be encouraged such as lift lobbies, corridors and stairways. This not only increase casual interaction but increases security through casual surveillance of the site.

The design uses as a guideline the rules of thumb in SEPP 65. For solar access 66% of the accommodation receives a minimum of 3 hours solar access to living areas between 9am and 3pm in mid-winter. For cross ventilation the student accommodation with its predominantly single orientation utilises mechanical assistance to achieve cross ventilation. With this method 100% of the accommodation achieves cross-ventilation. The design seeks to maximise orientation for solar access while maintaining efficient floor plates, 34% of the accommodation are single orientation south facing.

Whilst postgraduate students require less communal space than undergraduates they do spend more time in their rooms and as such it was felt the important to provide a private balcony to each accommodation. These balconies are screened for privacy and large enough to have seating and table. The minimum size of a studio balcony is 4m2 with larger balconies provided in the share accommodation. Even though affordable student housing was a major priority the balconies really capitalise on the University's beautiful landscape and the stunning surrounding scenery. The private balcony space total in excess of 900m2 over all the units - a significant addition to the shared communal facilities on the lower ground floor.

Planning Comment:

The amenity of the dwellings within the proposed development is considered to be acceptable. The accommodation design and double loaded corridors is characteristic of recent student accommodation developments. Further discussion with regard to solar access and dwelling amenity is outlined within the Residential Flat Design Code Assessment Table included below and WDCP 2009 assessments included at Attachment 6.

Principle 8: Safety and security

Good design optimises safety and security, both internal to the development and for the public domain.

This is achieved by maximising overlooking of public and communal spaces while maintaining internal privacy, avoiding dark and non-visible areas, maximising activity on streets, providing clear, safe access points, providing quality public spaces that cater for desired recreational uses, providing lighting appropriate to the location and desired activities, and clear definition between public and private spaces.

Applicant Response:

The design of the building and its surroundings optimises safety and security, both internal to the development and for the public domain. Overlooking of communal spaces and public areas are achieved from the circulation routes and stairs. The accommodation overlooks the courtyards and pathways while maintaining internal privacy through the use of balcony screening. The layout of the external circulation and entries to the site and building are highly legible and enhance the wayfinding experience of users.

The landscape design is in line with the University standards of Safer by Design and avoids use of low hedges with the potential of hiding spots. Path and car parks are clearly defined and well lit at night.

In addition the University's grid of CCTV will be extended to cover the site and the surrounding network of pedestrian paths for added surveillance and security. There is a full time Resident Manager on site to provide assistance and care for students.

Planning Comment:

The proposal is considered satisfactory with regard to safety and security. A CPTED Report and Management Plan has been provided outlining the methods employed across the University and for the proposed development to ensure the safety and security of the future occupants and outlining the procedure for dealing with complaints and managing residents. Details have been provided which identify the method of security access and control, electrical and CCTV monitoring and general design. Details of the management arrangement have also been provided. Draft conditions 33-35 inclusive and 125 are recommended in this regard. Councils Landscape and SCAT Officers have reviewed the application submission and indicated no objections to the proposal, subject to draft conditions relating to site security. Opportunities for concealment and entrapment are considered minimal in the building and landscape designs respectively.

Principle 9: Social dimensions

Good design responds to the social context and needs of the local community in terms of lifestyles, affordability, and access to social facilities.

New developments should optimise the provision of housing to suit the social mix and needs in the neighbourhood or, in the case of precincts undergoing transition, provide for the desired future community.

New developments should address housing affordability by optimising the provision of economic housing choices and providing a mix of housing types to cater for different budgets and housing needs.

Applicant Response:

The student accommodation provides students with an affordable means of accommodation close to campus and enhances the student lifestyle experience whilst studying at Wollongong. By providing for all their needs, students have very little housing setup costs.

The mix of accommodation types is more varied to suit postgraduate students, who tend to come from a wider range of backgrounds. The types suit single students, through to students who may have their partners staying with them to students with family. As such some of the focus of the communal areas is to also cater for not only the postgraduate student but also for their partners and families with children.

As a part of the ongoing welfare and enjoyment of staying on campus is the role of the Resident Managers who provide support and organise activities for the social welbeing of the residents. The managers stay on site in a self contained one bedroom apartment.

Planning Comment:

The proposal provides a mix of unit sizes and layouts appropriate to the University to cater for Post Graduate Students. Communal facilities are available on the lower ground floor of the building. Large Communal Open Space areas are also available throughout the main campus.

Principle 10: Aesthetics

Quality aesthetics require the appropriate composition of building elements, textures, materials and colours and reflect the use, internal design and structure of the development. Aesthetics should respond to the environment and context, particularly to desirable elements of the existing streetscape or, in precincts undergoing transition, contribute to the desired future character of the area.

Applicant Response:

The design of the building utilises a palette of textures, colours and forms to express a vibrant and innovative image reflective of the University. The design is appropriate for the site and sympathetic to its surroundings allowing for and enhancing pedestrian access through the site.

The materials and colours chosen for the exterior flow through to the interior design creating a cohesive and unified design.

The landscape design is also worked in closely with the architecure and interiors coveying the same aesthetics throughout the development creating a sense of community and harmony.

Planning Comment:

A mixture of materials and finishes is proposed and the development is considered to be suitably articulated. The proposal was referred to Councils Independent Design Review Panel on 19 February 2015 and minutes provided to the applicant. A response has been provided to each matter identified within the meeting minutes and is included at Attachment 3 of the report.

The proposed development is not considered to be inconsistent with the 10 design quality principles as outlined above.

2. Residential Flat Design Code Assessment		
	Required	Comment
Part 1.0 Local Context		
Residential Flat Building Type	Suitable for the site context	The proposed student accommodation considered to be compatible with the site context. The height of the development is comparable to several other recent developments at the University including the newly constructed Smart Building. The highest RL proposed is also significantly lower than the highest RL for the Robsons Road Student Accommodation (K2) that has recently completed construction. The location of the proposed building is not envisaged to obstruct views of the escarpment from the surrounding area. The proposed development is considered to positively address the streetscape.
Amalgamation + Subdivision	Encouraged	The subject development site has been consolidated with the larger University landholding into one Title.
Building Envelopes	Establish a three-dimensional form that limits the extent of building in any direction. Based on height, FSR and setback controls.	As the site has no applicable height, FSR or setback controls, the establishment of an appropriate building envelope is difficult in the circumstance. It is however, considered that the development proposed is adequately setback from Northfields Ave, Madoline Street and adjoining properties and of an appropriate height and scale in the context at the locality.
Primary Development Controls		
Building Height	Test height against FSR to ensure the proposal is a good fit.	The site has no applicable FSR or height controls. The development is considered to be comparable in size to other recent development at the University site and not inconsistent with the desired future character of the local area. The proposal has a maximum height of 23.1m above natural ground level. The building is connected via a walkway however is proposed in two distinct 'pods'. Pod 1 (east) which includes the lower ground floor containing the entrance, foyer, communal facilities etc. is 7 storeys high. Due to the slope of the land, Pod 2 (west) is proposed with a void space at the lower ground floor level is 6 storeys high.
Building Depth	In general, an apartment depth of 10-18m is appropriate. Developments wider than 18m must demonstrate how satisfactory daylight and natural ventilation are to be achieved.	The building proposed has a maximum depth of approximately 16m which is considered to be appropriate. The building envelope for the proposed development is considered to adequately address the requirements of this clause and provide for a reasonable amenity to the future occupants of the units.

Building separation	Separation requirements: Five to eight storeys/up to 25 metres • 18 metres between habitable room /balconies • 13 metres between habitable rooms/balconies and non-habitable rooms • 9 metres between non-habitable rooms	There is no building height control applicable to the subject land. The proposal has a maximum height of 23.25m and 7 storeys. The height of the proposal is not considered to be inappropriate. The proposal does not result in any significant overshadowing of adjoining properties. The proposed building is located more than 45m to Graduate House to the east (also residential flat buildings) and 14m to the western boundary which fronts the Botanic Gardens which is considered appropriate. The proposed separation is not envisaged to result in unreasonable privacy or acoustic impacts on adjoining properties. An Acoustic Report was provided as part of the application submission and has been assessed by Councils Environment Officers. Conditionally satisfactory referral advice has been received with regard to acoustic impacts and mitigation measures to be employed to achieve BASIX requirements.
Street Setbacks	Identify the desired streetscape character, the common setback of buildings in the street, the accommodation of street tree planting and the height of buildings and daylight access controls.	There is no site specific Development Control Plan for the site and as such no defined street setback controls. The streetscape character for Northfields Avenue is considered to be defined by the University buildings on the northern side of the road and the existing Graduate House structures to the east of the development site. Graduate House observes a setback from Northfields Avenue of approximately 5.5m. The University buildings on the northern side of the Northfields Avenue are setback approximately 20m in the general location of the proposed development. The proposed setback to Northfields Avenue varies between 5.9 and 17m which is considered to be appropriate. Setbacks to Madoline Street vary between 35 and 47m which is considered to be appropriate. The proposed car parking area is at grade. The application proposes to retain several large street trees on Northfields Ave in conjunction with additional landscaping works which is considered to be appropriate for the streetscape. The proposal has been designed to sit below the canopy of the larger trees in the area.

Side and rear setbacks	Establish primary and secondary setback lines. Test side and rear setbacks with building separation, open space and deep soil zone requirements. Test side and rear setbacks for overshadowing of other parts of the development and/or adjoining properties and POS.	It is considered that Northfields Avenue would be the primary setback and Madoline Street the secondary setback lines. Setbacks to the two streets and surrounding development are considered acceptable. The proposal will have minimal overshadowing impacts upon adjoining properties.
Floor Space Ratio	Test the desired built form against FSR to ensure consistency with other building envelope controls.	As discussed above, there is no applicable FSR control for the site. The proposed GFA of the development is not considered to be out of character with the scale of development on the University campus. The proposal is considered to meet the objectives of the control in being to ensure that the development is in keeping with the optimum capacity of the site and local area. The proposal is not inconsistent with other existing student accommodation building envelope controls as discussed above.
Part 2.0 Site Design		
Site Configuration		
Deep Soil Zones	A minimum of 25% of the open space area should be a deep soil zone; more is desirable.	Almost 3000sqm to the rear of the proposed building is to be retained as landscaped area at present and a mass planting area of 300sqm is proposed to the north of the car park area. As the site forms part of the wider University campus, it is considered that the landscaping proposed is appropriate. Councils Landscape Officer has provided a conditionally satisfactory referral response in this regard.
Fences and Walls	Fences should define the edges between public and private land without compromising safety, respond to the architectural character of the street, enhance open spaces and contribute to the amenity, beauty and useability of private and communal spaces.	The University campus is designed as an ‘open campus’ and as such, the proposal does not include fencing details. Use of landscaping features assist in defining communal open space areas and pedestrian thoroughfares.

Landscape Design	• Improve the amenity of open space • Contribute to street character and public domain • Improve energy efficiency and solar efficiency of dwellings and private open spaces. • Landscape to contribute to the sites characteristics. • Contribute to water and stormwater efficiency • Provide sufficient depth of soil above slabs to enable growth of mature trees. • Minimise maintenance.	The Landscape Concept Plan submitted with the application is considered to be appropriate for the site and does not propose landscaping which has the potential to screen entrances to the building. All surfaces are designed in a way that will allow access for disabled and mobility impaired people. The retention of several large street trees on Northfields Avenue maintains street character. The design of the building incorporates rainwater capture and reuse within the site. Councils Landscape and SCAT Officers have reviewed the application submission and indicated no objection to the proposal. Opportunities for concealment are considered minimal. Draft condition 34 is recommended with regard to landscape design and treatment.
Open Space	The area of communal open space (including landscaping) should generally be at least between 25 and 30% of the site area. Larger sites and brownfield sites may have potential for more than 30%.	Several areas in the immediate vicinity of the development could be considered as communal open space areas including: • More than 3000sqm of landscaped area is proposed to be retained to Madoline Street to the south of the proposed building. • Courtyard area to the north of the proposed building adjacent to Northfields Avenue – approx. 1000m^2 • Dense planting area to the north of the proposed car park – approx. 350m^2 It should be noted that the University campus has been designed as an 'open campus' with numerous open space and courtyard areas spread throughout the campus which will be available for the use of the future occupants of the proposal.
Orientation	Plan the site to optimise solar access by: – positioning and orienting buildings to maximise north facing walls (within 30 degrees east and 20 degrees west of north) where possible – providing adequate building separation within the development and to adjacent buildings (see Building Separation, Side and Rear Setbacks). Select building types or layouts which respond to the streetscape while optimising solar access. Where streets are to be edged and defined by buildings, design solutions include: – align buildings to the street on east-	The design of the building, being in an 'L' shape, does not result in unreasonable overshadowing impacts and is considered acceptable. Shadow diagrams have been submitted and demonstrate that the proposal is unlikely to result in any overshadowing of adjoining properties on June 21 between 9am and 3pm. As the design of the building is predominately east west in orientation, overshadowing of the south facing units will occur on June 21 as demonstrated by the submitted shadow diagrams. This arrangement with double loaded corridors is not inconsistent with other student accommodation developments and not dissimilar to the recently constructed K2 building. All dwellings are provided with balcony areas and will have access to the ground floor communal facilities and courtyard.

	west streets – use courtyards, L-shaped configurations and increased setbacks to northern (side) boundaries on north-south streets. Optimise solar access to living spaces and associated private open spaces by orienting them to the north.	The proposed orientation is not considered to be inappropriate in this case. A schedule of external finishes has been provided with the application submission and is considered appropriate and of high quality.
Planting on Structures	An increasingly common scenario in urban areas is the establishment of landscape areas on top of basement car parks, on podiums, and/or on roofs.	No plantings are proposed on the structure.
Stormwater Management	*Objectives* - To minimise the impacts of residential flat development and associated infrastructure on the health and amenity of natural waterways. - To preserve existing topographic and natural features, including watercourses and wetlands. - To minimise the discharge of sediment and other pollutants to the urban stormwater drainage system during construction activity.	Councils Stormwater Officer has reviewed the application submission and considers the proposal to be satisfactory subject to draft conditions. A Water Sensitive Urban Design (WSUD) Report was provided with the application submission and considers the overall management of stormwater quality for the site. MUSIC modelling was used to determine the treatment train so that treated stormwater will achieve the water quality objectives of Chapter E15 of WDCP 2009. Councils Environment Officer has reviewed the submitted report and is satisfied. Draft conditions are recommended relating to monitoring and management. A Site Management Plan has been submitted detailing construction activity, mitigation measures and conditions are recommended with regard to the control of soil erosion and sediment runoff during construction works.
Site Amenity		
Safety	*Objectives* – To ensure residential flat developments are safe and secure for residents and visitors. – To contribute to the safety of the public domain.	Details of the application submission were referred to Council's SCAT Officer who has reviewed the application and provided a conditionally satisfactory referral advice. An assessment against Chapter E2 Crime Prevention Through Environmental Design of the Wollongong Development Control Plan 2009 is provided within the report. A CPTED report and Management Plan for the building has been submitted as discussed within the report. Documentation has also been provided which identified the method of security access and control, electrical and CCTV monitoring and general design. Details of the management arrangement have also been provided. Draft conditions 33-35 inclusive and 125 are recommended in this regard.

Visual Privacy	*Objectives* – To provide reasonable levels of visual privacy externally and internally, during the day and at night. – To maximise outlook and views from principal rooms and private open space without compromising visual privacy.	The building layout has been designed to minimise opportunities for direct overlooking. The balconies have been designed such that direct overlooking between units is minimised.
Site Access		
Building Entry	*Objectives* – To create entrances which provide a desirable residential identity for the development. – To orient the visitor. – To contribute positively to the streetscape and building facade design.	The main entry point for the building is defined by landscaping and the proposed access stairway. The stairs proposed allow for a direct link between Northfields Avenue and the building entry. Disabled access is proposed to the facility and the courtyard area. Access ramps are proposed from the disabled car parking spaces to the foyer area. Conditions are recommended requiring compliant disabled access to Australian Standards. Entry to the building is to be controlled via a key card/swipe system.
Parking	*Objectives* – To minimise car dependency for commuting and recreational transport use and to promote alternative means of transport-public transport, bicycling, and walking. – To provide adequate car parking for the building's users and visitors, depending on building type and proximity to public transport. – To integrate the location and design of car parking with the design of the site and the building.	The proposal has been designed with regard to minimising car dependency and sustainable travel methods in line with the University's Transport and Traffic Implementation Plan 2014 and overall Sustainable Transport Strategy. At grade car parking is proposed to the east of the proposed building. Landscaping has been incorporated into the design of the car park. The proposed student accommodation development is proposed within the University of Wollongong main campus and in close proximity to a major bus interchange and taxi rank. Further discussion in this regard is provided at section 3.3.1 (Chapter E3) of the report.
Pedestrian Access	*Objectives* – To promote residential flat development which is well connected to the street and contributes to the accessibility of the public domain. – To ensure that residents, including users of strollers and wheelchairs and people with bicycles, are able to reach and enter their apartment and use communal areas via minimum grade ramps, paths, access ways	Pedestrian access is available from both Northfields Ave and Madoline Street It is considered that the proposal allows for adequate access to all units and the communal courtyard area for all potential residents. Access from the car parking area to the units is via ramps, lifts or fire stairs. Barrier free access appears to be available to all dwellings and courtyard areas. Draft condition 7 is recommended with regard to compliance with AS 1428 (parts 1 and 2) as called up by the NCC and BCA.

	or lifts. Identify access requirements from the street or car parking area to the apartment entrance. Compliance with AS 1428 (parts 1 and 2) as a minimum. Provide barrier free access to at least 20% of the units.	
Vehicle Access	*Objectives* – To integrate adequate car parking and servicing access without compromising street character, landscape or pedestrian amenity and safety. – To encourage the active use of street frontages. – Generally limit the width of driveways to a maximum of six metres. – Locate vehicle entries away from main pedestrian entries and on secondary frontages.	Vehicular access is proposed off Madoline Street which would be considered the secondary property frontage as required by this clause. Councils Traffic Officer has reviewed the proposal with regard to vehicular access and provided a conditionally satisfactory referral response.
Part 3.0 Building Design		
Building Configuration		
Apartment Layout	– Single-aspect apartments should be limited in depth to 8 metres from a window. – The back of a kitchen should be no more than 8 metres from a window. – The width of cross-over or cross-through apartments over 15 metres deep should be 4 metres or greater to avoid deep narrow apartment layouts.	A number of single aspect apartments are proposed. All have a depth of not more than 10m from a window. All kitchens are proposed within 8m of a window. No apartments are proposed with a depth over 15m. The size and layout of the dwellings is not considered to be inappropriate in the circumstances and is similar in design to another recent on campus student accommodation development and other Universities including University of Sydney and Monash University which are currently considered to be the benchmark for Student Accommodation developments.
Apartment Mix	– Provide a variety of apartment types between studio-, one-, two-, three- and three plus-bedroom apartments, particularly in large apartment buildings. Variety may not be possible in smaller	A variety of single studio, double/couples studios, 2 bed, 3 bed and DDA dwellings are proposed.

	buildings, for example, up to six units. – Refine the appropriate apartment mix for a location by: o Considering population trends in the future as well as present market demands o Noting the apartment's location in relation to public transport, public facilities, employment areas, schools and universities and retail centres.	The apartment mix is considered appropriate as relates to being part of the University Campus student facilities.
Balconies	– Provide primary balconies for all apartments with a minimum depth of 2 metres. Developments which seek to vary from the minimum standards must demonstrate that negative impacts from the context-noise, wind-can not be satisfactorily mitigated with design solutions. – Require scale plans of balcony with furniture layout to confirm adequate, useable space when an alternate balcony depth is proposed.	All units are provided with a balcony. The applicant has provided correspondence outlining that as a University Policy, large balcony areas are discouraged as they provide large gathering areas for students which can cause acoustic impacts to surrounding properties and result in an increased risk for the University. A table and chair/chairs are included on the balcony of each unit on the submitted architectural plans demonstrating that adequate furniture to reasonably cater for the students demands can be provided in the space. The balconies proposed are considered reasonable in the circumstance.
Ceiling Heights	In general, 2.7 metre minimum for all habitable rooms on all floors, 2.4 metres is the preferred minimum for all non-habitable rooms, however 2.25m is permitted.	2.7m ceilings are proposed throughout the residential habitable rooms and 3.3m ceilings are proposed on the lower ground floor.
Flexibility	*Objectives* – To encourage housing designs which meet the broadest range of the occupants' needs possible. – To promote 'long life loose fit' buildings, which can accommodate whole or partial changes of use. – To encourage adaptive re-use. – To save the embodied energy expended in building demolition.	The applicant has advised that the development has been designed with regard to future adaptive reuse. The construction is by way of structural columns and concrete slabs rather than load bearing walls which allows for future fit out options. 2.7m ceilings are proposed, however the floor to floor height of 3m allows for flexibility in future use. Further detail provided in the additional information submitted indicates that the proposal has a maximum embodied carbon intensity rate of 680kg/CO2/m2. This measure flows through the full life cycle of the building and is considered a higher standard than the Green Star rating requirements.
Ground Floor Apartments	– Optimise the number of ground floor apartments with separate entries and	No units are proposed with access at Ground Level as this level is intended for communal space and activities.

	consider requiring an appropriate percentage of accessible units. This relates to the desired streetscape and topography of the site. – Provide ground floor apartments with access to private open space, preferably as a terrace or garden.	
Internal Circulation	In general, where units are arranged off a double-loaded corridor, the number of units accessible from a single core/corridor should be limited to eight. Exceptions may be allowed: – for adaptive reuse buildings – where developments can demonstrate the achievement of the desired streetscape character and entry response – where developments can demonstrate a high level of amenity for common lobbies, corridors and units, (cross over, dual aspect apartments).	It is not uncommon for student accommodation developments to be provided with double loaded corridors. It is acknowledged that given the typology of building and associated economic constrains that compliance with the RFDC rules of thumb in this regard would be unreasonable. Dual aspect dwellings are proposed on the corners of both building pods.
Mixed Use	Complementary uses Consider building depth and form in relation to each uses requirement for servicing and amenity Design legible circulation systems which ensure safety. Ensure that the building positively contributes to the public domain Address acoustic requirements. Recognise ownership/lease patterns and separate requirements for BCA assessment.	The proposed building includes different uses such as kitchen and laundry facilities, bicycle storage, kitchen and dining facilities, flexible study areas, service rooms and administrative areas. All uses are considered to directly relate to the primary use of the site as student accommodation. It is not expected that the ground floor would be leased out separate to the University use, but would have the capability to be adapted in the future if desired.
Storage	In addition to kitchen cupboards and bedroom wardrobes, provide accessible storage facilities at the following rates: - studio apartments 6m3 - one-bedroom apartments 6m3 - two-bedroom apartments 8m3 - three plus bedroom apartments 10m3	Adequate storage areas are proposed within each dwelling.
Building Amenity		
Acoustic Privacy	– Utilise the site and building layout to maximise the potential for acoustic	The building is considered to be adequately separated from surrounding uses.

	privacy by providing adequate building separation within the development and from neighbouring buildings. – Arrange apartments within a development to minimise noise transition between flats. – Design the internal apartment layout to separate noisier spaces from quieter spaces by: – Resolve conflicts between noise, outlook and views by using design measures including.\Reduce noise transmission from common corridors or outside the building by providing seals at entry doors.	An Acoustic Report formed part of the application submission. The Noise Impact Assessment Report prepared by Acoustic Logic dated 29 October 2014 has determined background noise as per the NSW EPA guidelines and various criteria were considered such as for construction noise, internal living spaces and machinery and equipment on buildings. The report has recommended appropriate glazing for the building to comply with internal living space noise criteria and construction noise and vibration management. Councils Environment Officer has reviewed the proposal and the submitted Acoustic Report and provided a conditionally satisfactory referral response. Draft condition 77 is recommended to ensure that the recommendations of the submitted acoustic report are implemented as described.
Daylight access	– Living rooms and private open spaces for at least 70 percent of apartments in a development should receive a minimum of three hours direct sunlight between 9 am and 3 pm in mid-winter. – Limit the number of single-aspect apartments with a southerly aspect (SW-SE) to a maximum of 10 percent of the total units proposed. Developments which seek to vary from the minimum standards must demonstrate how site constraints and orientation prohibit the achievement of these standards and how energy efficiency is addressed (see Orientation and Energy Efficiency).	Private Open Space (POS) areas in the form of balconies are proposed for all units. Solar access is not able to be provided to 70% of all units as required by the code. This however is considered acceptable given the building typology and precedent set by other student accommodation developments. Further discussion in this regard is provided at Attachment 6 – WDCP 2009. It has also been noted by Councils Design Review Panel that compliance with this control would be too arduous for the development (see Attachment 2).
Natural Ventilation	– Building depths, which support natural ventilation typically range from 10 to 18 metres. – Sixty percent (60%) of residential units should be naturally cross ventilated. – Twenty five percent (25%) of kitchens within a development should have access to natural ventilation. – Developments, which seek to vary from the minimum standards, must demonstrate how natural ventilation can be satisfactorily achieved, particularly in relation to habitable rooms.	The development is not able to provide natural ventilation to 60% of units as required by the code. All units are however proposed with large operable windows or balcony doors which would allow reasonable ventilation to each unit. It has also been noted by Councils Design Review Panel that compliance with this control would be too arduous for the development (see Attachment 2). Mechanical ventilation is proposed to assist in assuring that adequate ventilation is provided to each dwelling.

Building Form		
Awnings and Signage	– To provide shelter for public streets. – To ensure signage is in keeping with desired streetscape character and with the development in scale, detail and overall design.	The building does not include an awning or signage.
Facades	– Consider the relationship between the whole building form and the facade and/or building elements. – Compose facades with an appropriate scale, rhythm and proportion, which respond to the building's use and the desired contextual character.	The external design is considered to be of a reasonably high standard urban quality. External finishes are considered appropriate.
Roof Design	– Relate roof design to the desired built form. – Design the roof to relate to the size and scale of the building, the building elevations and three dimensional building form. This includes the design of any parapet or terminating elements and the selection of roof materials.	A flat roof is proposed in this instance and is reasonable in terms of building height and this is considered appropriate. The roof is proposed to be used for solar panels installations.
Building Performance		
Energy Efficiency	– Incorporate passive solar design techniques to optimise heat storage in winter and heat transfer in summer – Improve the control of mechanical space heating and Cooling – Provide or plan for future installation of photovoltaic panels – Improve the efficiency of hot water systems – Reduce reliance on artificial lighting – Maximise the efficiency of household appliances	A BASIX certificate has been submitted for the proposal demonstrating that the proposal meets the requirements of the BASIX SEPP. The certificate requires that energy efficient appliance be used. Further detail provided in the additional information submitted indicates that the proposal has a maximum embodied carbon intensity rate of 680kg/CO2/m2. This measure flows through the full life cycle of the building and is considered a higher standard than the Green Star rating requirements.
Maintenance	– Design windows to enable cleaning from inside the building, where possible. – Select manually operated systems, such as blinds, sunshades, pergolas and curtains in preference to mechanical	The majority of the windows will be accessible either from inside the building or the balcony areas. The communal open space area is expected to be connected to water and drainage. Maintenance of this area is expected to be carried out by the University maintenance team in conjunction with other similar areas within the campus.

	systems. – Incorporate and integrate building maintenance systems into the design of the building form, roof and facade. – Select durable materials, which are easily cleaned and are graffiti resistant. – Select appropriate landscape elements and vegetation and provide appropriate irrigation systems (see Landscape Design). – For developments with communal open space, provide a garden maintenance and storage area, which is efficient and convenient to use and is connected to water and drainage.	
Waste Management	Supply waste management plans as part of the development application submission as per the NSW Waste Board.	A waste storage and collection area is proposed on the lower ground floor level, with servicing arrangements acceptable to Council's Traffic Officer. An operational Waste Management Plan formed part of the application submission and identifies the process for the ongoing management of waste generated by the proposed building and recommends waste audit and management strategies to provide support for the building design and promote sustainability. Draft condition 130 is recommended requiring that the recommendations of this report be carried out.
Water Conservation	Rainwater is not to be collected from roofs coated with lead- or bitumen-based paints, or from asbestos-cement roofs. Normal guttering is sufficient for water collections provided that it is kept clear of leaves and debris.	Colourbond metal cladding is proposed for the roof. The submitted BASIX certificate makes provision for rainwater collection and reuse on the site.