MACQUARIE UNIVERSITY

MACQUARIE UNIVERSITY
8-12 UNIVERSITY AVENUE

ACCESS REVIEW

Morris Goding Accessibility Consulting

FINAL v4 for SSDA

16 November 2018

REPORT REVISIONS		
Date	**Version**	**Drawing No / Revision**
30.01.17	Outline Report	Pre-DA drawing set – Issued For Review (rev B - 24.01.17) Prepared by Kann Finch
19.04.17	Draft DA	DA00.01 (rev D); DA01.01 (rev E); DA01.02 (rev C); DA02.01 (rev E); DA02.02 (rev E); DA02.03 (rev E); DA02.04 (rev E); DA02.05 (rev E); DA02.06 (rev E); DA02.07 (rev E); DA02.08 (rev E); DA02.09 (rev E); DA02.10 (rev E); DA02.11 (rev E); DA03.01 (rev E); DA03.02 (rev E); DA03.03 (rev E); DA03.04 (rev E); DA03.05 (rev E); DA02.11 (rev E); DA11.12 (rev E); DA11.13 (rev B) Prepared by Kann Finch, issued for review 31.03.2017. Landscape Update prepared by Aspect Studios, dated 20 March 2017 and issued to MGAC on 23 March 2017. Aspect Studios Carpark access entry sketch 20170405 provided to MGAC on 30.03.2017
08.05.17	Final	No additional drawings reviewed to those listed above. Access Report updated based on clarifications and comments received from the Project Management Team and Kann Finch Architects.
24.11.17	Final v2	DA00.01 (rev H); DA01.01 (rev H); DA01.02 (rev F); DA02.01 (rev H); DA02.02 (rev H); DA02.03 (rev H); DA02.04 (rev H); DA02.05 (rev H); DA02.06 (rev H); DA02.07 (rev H); DA02.08 (rev H); DA02.09 (rev H); DA02.10 (rev H); DA03.01 (rev H); DA03.02 (rev H); DA03.03 (rev H); DA03.04 (rev H); DA03.05 (rev H); DA02.11 (rev H); DA11.12 (rev H); DA11.13 (rev E). Prepared by Kann Finch, on 22.11.2017 issued for review by Cadence.
30.01.18	Final v3	No additional drawings reviewed. Project description updated based on advice from Project Manager.
16.11.18	Final v4	For SSDA: DA00.01 (rev J); DA01.01 (rev J); DA01.02 (rev H); DA02.01 (rev J); DA02.02 (rev J); DA02.03 (rev J); DA02.04 (rev J); DA02.05 (rev J); DA02.06 (rev J); DA02.06.1 (rev A); DA02.06.2 (rev A); DA02.07 (rev J); DA02.08 (rev J); DA02.09 (rev J); DA02.10 (rev J); DA02.11 (rev J); DA03.01 (rev J); DA03.02 (rev J); DA03.03 (rev J); DA03.04 (rev J); DA03.05 (rev J); DA11.12 (rev J); DA11.13 (rev G).

This report prepared by:

Elisa Moechtar
Associate

Morris Goding Accessibility Consulting

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

The Access Review Report is a key element in the design development of the Macquarie University Office and Laboratory Building Development (SSD 9313), located at 8-12 University Avenue, located within Macquarie University, North Ryde 2109, and an appropriate response to the AS1428 series, Building Code of Australia (BCA), DDA Access to Premises Standards (including DDA Access Code) and ultimately the Commonwealth Disability Discrimination Act (DDA).

Morris-Goding Accessibility Consulting has prepared the Access Report to provide advice and strategies to maximise reasonable provisions of access for people with disability. The proposed development has been reviewed to ensure that ingress and egress, paths of travel, circulation areas, accessible parking and sanitary facilities comply with relevant statutory guidelines, and in addition, compliance with other relevant accessibility benchmarks set by the project.

In general, and in consideration of the existing site topography surrounding the development site the proposed development provides reasonable access provisions for people with disabilities. In line with the report's recommendations, the proposed development has demonstrated an appropriate degree of accessibility. The State Significant Development Application (SSDA) drawings indicate that compliance with statutory requirements pertaining to site access, paths of travel, access to common and sanitary facilities and accessible car parking provisions can readily be achieved.

The recommendations in this report are to be developed in the ongoing design development and should be confirmed prior to construction certificate stage. As the project proceeds, further review of documentation is strongly recommended to ensure that appropriate access is provided to and throughout the development.

2. INTRODUCTION

2.1. BACKGROUND

Macquarie University (Client) has engaged Morris-Goding Accessibility Consulting, to provide a design review of the Macquarie University Office and Laboratory Building Development (SSD 9313), located at 8-12 University Avenue, located within Macquarie University, North Ryde NSW 2109.

The development proposal is for a new university and commercial building with approximately 50,000m2 GFA that provides 'A' grade university office, office, university laboratory, laboratory, university collaboration and collaboration spaces.

The proposed development is bound by Macquarie Walk and the existing library to the north, the existing Australian Hearing Hub building to the west, the existing Cochlear building and University Avenue to the south, and access roadways and open space to the east.

Based on the BCA Report (prepared by BM + G) the proposed development falls under a number of BCA classifications:

- Class 5 (commercial / office)
- Class 7a (carpark)
- Class 8 (laboratory)
- Class 9b (school/university)

Note: The Class 6 Retail areas on ground Floor level have not been referenced, as they do not constitute greater than 10% of the floor area of the storey.

2.2. SCOPE OF WORKS

The requirements of the investigation are to respond to the (SSD 9313) SEAR's requirement for an accessibility report and:

- Review supplied drawings of the proposed development;
- Provide a report that will analyse the provisions of disability design of the development, and
- Recommend solutions that will ensure the design complies with the Disability Discrimination Act (DDA), DDA Access to Premises Standards, Building Code of Australia (BCA), relevant Australian Standards, and relevant enhanced benchmark requirements set by the project.

2.3. OBJECTIVES

The Report seeks to ensure compliance with statutory requirements and enhanced benchmark requirements set by the project. The Report considers user groups, who

include students, staff, visitors and members of the public. The Report attempts to deliver equality, independence and functionality to people with disability inclusive of:

- People with mobility impairment (ambulant and wheelchair);
- People with sensory impairment (hearing and vision); and
- People with dexterity impairment

The Report seeks to provide compliance the Disability Discrimination Act 1992. In doing so, the report attempts to eliminate, as far as possible, discrimination against persons on the ground of disability.

2.4. LIMITATIONS

This report is limited to the accessibility provisions of the building in general. It does not provide comment on detailed design issues, such as: internals of accessible/ambulant toilet, fit-out, lift specification, slip resistant floor finishes, door schedules, hardware and controls, glazing, luminance contrast, stair nosing, TGSIs, handrail design, signage etc. that will be included in construction documentation.

2.5. ACCESSIBILITY OF DESIGN

The proposed design will utilise the Federal Disability Discrimination Act (DDA), Disability (Access to Premises – Buildings) Standards 2010, BCA/DDA Access Code, the AS 1428 Series, and other design guidelines, to develop appropriate design documentation, to provide reasonable access provisions for people with disability.

The Project Architects and an appropriately qualified accessibility consultant will examine key physical elements during design development stage, to identify physical barriers and incorporate solutions as a suitable response to disability statutory regulations and other project objectives.

The design will be developed to ensure the principles of the DDA are upheld. Under the DDA, it is unlawful to discriminate against people with disability in the provision of appropriate access, where the approach or access to and within a premises, makes it impossible or unreasonably difficult for people with disability to make use of a particular service or amenity.

The design will comply with the requirements of the DDA Access to Premises Standards and include requirements for accessible buildings, linkages and the seamless integration of access provisions compliant with AS1428.1. The developed design will consider all user groups, who include members of the public, visitors, students and staff members.

2.6. STATUTORY REQUIREMENTS

The statutory and regulatory guidelines to be encompassed in the developed design to ensure effective, appropriate and safe use by all people including those with disability will be in accordance with:

⇒ Federal Disability Discrimination Act (DDA);

⇒ Disability (Access to Premises – Buildings) Standards 2010;

⇒ Building Code of Australia (BCA) 2016 Amendment One Part D3, F2, E3;

⇒ AS 1428.1:2009 - (General Requirement of Access);

⇒ AS 1428.4.1:2009 - (Tactile Ground Surface Indicators);

⇒ AS 2890.6:2009 - (Parking for People with Disability);

⇒ AS 1735.12:1999 - (Lift Facilities for Persons with Disability) ;

⇒ Macquarie University Concept Plan (06_0016) 2009;

⇒ LEP Ryde Local Environmental Plan (LEP) 2014;

⇒ Macquarie University Campus Master Plan 2014;

⇒ Macquarie University Urban Design Guidelines, including Signage and Wayfinding Guidelines;

⇒ Macquarie University Disability Action Plan 2012 -2017 (lodged with HEREOC);

3. GENERAL ACCESS PLANNING CONSIDERATIONS

The Macquarie University Design Excellence Strategy and Urban Design Guidelines are required by and form part of the Concept Plan approval that is the current statutory planning regime that applies to the Macquarie University site. The Guidelines outline the controls and design measures against which future development on the campus is to be assessed and these have precedence over Council's DCP controls.

The Guidelines, Volume 1, Part 2.2.8 Accessibility highlights the importance of providing accessible pedestrian connections across most of the campus so that people with disability can freely move from transport nodes to all buildings, within and between buildings and across the public domain. The key initiatives are:

- *New buildings should achieve level access at major entries*
- *Accessible gradients should be achieved wherever possible throughout the public domain*
- *Major level changes on significant public paths should be negotiated by lifts or ramps in the same course of travel*
- *Development should be considerate of the University's Disability Action Plan*

The City of Ryde DCP 2010 Part 9.2 (Cl. 5.31 Infrastructure) reinforces similar aims of ensuring accessibility and connectivity throughout the Council area.

By utilising AS 1428 suite of Standards, the overall aim is to provide continuous accessible paths of travel to connect the proposed development to key transport linkages (train station, bus stops, taxi stands, car-parking) to and through public domain areas (open-space plazas, landscape and parks) and between associated accessible buildings (including adjacent Library, Cochlear, Hearing Hub buildings) and other campus facilities.

It is noted that generally the site allotment boundary is the line at which mandatory building requirements (BCA and DDA Premises Standards and referenced standards) commence. However the context of this development and its critical relationship to the surrounding 'public domain' and key pedestrian connections, in particular to the University Campus Common will require consideration of the bigger picture.

Macquarie University Disability Action Plan (DAP) 2012 -2017 Part 4 Inclusive Physical Environment states the following over-arching access goals:

- *Goal 4.1: Macquarie University will aspire to become a best practice model of an inclusive built environment, based on universal design principles.*
- *Goal 4.2: Macquarie University will aim to develop a physically 'connected' campus with identifiable improvements in physical accessibility for people with disability to, from and around campus.*

The DAP proposes establishment of an Accessible Environments Advisory Group established to assist and develop appropriate consultation mechanisms with people with

disability regarding the physical environment, barriers, improvements and physical connectivity within the Campus. It is our understanding that this Advisory Group has been in place for a number of years. Liaison between the Advisory Group and the management and design team as appropriate is an essential process to better inform the design of the proposed development.

4. EXTERNAL ACCESS LINKAGES

4.1. General

The landscape design of the external access linkages within the development site leading to and surrounding the proposed building has considered universal design principles and can achieve the aims which have been identified as to:

- Create a welcoming, flexible public realm which integrates with the existing and adjacent project surrounds; and
- Design generous accessible building entries; and
- Maximise permeability throughout the site, particularly across the public through site link.

In general, an accessible path of travel from the main pedestrian entry points at the development site allotment boundary to all building entrances including external retail tenancies, collaboration areas, commercial entry lobbies etc. compliant with AS1428.1:2009 can be achieved.

An accessible path of travel between buildings (or parts of buildings) that are connected by a pedestrian linkage, within the development site allotment boundary, compliant with AS1428.1:2009 can be achieved. Ongoing review is required of some areas including at north and south sides of the building as outlined in the detailed assessment Sections 4.5 and 4.6 below.

An accessible path of travel to building entrances (required to be accessible) from associated accessible car-parking bays, compliant with AS1428.1:2009 is also required and is achievable through the use of the building passenger lifts.

The provision of slip-resistant flooring surfaces within all areas that are required to be accessible with appropriate minimum wet pendulum test rating under HB198/AS4856 is achievable.

4.2. Vehicular Entry Interface

The proposed vehicular entry to the on-site basement carpark is at eastern side of the building, accessed from a new road (with pedestrian path areas located on either side) to the north of the roundabout on University Avenue.

There is a vehicular loading bay proposed at western side of the building. Vehicular access to this area is proposed from an existing shared zone area. The loading bay crosses the pedestrian footpath area and is located in proximity to the base of the new entry access walkway to the western foyer.

Continuous and safe access for pedestrians to the building entrances can be achieved along and between footpaths/walkways adjoining roadway areas within the development site allotment boundary. This will be developed in ongoing design development stage,

particularly when in close proximity to building entrances in compliance with AS1428.1:2009.

4.3. Eastern Interface

An accessible path of travel to the building (eastern foyer lower entrance) from the main pedestrian entry point at eastern site allotment boundary is achievable via access walkways that can achieve compliance with AS1428.1:2009.

The walkways can achieve gradients no steeper than 1:20, suitable lengths between level landings and turning/passing bays at mid landings at 20M max. intervals in line with requirements of DDA Premises Standards.

The walkway system, top and base level landings can achieve min. clear dimensions of 1540 W x 2070 L to provide turning spaces (to allow 180 degree turn and at 20M max. intervals). The mid-level landing can achieve min. clear dimensions of 1800 W x 2000 L clear of furniture as required passing space (where direct line of sight not provided at 20M max. intervals. This will be developed further in design development stage.

An alternate path of travel via stairs is located within close proximity to enable choice and flexibility for users. The stairs have suitable set-backs at top and base areas to ensure required access features can be provided (handrail extensions and TGSIs) that do not protrude into transverse paths of travel within the site boundary. The stair design will be developed to ensure compliance with AS1428.1:2009.

Raised seating platforms and potential bleacher seating are proposed to be integrated as landscape design elements outside of required access paths within the area. Directional and identification signage from the stairs to the accessible walkway will be required when not clearly visible and developed during design development stage.

4.4. Western Interface

An accessible path of travel to the building (western foyer entrance) from main pedestrian entry point at western site allotment boundary is achievable via access walkways that can achieve compliance with AS1428.1:2009.

The walkways can achieve gradients no steeper than 1:20, suitable lengths between level landings and turning/passing bay at mid landing at 20M max. intervals in line with requirements of DDA Premises Standards. The walkway mid-level landing can be developed to achieve min. clear dimensions of 1800 W x 2000 L as a required passing space (where direct line of sight not provided at 20M max. intervals).

An alternate path of travel via stairs is located within close proximity to enable choice and flexibility for users. The stairs have suitable set-backs at top and base areas to ensure required access features can be provided (handrail extensions and TGSIs) that do not protrude into transverse paths of travel within the site boundary. The stair design will be developed to ensure compliance with AS1428.1:2009.

Directional and identification signage from the stairs to the accessible walkway will be required when not clearly visible and developed during design development stage.

4.5. Northern Interface - Linear Park and Macquarie Walk

The northern facade of the proposed building will face Macquarie Walk and the Campus Common open space. The open space area (located outside of site development allotment boundary and being addressed as a separate project by others) will become a University focal point and significant public domain area. The project (by others) will be developed in phases and include temporary solutions (estimated for 3-5 years) and permanent solutions that will impact on access to the development site from northern site boundary and adjacent major pedestrian circulation routes of Macquarie Walk and Sir Christopher Ondaatje Avenue.

While not part of the scope of works for this main works application, the open space project (by others) has relevance for the northern interface and access to the proposed development. It has been considered in response to access comments raised by the Ryde Council Design Review Panel. In particular, with respect to how equitable barrier free access will be maintained with the significant level change along Macquarie Walk that falls approx. 7m height from the west to east site boundary of the development site.

The design for the Linear Park northern interface of the development (approx. between RL63.500 and RL 68.00) addresses the access comments raised by the Design Review Panel. It proposes a series of ascending landscaped terraces that are served by various stairs and an access walkway system to provide a continuous accessible path of travel along Macquarie Walk can be maintained in an east west direction.

Due to the existing steep site topography, the Linear Park stair and walkway system is located beyond the proposed Level 7 permeable roof structure of the building and as a result may be less protected from the elements than the stair accesses located along building line. This issue has been considered and is off-set by the fact that the Linear Park stair and walkway access routes will be available to all people at all times which is important given the context of the building and it's relationship to the University public domain open space and main circulation routes. This approach is preferred for equity and barrier free access considering potential maintenance/service issues with the previously explored option of using external restricted use 'low-rise low-speed constant pressure platform lifts' closer to the building line.

The landscaped terraces will be legible and logically located to connect the northern site allotment boundary of Macquarie Walk and the Campus Common to the proposed main building levels and the new plaza level/through site linkage to ensure continuous access can also be achieved in a north south direction.

The various main entrances to the building required to be accessible along northern façade include: external university office and retail tenancies, retail/collaboration space, public through site linkage to the upper east and west foyers (and University Avenue beyond) and university office tenancy. An accessible path of travel to these building entrances from main pedestrian entry points at northern site allotment boundary is achievable via on-grade terraces and/or connecting access walkways that can achieve compliance with AS1428.1:2009.

The walkway system indicates that gradients no steeper than 1:20 max, suitable lengths between level landings and turning (1540mm min W x 2070mm L) and passing bays (1800mm W x 2000mm L) at mid landings and where required at 20M max. intervals can be developed to meet the requirements of DDA Premises Standards.

Alternate paths of travel via stairs are proposed beside walkways and also within close proximity along building line to promote choice and flexibility for users in line with universal design principles. The stairs have suitable set-backs at top and base areas to enable required access features to be provided (handrail extensions and TGSIs) that do not protrude into transverse paths of travel within the site boundary. The stair design will be developed to ensure compliance with AS1428.1:2009.

It is also understood that an alternative internal vertical access route will be available to people through the building and central galleria during operational hours via the main building lifts that connect from the raised entry levels of eastern foyer RL64.600 through to intermediate platform level of 66.400 and then to the western foyer RL68.00. The access walkways that serve the eastern and western building entrances (covered in sections 4.3 and 4.4 of this report) will ensure continuous access is provided to these passenger lifts.

Directional and identification signage from the stairs to the accessible walkway system when not clearly visible will be required and developed during design development stage

Ongoing review will occur during design development stage to ensure continuous access is provided between buildings (and/or parts of buildings) required to be accessible and connected by a pedestrian linkage, within the development site allotment boundary, compliant with AS1428.1:2009. In particular on the northern side of building facing Macquarie Walk between the through site linkage (RL68.00) and the external tenancies (RL69.00) and (RL70.00) there are currently only stairs shown and this will be developed during design development stage to ensure a suitably continuous access route.

4.6. Southern Interface & Through Site Linkage

An accessible path of travel to the building (western and eastern foyer entrances at RL 68.00) from main pedestrian entry point at southern site allotment boundary is achievable via access walkways that can achieve compliance with AS1428.1:2009.

The southern entry point to the development from University Avenue connects to the northern entry point from Macquarie Walk creating the diagonal public through site linkage required by the University's Concept Plan.

The walkways can achieve gradients no steeper than 1:20, suitable lengths between level landings and turning/passing bay at mid landing at 20M max. intervals in line with requirements of DDA Premises Standards. During design development stage it will need to be demonstrated that suitable edge protection is provided when walkways are not bound by walls that are 450mm min. height.

Alternate paths of travel via stairs are located adjacent and in reasonable proximity to enable choice and flexibility for users. The stairs have suitable set-backs at top and base areas to ensure required access features can be provided (handrail extensions and TGSIs)

that do not protrude into transverse paths of travel within the site boundary. The stair design will be developed to ensure compliance with AS1428.1:2009.

Directional and identification signage from stairs to accessible walkways will be required when not clearly visible and developed during design development stage.

Ongoing review will occur during design development stage to ensure continuous access is provided between buildings (and/or parts of buildings) required to be accessible and connected by a pedestrian linkage, within the development site allotment boundary, compliant with AS1428.1:2009. In particular on the southern side of building where there is an external retail tenancy (RL63.500) and bike hub tenancy (RL62.500) facing University Avenue. These building entry levels follow the existing footpath levels and there are currently only stairs shown. This will be developed during design development stage to ensure a suitably continuous access route can be provided.

5. INGRESS & EGRESS

5.1. General

The design of all building entrances required to be accessible will be developed to achieve accessible doors with 850mm min. clear width opening and suitable door circulation area, compliant with AS1428.1:2009.

Where manual doors are required they will be detailed to achieve lightweight door forces to be operable by people with disability (20N max.) and where possible main entrances are preferred to be automated sliding doors for ease of access. Revolving doors are not accessible, and if maintained then an alternate accessible door is achievable and will be required adjacent.

5.2. Building 8 Eastern Foyer Entrance (Lower Ground Floor)

The principal entrance to Building 8 Foyer is to be found via the Galleria, at ground level however a secondary entrance can be found at Lower Ground level east of the building core and this entrance offers an important means of access from the eastern boundary.

At present the style of opening accessing this Foyer is understood to be a glazed sliding auto-opening door, which is expected to meet all accessibility requirements, such as at least 850mm min. clear opening width, identification of opening and visual indicators etc. Compliance will need to be demonstrated at detailed design stage.

This entrance is accessible from the raised podium level RL64.600 with external access from the eastern site boundary via stairs and walkways as covered in Section 4.3.

From this entrance an accessible path of travel to the passenger lifts is achievable, compliant with the DDA Premises Standard. Direct access to all levels of Building 8 is expected from this location and a transfer opportunity exists at Ground level whereby persons are able to cross the Galleria between Foyers and access all levels of Building 12.

Recommendation:

(i) Provide details at CC Stage demonstrating compliance of the entrance doorway with AS1428.1.

5.3. Building 12 Western Foyer Entrance (Ground Floor)

The principal entrance to Building 12 Foyer is to be found via the Galleria, however a secondary entrance can be found to the north-west corner of the building core in this location and this entrance offers an important means of access from the western boundary.

At present the style of door opening is not clearly described. Clarification is also required to confirm the purpose and RLs of the internal walkways, which are indicated in this space, yet unclear. Review is required at the external/internal interface to provide a

suitable length level landing on either side of main entry door adjacent to the walkways to satisfy AS1428.1.2009.

This entrance is accessible from a raised entry level at RL68.00 with external access from the western site boundary via stairs and walkways as covered in Section 4.4.

From this entrance an accessible path of travel to the Ground Floor Foyer and to the main passenger lifts appears achievable, compliant with the DDA Premises Standard.

Recommendations:

(i) Clarify the style of entrance doorway and provide details at CC Stage demonstrating compliance of the entrance doorway with AS1428.1.

(ii) Provide a suitable length level landing (1450mm min. length required, currently 1200mm) on either side of western entry door to Building 12, clear of walkways to satisfy AS1428.1.2009.

(iii) Review levels around the entrance and through the building corridor leading to the Foyer. At present a system of walkways is described however the level change is unclear based on the levels provided.

5.4. Building 8 and 12 Ground Floor Foyer Entrances

The main entrances into the buildings are to be found via the Galleria in the central section of the site. At present the style of openings accessing each Foyer are understood to be revolving doors, which are not accessible for people with disability under AS1428.1. An alternate accessible door adjacent will be required and will need to meet all accessibility requirements, such as 850mm min. clear opening width, door circulation and operation and identification of opening and visual indicators. Compliance will need to be demonstrated at detailed design stage.

These entrances are accessed from the system of walkways, stairs and terraces through the Galleria that are described elsewhere in this report in Sections 4.3, 4.4.

From both Foyer entrances an accessible path of travel is achievable to and throughout Ground Floor and to the passenger lifts within each building, compliant with the DDA Premises Standard.

Recommendation:

(i) Provide details at CC Stage demonstrating provision of an accessible main entrance doorway to building 8 and 12 (adjacent to revolving doors) at Galleria level in compliance with AS1428.1:2009.

5.5. External Tenancy /Retail Entrances

A number of premises on Lower Ground Floor and Ground Floor have been identified as retail, or with potential for retail tenancies. These include;

- Southern Retail at Basement 1/Lower Ground Floor
- Bike Hub at Basement 2, 1/Lower Ground Floor, Mezzanine

- Collaboration/Retail at Basement 1/Lower Ground Floor
- Collaboration/Retail at Ground Floor, accessible through the Galleria
- University Office tenancies at Ground Floor, accessible from Macquarie Walk

All of these premises display an identical style of entrance. The hinged double doors into the external premises generally have suitable clear width of 850mm min. clear width opening (including at the active leaf) and appropriate door circulation compliant with AS1428.1.

From the described entrances there is an accessible path of travel throughout the premises, which are generally single level, compliant with the DDA Premises Standard. Exceptions are noted in some tenancies which are proposed as split level including University Office tenancies at Ground Floor, Bike Hub at Basement 2, 1/Lower Ground Floor, Mezzanine.

Recommendations:

(i) Provide details at CC Stage demonstrating compliance of all main entrance doorways to external tenancies with AS1428.1.

(ii) Further review is required to ensure access to and within all areas used by occupants, compliant with AS1428.1:2009 at:

- University Office tenancies at Ground Floor, accessible from Macquarie Walk which includes internal RLs of 71.00 and 70.00 with no ramp or lift shown; and
- Bike Hub at Basement 2, 1/Lower Ground Floor, Mezzanine which includes internal RLs of 62.500 and 65.00 with no ramp or lift shown.

(iii) If the University Collaboration Space at Mezzanine level can be entered from outside the main building foyer via entry stairs at RL66.400 as well as from inside building via the Building 8 passenger lifts, directional signage will be required and management procedures developed to ensure equitable access to this area, if available to users outside of operational hours of main building lifts.

The above recommendations are achievable and will be developed further during design development stage.

5.6. Emergency Egress

BCA 2016 Part D2.17 has requirements for all fire-isolated egress stairs from areas required to be accessible (that are not also proposed as communication stairs) to include at least one continuous handrail designed to be compliant with AS1428.1 Clause 12. Provision of an off-set tread at the base of stair flights or an extended mid-landing that will allow a 300mm extension clear of egress route is considered appropriate for achieving a consistent height handrail (without vertical or raked sections).

Such an off-set tread configuration has been shown at some of the stairs and would appear to be possible elsewhere, subject to further detail design.

Where fire-isolated egress stairs will also be used for communication stair purposes between levels, they should be designed to meet AS1428.1:2009. Confirmation is required on the likely use of certain stairs for this purpose. A clear example of this is the stair servicing Collaboration (from RL66.400).

There is currently no mandatory requirement within BCA or DDA Premises Standards for provision of independent accessible egress for people with disability in accordance AS1428.1 and this remains an important DDA issue. Consideration of an accessible egress strategy with a documented emergency evacuation plan will be needed as a minimum starting point.

Macquarie University design guidelines include a requirement for consideration of provision for escape. The design team in consultation with the project user group are to develop an approach for managing the process of evacuation of all potential building occupants. AS3745:2010 will assist.

Consideration of waiting spaces within fire-stairs should be strongly considered for people with mobility impairment. The current configuration of stairs suggests the spatial requirements would not be able to be incorporated without layout amendments, but if provided with future design development these would generally require:

- 850mm min. clear width egress door and 510mm min. external door circulation area, compliant with AS1428.1:2009;
- Wheelchair space (800mm W x 1300mm L min. dimensions) within fire-isolated stair, outside of the required egress path, that can be accessed on a continuous path of travel OR
- Alternative evacuation means eg. emergency passenger lift/s could be provided instead of/or only in addition to 'waiting spaces' in line with ABCB Handbook and/or consideration of stair evacuation devices (with appropriate storage and staff training) within fire stairs.

Recommendations:

(i) Provide at least one accessible handrail at a consistent height in egress stairs from a required exit, compliant with AS1428.1:2009 Clause 12 as required under BCA 2016 part D2.17, noting that full compliance can be achieved with minor adjustments to the stair configuration in certain locations. This item should also be confirmed with the PCA and the University in terms of any additional measures desired in line with an accessible egress strategy (that exceed BCA min. requirements).

(ii) Confirm use of any emergency egress stairs that have potential for use as inter-tenancy communications stairs for future accessibility review, including identifying locations where this is or may occur. This will introduce the need for enhanced accessibility features in these instances (over and above the requirements for emergency egress).

(iii) Consideration for the Client to make egress stairs accessible and incorporate a wheelchair refuge space clear of the egress path. This would require significant amendments of the current configuration (advisory).

(iv) Consideration for the Client to make preparation of an emergency management plan which would include the use of a fire warden, to identify strategies to facilitate emergency egress for people with disability (advisory).

(v) Consideration for emergency warning systems within the development to include audible and visual alarms compliant with AS1428.2 (advisory).

6. PATHS OF TRAVEL

6.1. Level of Access Within the Buildings

Access is to be provided according to the BCA and DDA Access Code Part D3 including Table D3.1 for the range of building classifications as outlined in the BCA report referenced including:

- Class 5 – commercial offices
- Class 7a – on-site car-parking
- Class 9b – school/assembly

For Class 5, 9b areas: Access is required from building entrance/s:

Under Table D3.1:

- To and within all areas normally used by the occupants (including public, visitors, staff, students etc.) in compliance with AS1428.1:2009. Note: this excludes areas that would normally be exempted under BCA Part D3.4 eg. loading docks, plant/equipment rooms. Note: this may need to be reviewed on case by case basis.

Note: the same level of access requirements outlined above will also apply to the retail tenancy parts of the development (that are less than 10% of floor area of the storey) that have not been referenced as a separate building classification.

For Class 7a areas: Access is required from building entrance/s:

Under Table D3.1:

- To and within all levels containing accessible car-parking spaces, compliant with AS1428.1.

On the current level of detail compliance appears to be readily achievable. Refer to detailed commentary in the remainder of this section of the report.

6.2. General Requirements

The design of all common area circulation paths of travel required to be accessible throughout the building, such as at lift lobbies, corridors etc. will be developed during ongoing design development and can achieve compliance with AS1428.1:2009, including:

- Wheelchair access to and through any external entrances to/from any outdoor terrace areas (eg. external terraces on upper levels etc.);
- Wheelchair passing bays (1800mm width x 2000 length) at 20m maximum intervals along access-ways;
- Turning spaces (at least 1540mm W x 2070mm L) within 2m of every corridor end and at 20m maximum intervals along all access-ways;

- 1000mm minimum width paths of travel when travelling in linear direction and increased clear width paths of travel required for doorway circulation, turning areas etc;
- slip-resistant flooring surfaces with appropriate minimum wet pendulum test rating under HB198/AS4856.

6.3. Access Pathways

On the basis of the flexible floor plates documented and current level of detail all paths of travel requirements are capable of compliance. It is noted that integrated fit-out of the building is not part of the main works application.

Wheelchair passing bays (1800mm width x 2000 length) at 20m maximum intervals along access-ways when there is not a direct line of sight can be achieved as required by DDA Premises Standards Clause D3.3(c). The corridor within the main cores is dimensioned at 1700mm width. This is suitable for wheelchair turning, and although wheelchair passing is not possible the corridor is short and offers a clear line of sight such that wheelchair passing does not become an issue.

Turning spaces (at least 1540mm W x 2070mm L) within 2m of every corridor end and at 20m maximum intervals along all access-ways; can be achieved as required by DDA Premises Standards Clause D3.3(c). Ongoing review is required of the corridor at Mezzanine level (Building 8) during design development. Particularly as this corridor provides a pathway to the accessible toilet it will need to be demonstrated to offer wheelchair turning within 2m of the corridor end with consideration for a wheelchair passing space (advisory), ideally located at the corridor corner (where line of sight restrictions meet). At present scaling of the drawing suggests a corridor width of only 1500mm. This is achievable.

Wheelchair access to and through external entrances to/from any outdoor terrace areas (eg. external terraces on upper levels etc.) is required and achievable. This will be developed to ensure continuous access is documented at CC Stage.

Common area floor surfaces, required to be accessible can achieve slip-resistance with appropriate minimum wet pendulum test rating under HB198/AS4856 and this will be developed and demonstrated at CC Stage.

6.4. Doors

In general, common use doors within the development can achieve a minimum 850mm clear width (920mm door leaf) and appropriate door circulation compliant with AS1428.1 Fig. 31. This is a requirement for all common doors leading to areas required to be accessible unless exempt under BCA Part D3.4. Double leaf doors are shown to be suitably wide such that the active leaf will offer the necessary clear width.

6.5. Stairs

There are a number of common use stairs proposed throughout the building, including;

- Western entrance
- Eastern entrance
- Galleria (at each end and centrally)
- North-east corner
- Linear Park
- North/west and south/east along building line
- University Collaboration, Mezzanine
- Basement parking levels

The stairs are required to be designed in full accordance with AS1428.1. Although the required features (such as handrails, nosings, TGSIs etc.) are not fully described on the drawings compliance is achievable and will be developed during detail design and will be demonstrated at CC Stage.

Close attention will be taken regarding the projection of handrails and TGSIs into the transverse path of travel both within and outside the site boundary.

6.6. Walkways and Ramps

There are a number of common use walkways (with gradients not steeper than 1:20 gradient) proposed throughout the building, including;

- Western entrance
- Eastern entrance
- Galleria (at each end and centrally)
- Linear Park

There is also a 1:18 ramp at Basement 2 that is clearly intended for entry use of bicycles only, however would also serve as an accessible egress route in an emergency situation. The ramp has a suitable size to achieve handrails on both sides, compliant with AS1428.1.

The walkways, are required to be designed in compliance with AS1428.1, with particular attention to circulation for turning/passing areas and walkway edge protection as part of landscape design detailing. Although not fully described on the drawings, at this stage compliance is achievable and will be documented at CC stage.

6.7. Lifts

There are 9 passenger lifts proposed for the building, arranged in the cores as banks of 5 (Building 12) and 4 (Building 8). These lifts generally link all floors of the building, including basement levels.

Under the DDA Premises Standards and AS1735.12 as the lifts travel more than 12m the lift car floor size is required to be at least 1400mm W x 1600mm L under Table E3.6(b). The spatial allowance for the lift shaft would suggest that the required car size can be accommodated and this in addition to lift car components (grabrail, call/control buttons, lighting, arrival indicators etc.) will be detailed to comply with AS1735.12 and Part E3.6 at CC Stage.

The passenger lifts provide continuous access to all commercial levels and are suitably positioned for ease of location in close proximity to base build toilets and egress stairs.

Generally, the areas in front of the passenger lifts have sufficient circulation spaces (to allow 360° turn) and will allow a person with or without a mobility aid (i.e. wheelchair) the ability to enter and exit the passenger lift in an equitable and dignified manner, compliant with AS1428.1:2009.

7. SANITARY FACILITIES

7.1. General Requirements

The BCA and DDA Premises Standards contain requirements for sanitary facilities suitable for the use of persons with disability. These requirements can be summarised as follows:

- For Class 5, 7a, 9b: Provide at least 1 unisex accessible toilet, adjacent to every bank of toilets (where provided) on each storey, compliant with AS1428.1 under BCA/DDA Access Code part F2.4. If more than 1 toilet bank is provided on each level an accessible toilet is required at 50% minimum of toilet banks at each level.
- As even a number of left hand (LH) and right hand (RH) transfer WC pans (at accessible toilets) as possible is required within the building under DDA Premises Standards Part F2.4 (g). Alternating LH/RH layouts on each subsequent level is viewed as the most appropriate and inclusive approach.
- An ambulant cubicle is required within every standard toilet bank adjacent to an accessible toilet under the DDA Access Code Part F2.4 compliant with AS1428.1:2009.

7.2. University Office & Commercial Accessible Toilets

Unisex accessible toilets have been incorporated within each of the two cores on all above ground levels of the building. Layouts are identical across the floors (at each core) with an exception occurring at Mezzanine level where the planning is varied with fewer sanitary facilities. Although the layouts do not yet feature detail at this stage, the spatial allocation for the accessible toilets suggest that compliant room dimensions will be easily achieved. The layout of the toilets must be in full accordance with AS1428.1.

It will be necessary to provide as even a number as possible ie. a balance of left and right hand WC pan transfer throughout the building, ideally alternating on consecutive floors, in compliance with the DDA Premises Standard. Part F2.4 (g) requirement.

Although the two cores show a mirrored configuration these are effectively two separate buildings, therefore alternating layouts are required through each core. Ongoing review is required in building 8 where all accessible toilets are currently shown as LH transfer pans and building 12 where all accessible toilets are currently shown as RH transfer pans. Through design development, compliance is achievable and will be demonstrated at CC Stage.

7.3. Basement Sanitary Facilities

The following sanitary facilities are noted on the various basement levels;

- Basement 1 – Male and Female Change Rooms with WCs and showers (under building 12)

- Basement 2 – Male and Female Change Rooms with WCs and showers (under building 8)

The banks of male and female toilets on both levels triggers the need for a unisex accessible toilet and shower, which has not currently been provided. Ongoing review is required to provide a unisex accessible toilet and shower (designed in accordance with AS1428.1) adjacent to the basement level 1 and 2 change rooms as required by Part F2.4.

One toilet cubicle for both male and female toilets must also be designed as ambulant. Ongoing review is required to ensure one toilet cubicle, within each male and female change room facility, is designed as an ambulant cubicle in accordance with AS1428.1 and Part F2.4.

Through design development, compliance is achievable and will need to be demonstrated at CC Stage.

7.4. Ambulant Cubicles

Ambulant cubicles, compliant with AS1428.1 are required at all banks of male and female toilets that are adjacent to unisex accessible toilets throughout the building under the DDA Premises Standards Part F2.4 (c). At present this is suggested at some but not all banks of toilets through an outward swinging cubicle door.

Circulation areas both within the airlocks and inside and outside the required ambulant cubicles within the toilet banks will need to be reviewed in some areas during design development stage and will involve amendments to the male toilets at both cores to ensure suitable circulation/separation between doors at the airlocks.

Through design development, AS1428.1 compliance is achievable and will need to be demonstrated at CC Stage.

8. ACCESSIBLE CAR PARKING & COMMON FACILITIES

8.1. Accessible Car Parking

The BCA and DDA Premises Standards contain requirements for accessible car parking which are applicable to this project. These requirements can be summarised as follows:

- Class 5, 9b university office/commercial development: Provide 1 accessible car bay for every 100 car bays or part thereof, compliant with AS2890.6.
- All accessible car bays must be located to provide an accessible path of travel, compliant with AS1428.1 to the building (ie. relevant lifts and/or associated entry points) under DDA Premises Standards part D3.2 (1) (c). The intent is to minimise travel distances and ensure a safe accessible path of travel for people with disability when moving between their vehicle and building entrance.
- Ensure 2.5m min. height clearance, compliant with AS2890.6 fig 2.7 over accessible car bays with 2.2 m min. vertical clearance leading to these car bays. (Note: consideration for 2.3 or 2.4m min. height preferred for higher vans/adapted vehicles is recommended as good practice).

The drawings show seven (7) accessible car parking spaces in basement areas. As there are a total of 617 parking spaces throughout the development (including 2 courier spaces) the provision of seven accessible car parking spaces satisfies the min. 1% accessible car-parking under the BCA and DDA Premises Standard for a Class 5, 9b building. As previously outlined, the retail tenancy parts of the development are less than 10 % of entire development and from the information provided has not been considered separately to the Class 5, 9b development allocation.

At present five (5) accessible parking spaces are located at Basement 2, these are under, and directly accessible only to the building mass known as 8 University Avenue. Two (2) accessible parking spaces are located at Basement 1, these are under, and directly accessible only to the building mass known as 12 University Avenue. Due to the split level arrangement of the basement it is considered reasonable that the accessible parking provision must be considered separately for each building mass, with the resulting accessible parking rate arranged near each passenger lift core servicing each building.

For example on the basis of aggregate floor area of each tower, the building mass known as 12 University Avenue is larger than 8 University Avenue. It would follow that 12 University Avenue would contain a larger population yet is only assigned 2 of the 7 total accessible spaces. It is viewed as necessary to understand the population proportions across the two towers in order to propose a similar ratio of accessible parking near the relevant lift cores at basement level. Ongoing review will be required to ensure an equitable distribution of accessible car spaces across the two building cores and this will need to be suitably documented at CC Stage.

All accessible car bays will also need to demonstrate a min. head height clearance of 2.2m leading to the accessible car bays and 2.5m at the car bay (including shared zone).

Through design development, compliance is achievable and will need to be demonstrated at CC Stage.

8.2. Signage

Signage provisions (identification and directional, as required) will be developed to comply with BCA Part D3.6, Spec D3.6, AS1428.1 requirements and the Macquarie University Signage and Wayfinding Guidelines during design development. Compliance is achievable and will need to be demonstrated at CC Stage.

8.3. Hearing Augmentation

Hearing Augmentation provisions, will be developed in accordance with the DDA Premises Standard and BCA Part D3.7 and the Macquarie University Design Guidelines where an in-built system of audio amplification is provided in Class 5, 9b building: conference and/or meeting rooms.