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MAQUARIE UNIVERSITY

MACQUARIE UNIVERSITY
CENTRAL COURTYARD PROJECT
C10a R1 R2

ACCESS REVIEW

Morris Goding Accessibility Consulting

FINAL

20 November 2017

REPORT REVISIONS		
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1. EXECUTIVE SUMMARY

The Access Review Report is a key element in the design development of the Macquarie University Central Courtyard Project (consisting of Building C10a, Building R1 R2 and Central Courtyard landscaping) 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 Development Application 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 Central Courtyard Project (consisting of Building C10a, Building R1 R2 and Central Courtyard landscaping) located within Macquarie University, North Ryde NSW 2109.

The development consists of two new significant buildings, Building C10a (comprising Graduation Hall and Learning Spaces) and Building R1 R2 (comprising student accommodation and academic functions). Included in the development is the landscaping proposals for the Central Courtyard, which continues to and around both buildings.

Other proposed development activity in the area (not included in this report) includes the refurbishment of Building C8a south of the Central Courtyard, and the refurbishment and additions to Building C7a west of the Central Courtyard.

The proposed development is expected to fall under a number of BCA classifications:

- Class 3 (residential part of a school)
- Class 5 (commercial / office)
- Class 6 (retail)
- Class 7a (carpark)
- Class 9b (assembly building)

The requirements of the investigation are to:

- 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.

2.2. 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, residents, 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.

2.3. 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.

2.4. 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, residents and staff members.

2.5. 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) 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)

Please note that there are also additional advisory standards (not currently referenced by BCA or DDA Premises Standards) as well as other relevant guidelines that will be considered, as relevant to promote equity and dignity in line with over-arching DDA principles and aspirational objectives. These include:

⇒ Universal Design Principles;

⇒ Human Rights Commission (HEREOC) Advisory Note February 2013 on streetscape, public, outdoor areas, fixtures, fittings and furniture;

⇒ ABCB 2013 Handbook Lifts used during Evacuation;

⇒ AS1428.2:1992 Enhanced and Additional requirements (referenced in EFSG);

⇒ AS1428.4.1 Draft Way-finding Standard;

⇒ AS1428.5 Hearing Augmentation

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 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.

Universal Design Principles

MGAC supports the use and consideration of universal design (UD) principles into the design to maximize access for all people. We will assist the design team to incorporate UD principles where possible within the project, while still meeting mandatory compliance requirements.

A UD approach has numerous benefits for the client as an education provider, for businesses within the building, for individual users and for society in general. An inclusive environment that can be accessed, understood and used by as many people as possible, is good business sense, is more sustainable and is socially progressive, in line with the aims of the DAP.

Universal design principles consider the needs of a broad range of people including older people, families with children and pushing prams, people from other cultures and language groups, visitors in transit and people with disability. By considering the diversity of users, the design will embed access into and within it, so that benefits can be maximized, without adding on specialized 'accessible' features that can be costly, visually unappealing and may perpetuate exclusion and potential stigma.

The seven key Universal design principles to consider in the on-going design include:

⇒ Principle 1: Equitable Use

⇒ Principle 2: Flexibility in Use

⇒ Principle 3: Simple and Intuitive Use

⇒ Principle 4: Perceptible Information

⇒ Principle 5: Tolerance for Error

⇒ Principle 6: Low Physical Effort

⇒ Principle 7: Size and Space for Approach and use

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 buildings 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.

(Aspect Studios: Landscape Update Presentation, dated 20 March 2017)

In general, an accessible path of travel from the main pedestrian entry points at the development site allotment boundary to all building entrances 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.

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. Southern Interfaces – Ground Level

The southern approach to both buildings is predominantly made via the Central Courtyard, which is to be substantially redeveloped in the proposal. The Central Courtyard is an existing major focus point for the University which will be further enhanced by its redevelopment and the redevelopment surrounding it.

The northern edge of the Central Courtyard forms the southern frontage to Building C10a which includes its principal entrance. A continuation of the landscaping beyond the north-west corner of the Central Courtyard occupies the current partial footprint of the building to be demolished and this opens to a forecourt to Building R1 R2. The northern edge of this forecourt forms the southern frontage to Building R1 R2 which includes its principal entrance.

An accessible path of travel to both buildings through the landscape described above is achievable in compliance with AS1428.1. The general level of the landscaping is constant and aligned with the entry floor levels to both buildings. Pathways crossing the Central Courtyard appear to descend to natural ground level via ramps or walkways. The

level change to Central Courtyard from Wally's Walk on the south-east corner (considered the main pedestrian access point) is resolved by a stair and ramp arranged immediately east of Building C8a (further design development of these elements is required). Another major entrance to Central Courtyard is located on its north-east corner and brings pedestrian traffic gathering at the intersection of Science Road and Eastern Road. Level change in this area is resolved by ramps or walkways (further design development of this element is required).

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.

4.3. Northern Interfaces – Basement Level

There is an existing established pedestrian path of travel approaching the development site from the north-west. This consists of a concrete pathway running parallel with Gymnasium Road which then crosses the northern frontage of the existing buildings before meandering through the landscape between Building E7b and the Art Gallery. This existing pathway terminates near the intersection of Science Road and Eastern Road.

The proposed landscape design connects with the existing Gymnasium Road footpath at the eastern limit of the development boundary. The existing pathway inside the development boundary is completely replaced and redefined as a series of pathways, ramps, walkways and wide courtyards which generally follows the perimeter of the new buildings (further design development of these elements is required). This exposes the full frontage of both buildings at Basement Level to pedestrians to achieve accessible entrances in compliance with AS1428.1 and the DDA Premises Standards.

Clarification is required on the proposed pedestrian connections at the north-east corner of the development boundary. At present the existing pathway (described previously) leaves near the intersection of Science Road and Eastern Road and meanders through the landscape between Building E7b and the Art Gallery. This existing path offers a step free connection from a major pedestrian focal point down to the general level of the new buildings at Basement Level. The landscape concept however appears to delete this existing section of pathway in favour of a more direct alternative which includes steps. It is strongly recommended to maintain the existing step free pathway and integrate it with the Basement Level of Building C10a as an accessible alternative to the new stepped (non-accessible) pathway connection.

There are no existing formal established pedestrian connections further north of the development site. The new landscaping concept generally bleeds into the existing open grassed depression which meets with Mars Creek. Future development north of Mars Creek will consider accessible pedestrian connections back to the subject development site.

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.

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.

Note, Macquarie University Property Design Guidelines state that where required, entrance doors should be powered auto-opening bi-parting sliding doors.

5.2. Building C10a Ground Level Entrances

The full perimeter of Building C10a Ground Level contains multiple identical entrance doorways consisting of a hinged double leaf type. The doors display suitable minimum clear opening width at the active leaf and all necessary circulation as required in AS1428.1.

Recommendations:

(i) Ensure 850mm min. clear width opening at the active leaf to the entrance door and suitable door circulation area, compliant with AS1428.1:2009, as well as suitable door closer selection for max. 20N operating force (alternatively provide powered openings)

5.3. Building C10a Basement Level Entrances

There are two main destinations at Building C10a Basement Level, those being the Student Bar and the Graduation Hall (and its associated offices and support rooms).

Generally the major pedestrian flows to these areas are expected to be from the Central Courtyard, sweeping around both sides of the building and down prominent wide stairs. Both stairs are complemented by a nearby passenger lift for accessibility.

Externally to the building at Basement Level there are multiple identical entrance doorways consisting of a hinged double leaf type. The doors display suitable minimum clear opening width at the active leaf and all necessary circulation as required in AS1428.1.

Recommendations:

(i) Ensure 850mm min. clear width opening at the active leaf to the entrance door and suitable door circulation area, compliant with AS1428.1:2009, as well as suitable door closer selection for max. 20N operating force (alternatively provide powered openings)

5.4. Building R1 R2 Ground Level Entrances

There is a common Lobby to both R1 and R2 wings of the building at Ground Level with an entrance doorway consisting of an auto-opening bi-parting sliding type. The opening is suitably wide for compliance with AS1428.1.

5.5. Building R1 R2 Basement Level Entrances

There are a number of entrances to Building R1 R2 at Basement Level which open directly into the various Academic / Multi-function Rooms and the common Lobby. These entrances consist of single and double leaf hinged types. The doors display suitable minimum clear opening width at the active leaf and all necessary circulation as required in AS1428.1.

Recommendations:

(i) Ensure 850mm min. clear width opening at the active leaf to the entrance door and suitable door circulation area, compliant with AS1428.1:2009, as well as suitable door closer selection for max. 20N operating force (alternatively provide powered openings)

5.6. External Tenancy /Retail Entrances

Building C10a includes a number of retail premises on Ground Level which will operate independently of the other functions of the building. The entrances to these premises are either from outside the building or internally beyond the building main entrance. Only one of the premises has dual access from the exterior and the interior.

The entrance doorways consist of single and double leaf hinged types. The doors display suitable minimum clear opening width at the active leaf and all necessary circulation as required in AS1428.1.

Two of the premises include a stacking bi-fold type which typically are not considered accessible entrances however these are always located close to an accessible alternative.

Recommendations:

(i) Ensure 850mm min. clear width opening at the active leaf to the entrance door and suitable door circulation area, compliant with AS1428.1:2009, as well as suitable door closer selection for max. 20N operating force (alternatively provide powered openings)

5.7. 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 for the fire-isolated stairs serving Building C10a. Although such a configuration has not been shown for the fire-isolated stairs serving Building R1 R2 the necessary amendments are considered achievable.

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.

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. This would involve:

- 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.

This has been provided at Building C10a however at Building R1 R2 the current configuration of stairs suggests the spatial requirements would not be able to be incorporated without significant layout amendments.

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 configurations at Building R1 R2. 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) All stair treads require contrasting step nosing strips by DDA Access Code 2010 clause D3.3 (a)(iii), compliant with AS1428.1 as follows:

- Step nosing strips to be across full width of stair, between 50mm – 75mm wide, in a continuous colour solid strip with 30% luminance contrast to background surface.

- Step nosing strips to be located on edge of tread (15mm max. setback if applied) and not to extend onto risers more than 10mm max. if exposed.

(iii) 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).

(iv) Consideration for the Client to make egress stairs accessible and incorporate a wheelchair refuge space clear of the egress path (this has been achieved at Building C10a but is not yet shown for Building R1 R2. This would require significant amendments to the current configuration (advisory).

(v) 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).

(vi) 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 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 3 – residential part of a school
- Class 5 – commercial offices
- Class 6 - retail
- Class 7a – on-site car-parking
- Class 9b – assembly building

For Class 3 areas: Access is required from building entrance/s:

Under Table D3.1:

- To and within all common use areas on all levels of the building served by the lift in compliance with AS1428.1:2009.
- To the entrance doorway of all sole-occupancy units on all levels of the building served by the lift in compliance with AS1428.1:2009.

For Class 5, 6, 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.

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.

Note: the above excludes areas that would normally be exempted under BCA Part D3.4 e.g. loading docks, plant/equipment rooms. Note: this may need to be reviewed on case by case basis.

Advisory recommendation under Ryde Access DCP:

- As above however compliant with AS1428.1:2009 and AS1428.2:1992 (for some but not all elements). Where DCP requirement differs from AS1428.1:2009, the

higher level of access to be considered eg. paths of travel under the DCP are recommended to have 1200mm min. width instead of 1000mm min. width.

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 (where there is no clear line of sight) and at lift waiting areas;
- 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.
- All common-use corridors and accessible paths of travel to be at least 1000mm min. width when travelling in linear direction (or advisory recommendation of 1200mm min. under AS1428.2 in line with Ryde Access DCP).

6.3. Access Pathways

In general there is suitable circulation area throughout both buildings to achieve the requirements listed above.

At Building C10a the majority of the layout is open plan. Where corridors have been provided they are suitably wide to permit all of the necessary circulation. An exception occurs at the corridor to the Student Bar which scales to be only 1300mm wide. Particularly as there is an accessible toilet in this location it will be necessary to widen a 2070mm long section to 1540mm wide within 2m of the corridor end. This is achievable.

At Building R1 R2 the main residential corridors scale as 1600mm wide which is suitable for wheelchair turning. The corridor is considerably wider at the lift waiting areas suitable for wheelchair passing. As there is a clear line of sight from this location to the corridor end it not essential to introduce additional wheelchair passing spaces along the length of the corridor.

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 is relevant to Building R1 R2 Ground Level Secure Courtyard and Building C10a external Terraces on Level 1 and Level 2. 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.

Recommendations:

(i) Amend the corridor to the Student Bar amenities (Building C10a Basement Level) to provide for a suitable wheelchair turning area within 2m of the end of the corridor. Provide updates at CC stage.

(ii) Provide details at CC stage demonstrating suitable threshold conditions for all external access points to the buildings, including to upper level (common area) terraces.

6.4. Doors

In general, with minor exceptions, 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 mostly shown to be suitably wide such that the active leaf will offer the necessary clear width.

The following issues have been observed which are easily resolved with minor amendments:

- Insufficient latch side clearance to doors to Shared Kitchens (Building R1 R2 Ground Level)
- Insufficient latch side clearance to Waste Room doors (Building R1 R2 residential floors)
- Insufficient latch side clearance at door to Circulation corridor from Pre-Function room (Building C10a Basement Level)
- Insufficient clear opening width at both doors to Graduation Office (Building C10a Basement Level Upper)
- Insufficient clear opening width at Circulation corridor near Green Room (Building C10a Basement Level Upper)

Recommendations:

(i) Provide updates to the scheme at CC stage addressing the above observed non-compliances.

6.5. Stairs

There are a number of common use stairs (non-fire isolated) proposed throughout (and outside) both buildings, including:

- C10a Graduation Hall external steps
- External "Residential Steps", between R1 R2 and C10a, and also south-west of R1 R2
- Graduation Hall Stage
- Graduation Hall Lobby (connecting three levels)
- Various stairs through C10a voids
- C10a outdoor terrace
- R1 R2 Loading Dock link to corridor
- R1 R2 curved stair
- Various external stairs associated with landscape design

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.

The curved stairway at R1 R2, due to its width and radius, is unlikely to meet compliance with BCA cl. D2.13 requirements for consistent tread width. This should be reviewed with the PCA, amendments are likely.

There is concern with the proposal to install a single central handrail only, particularly on several of the external stairs in the landscape design. At a minimum a second handrail is required for strict compliance with AS1428.1 and for safety reasons. Where the stairs are left open on edges to integrate with terraced bleacher style seating is supportable under a Performance Based Solution however a form of second handrail is still required.

Recommendations:

(i) Provide details at CC stage demonstrating compliance of the stairs with the requirements of AS1428.1, including compliant handrails to both sides, suitable contrasting nosings, TGSIs etc.

(ii) Provide updates at CC stage for Building R1 R2 curved stairs with a configuration with meets BCA cl. D2.13 (this may involve changes to the radius and width of the stairs).

(iii) Amend all instances of single centre handrail design to include at least one additional handrail as required by AS1428.1. Where treads continue to bleed into bleacher style seating or landscape such a configuration is supportable under a Performance Based Solution provided a form of second handrail is still included.

6.6. Ramps

There are a number of ramps proposed throughout the current scheme, including:

- C10a Graduation Hall Stage
- R1 R2 Loading Dock link to corridor
- Various external ramps associated with landscape design (it is not clear if some of these are rather intended as walkways with gradients equal to or greater than 1:20)

Although the required AS1428.1 features such as kerbrails and handrails (with extensions) both sides, TGSIs, mid-landings etc. are not fully described on the drawings at this stage, compliance is achievable and will be documented at CC stage.

Recommendations:

(i) Confirm the extent of ramps throughout the project and ensure these are designed in full accordance with AS1428.1, including handrails and kerbrails both sides, suitable gradients and TGSIs (note, ensure sufficient width inside of handrails to make 90 and 180 degree turns, refer to AS1428.1 fig. 4 and 5).

6.7. Walkways

It is not clear from landscape design drawings if certain areas of level change throughout are to be addressed as ramps or walkways.

If detailed as walkways these 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.

Recommendations:

(i) Confirm the extent of walkways throughout the project and ensure these are designed in full accordance with AS1428.1, including kerbrails both sides (or contrasting surfacing) and suitable gradients (note, ensure sufficient width inside of walkway edges to make 90 and 180 degree turns, refer to AS1428.1 fig. 4 and 5).

6.8. Lifts

Buildings C10a and R1 R2 are both served by multiple passenger lifts.

At Building C10a there are 2 lifts (one to the south-east corner and one to the south-west corner) which link all floors of the building. At Ground Level both of these lifts face the exterior of the building. From the Ground Level interior there is an additional pair of lifts which provide access to the upper floors only. Finally there is an external facing lift at the north-west corner of Ground Level which links with the Basement Student Bar.

At Building R1 R2 each main wing of the development is served by a pair of passenger lifts. These link all levels of the development.

Under the DDA Premises Standards and AS1735.12, with the exception of the lift to the Basement Student Bar, as total vertical travel is 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. In the case of the lift to the Basement Student Bar, as travel is under 12m the lift car floor need only be 1100mm W x 1400mm L however this lift appears to be oversized to match the remaining lifts in the scheme.

The passenger lifts provide continuous access to all 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.

Recommendations:

(i) Provide details at CC stage demonstrating compliance of the passenger lifts with the requirements of BCA E3.6 and AS1735.12.

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 3: Provide at least 1 accessible toilet in every accessible sole-occupancy unit in the development (refer to the next section of this report), and also at least 1 unisex accessible toilet at a common area bank of male and female toilets.
- For Class 5, 6, 7a and 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. Accessible Toilets

Unisex accessible toilets have generally been incorporated into the layouts to an appropriate extent to achieve compliance.

The exception occurs at Basement Level of Building R1 R2. At present there is no indication of an accessible toilet at either the male and female bank near the Lobby, or at the male and female End of Trip at the western end of the building. Preferably a unisex accessible toilet would be incorporated into the layout at both locations, at a minimum this should occur at the bank near the Lobby.

Of the accessible toilets indicated on the layout there is suitable spatial allowance for a layout in compliance with AS1428.1.

It will be necessary to provide as even a number as possible i.e. 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. In the case of Building C10a it is preferred that the configuration reverses on both Ground Level and Level 1 in order to limit travel to the preferred configuration to one level maximum.

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

Recommendations:

(i) Provide layout updates for Building R1 R2 at CC stage to provide for at least one unisex accessible toilet at Basement Level.

(ii) Amend the balance of WC transfer pan configurations at Building C10a such that travel to the preferred configuration is limited to one floor maximum. Provide updates at CC stage.

7.3. 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). Effectively this is applicable to the male and female toilets associated with all accessible toilets throughout the proposal including the accessible toilet which is yet to be introduced to Building R1 R2 Basement Level layout.

Suitable spatial provision is in place for compliance and ambulant cubicles have been suggested at the majority of locations through an outward swinging cubicle door.

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

Recommendations:

(i) Provide details at CC stage demonstrating compliance of ambulant cubicles to all banks of male and female toilets adjacent to a unisex accessible toilet, in accordance with AS1428.1.

7.4. Showers

There are no mandatory requirements under the BCA to provide shower facilities anywhere in the development, other than those associated with the Class 3 component (refer to next section of this report). However where shower facilities are proposed, as a DDA response and to mitigate potential complaints, these should always be grouped with accessible shower facilities in accordance with AS1428.1.

This would appear to be only relevant to the Basement Level of Building R1 R2, where an End of Trip (EOT) facility has been included with separate compartments for male and female. It is strongly recommended to include an accessible toilet and shower combination in this area, in full compliance with AS1428.1.

Recommendations:

(i) Provide a combined unisex accessible toilet and shower compartments, compliant with AS1428.1, located in close proximity to Building R1 R2 Basement Level EOT. Provide layout updates at CC stage.

7.5. Changing Places

Given the size and nature of the development and its location and importance within the campus, a "Changing Places" facility has been included within the layout to the Basement Level of C10a, accessible from the Graduation Hall Pre-Function Lobby.

The facility includes a full sized change table and hoist, toilet and possible also a shower. Details of suitable designs are available on the "Changing Places" website: www.changingplaces.org.au.

8. BUILDING R1 R2 ACCESSIBLE ROOMS

This section or the report is concerned with the requirement under BCA and DDA Access Code for a proportion of accommodation in Class 3 developments to be designed as *accessible*.

8.1. Accessible Sole-Occupancy Rooms: Quantity

There are a total of 152 sole-occupancy units ('SOUs') in the subject (Class 3) development i.e. Building R1 R2. Under Table D3.1 of the BCA and DDA Access Code 8 SOUs are required to be *accessible*. The drawings describe a "DDA Studio" unit type of which there are a total of 10 evenly distributed throughout the building. This would meet the minimum quantity of accessible SOUs under the BCA / DDA Access Code 2010.

There is a requirement under Table D3.1 of the BCA and DDA Access Code for the accessible SOUs to be representative of the range of rooms available. Although this is clearly not occurring due to there being multi-bedroom unit types, twin share etc. MGAC are able to support the proposal as being a reasonable and appropriate response to the requirements, and meeting the intent of the DDA.

Recommendations:

(i) Ensure the nominated "DDA Studio" SOUs are designed as accessible as required under BCA / DDA Access Code 2010 Table D3.1.

8.2. Accessible Sole-Occupancy Rooms: Design

There is a continuous accessible path of travel from the building entrances to the entry doorway of the nominated accessible SOUs, made possible through the passenger lifts. The provision of suitable internal latch-side clearances at the entry doorway of each of the accessible SOUs has been provided.

The SOU bedroom area is to feature suitable internal dimensions to allow for suitable wheelchair circulation in accordance with AS1428.1(2009) around a queen-size bed. This is achievable.

A continuous accessible path of travel to the bathroom entry doorway is required, as is the provision of suitable clearances on both sides of the bathroom entry doorway. This has been provided.

The bathroom in each of the accessible SOUs should feature minimum internal dimensions of 2700mm (length) x 2300mm (width). Amendments are required to achieve this. The organisation of fixtures should adopt the suggested layout of fig.50 from AS1428.1. This is achievable subject to changes to room dimensions.

The full extent of the kitchen / storage joinery unit should offer 1550mm circulation area forward of the joinery. This will require amendments to the layout and/or alterations to wall types to achieve.

The detailing of the kitchen should adopt best practice principles from AS4299 for the style and location of appliances, worksurfaces with wheelchair clearance under, tapware and GPOs etc. within reach for a person seated in a wheelchair etc.

Recommendations:

(i) In accordance with AS1428.1:2009, provide a minimum clear width of 850mm (typically a 920mm door leaf will achieve this) at the main entry doorway of each accessible SOU and the entry doorway of the bathroom at each of those SOUs.

(ii) In accordance with AS1428.1:2009, provide a minimum internal latch-side clearance of 530mm at the main entry doorway of each of the accessible SOUs.

(iii) In accordance with AS1428.1(2009) figure 50, ensure that the bathroom in each accessible hotel suite has an internal width dimension of 2300mm and length dimension of 2700mm.

(iv) Provide suitable 1550mm min. circulation area forward of joinery and ensure detailing of kitchen is in accordance with AS4299.

9. ACCESSIBLE CAR PARKING & COMMON FACILITIES

9.1. 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 6: Provide 1 accessible car bay for every 50 car bays or part thereof, compliant with AS2890.6.
- Class 3, 5, 7 and 9: 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).

Note also advisory recommendations under Ryde Access DCP which requires parking for people with disabilities at a rate of 3%. Macquarie University will have its own site specific parking restrictions and arrangements.

At present the only car parking included in the proposal is within Building R1 R2 at Basement Level. It is not clear how this parking is allocated within the overall development since all parts of both buildings are technically accessible to the parking area.

The drawings show four of six total spaces as accessible which easily meets the minimum requirements described above, regardless of the intended allocation of the parking.

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 area).

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

Recommendations:

(i) Confirm allocation of accessible car parking shown at Basement Level of Building R1 R2.

(ii) Provide details at CC stage demonstrating compliance of the accessible car parking bays with the requirements of AS2890.6, including ensuring 2.5m vertical clearance over the parking area and 2.2m vertical clearance on the vehicular path to the parking area, minimum clearance to building structure and services.

9.2. 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.

Note the Macquarie University Signage and Wayfinding Guidelines, particularly Part Two: Access, and the emphasis on "best practice" principles for accessible wayfinding.

Compliance is achievable and will need to be demonstrated at CC Stage.

Recommendations:

(i) Provide a signage package at CC stage for accessibility review, in compliance with BCA D3.6, AS1428.1 and the Macquarie University Signage and Wayfinding Guidelines

9.3. Hearing Augmentation

Provide hearing augmentation where an inbuilt amplification system, other than the one used for emergency warning is installed, in accordance with DDA Premises Standards Part D3.7. These locations are likely to include teaching spaces, multi-function spaces and certainly at the Graduation Hall.

Note, it is the preference for Macquarie University to install Infra-Red Hearing Augmentation Systems, as outlined in the Property Design Guidelines. If infra-red or FM systems are used, then a suitable number of receivers will also be required in line with Part D3.7 (2) (b) in relation to the number of persons to be accommodated in the room or space. Macquarie University may have its own loan/management system arrangements with respect to hearing augmentation receivers for potential users and this will need to be articulated to the design team and considered for this development.

Note, if there are any areas where a portable PA amplification system may be used on a regular basis, it is recommended that a hearing loop be considered (even if not a mandatory requirement under the Codes). This will enable equitable access for people with hearing impairment and assist the Client manage potential DDA complaints in the event that a portable hearing loop was not provided with the portable PA.

Recommendations:

(i) Confirm extent of in-built amplification throughout the project and provide details of the associated hearing augmentation system. Provide details at CC stage.

9.4. Seating and Service Counters

Where table heights are fixed (e.g. café seating), consider providing a range of table heights with appropriate foot (290mm) & knee (650mm) clearance to accommodate wheelchair users.

The tables should be at least 800mm in width, preferably within the following height ranges (AS1428.2 advisory/best practice)

- Where only one table height provided: table top between 830-870mm above FFL with 800-840mm under-bench clearance.
- Where two table heights provided: other table top between 730-770mm above FFL with 710-750mm under-bench clearance.

Service counters within retail premises are likely to comprise of rigid fixed elements. Consideration should be given to locating all or at least a portion of the service counter suitable for the use of a person using a wheelchair, to enable interaction with staff. The setout of the service counter would be similar to the above dimensions advised for table heights and further guidance on clearances, reach ranges with diagrams can be found in AS1428.2.