



9. APARTMENT DESIGN GUIDE - NSW

SEPP 65 and the Apartment Design Guide apply to residential flat buildings, shop top housing and the residential component of mixed use developments with NSW. They apply to buildings that are three or more storeys and that have four or more dwellings in the following situations:

- The erection of a new building
- The substantial redevelopment or refurbishment of an existing building
- The conversion of an existing building to a residential flat building.

Objective 4Q-1 of Part 4 of the Apartment Design Guide requires Universal design features to be included in the apartment design to promote flexible housing for all community members. The design guidance for this objective is;

- Developments are to achieve a benchmark of 20% of the total apartments incorporating the Liveable Housing Guideline's silver level universal design features.

The eight core design elements for silver level are as follows; (for a detailed explanation of these elements refer to the Appendix D that provides an extract from the Liveable Housing Design Guidelines (3rd ed 2013))

The requirements for livable housing under the SEPP have been achieved. Unit type 2B and 1A will conform with the liveable standard – 32 in total which represents 28% of the residential units.

9.1 Access from Street Entrance and/or Parking

Provide a safe, continuous and step free path of travel from the street entrance and / or carparking area to a dwelling entrance that is level, and a minimum clear width of 1000mm to path of travel. This element is not applicable to Class 2 buildings as they already have access requirements to the entries of sole occupancy units.

Drawings indicate that this has been provided.

9.2 Step Free Entrance

Provide at least one level (step-free) entrance into the dwelling with reasonable shelter and level landing area of minimum 1200mm x 1200mm at the entrance door.

Drawings indicate that this has been provided.

9.3 Car Parking

Where a parking space forms part of the dwelling access, it should incorporate a minimum 3200mm width x 5400mm length with a maximum 1:40 gradient and maximum 1:33 for bitumen. This allows a persons to open their car door fully and easily move around the vehicle.

Not applicable to this development.

9.4 Unimpeded Internal Movement

Internal doors and corridors are to facilitate comfortable and unimpeded movement between spaces. On entry level, doors used for living, dining, bedroom, bathroom, kitchen, laundry and toilet should have a clear opening width of 820mm and internal corridors to be a minimum 1000mm clear width.

Drawings indicate that this has been provided.



9.5 Easy Access Toilet

Provide a toilet on the ground (or entry) level that provides easy access

- i. Minimum 900mm clear width between bathroom walls of in a separate room
- ii. Minimum 1200mm clear circulation space in front of toilet pan (clear of door swing)

Toilet pan is to be in the corner of the room to enable installation of grabrails.

Drawings indicate that this has been provided.

9.6 Step Free Shower

A bathroom should contain a hobless (step-free) shower recess and be located in the corner of the room for grabrails installation at a future date.

Drawings indicate that this has been provided.

9.7 Reinforced Walls for Grabrails

Reinforced walls to be provided around the toilet, shower and bath to support the safe installation of grabrails at a later date. Refer Liveable Housing Design Guidelines for further reinforcement details.

We recommend that the abovementioned items be addressed during subsequent design stages.

9.8 Continuous Stair Handrails

Provide a continuous handrail on one side of any stairway where there is a rise of more than one metre. Note that for Class 2 buildings, this requirement is only applicable to stairs within individual apartments. BCA has requirements for stairs in common areas to be designed in accordance with AS1428.1 which requires handrails to both sides of the stairs.

Not applicable to this development



10. ADDITIONAL ACCESSIBILITY CONSIDERATIONS

As detailed above, it is acknowledged that the Premises Standards are limited in scope, covering aspects of building compliance applicable under the BCA only.

Philip Chun Access provides the following as a summary of additional accessibility issues that can be addressed in order to reduce Client risk of attracting a discrimination complaint. Refer to Appendix E for specific requirements

- Fire Egress for People with Disabilities
- Seating in Public Areas
- Signage and Wayfinding
- Access controlled entries to carpark
- Luminance Contrast



11. CONCLUSION

We have assessed the architectural documentation available to date and have reviewed the proposed building works with respect to the Building Code of Australia 2016 and Premises Standards. The design is at a point where the inherent BCA philosophies have been checked and development consent can be sought. The finer details with respect to BCA 2016 compliance can be finalised prior to the issue of a Construction Certificate.

The proposed development is capable of achieving access for people with disabilities and meeting all the relevant standards. Detailed design should address the following items to ensure compliance:

- Accessible carparking layouts;
- Setback of the accessible ramp to Howard Street;
- Access to the pool for people with disabilities;
- Accessible entrance to adaptable apartments pre-adaption.



APPENDIX A

MARKED PLANS

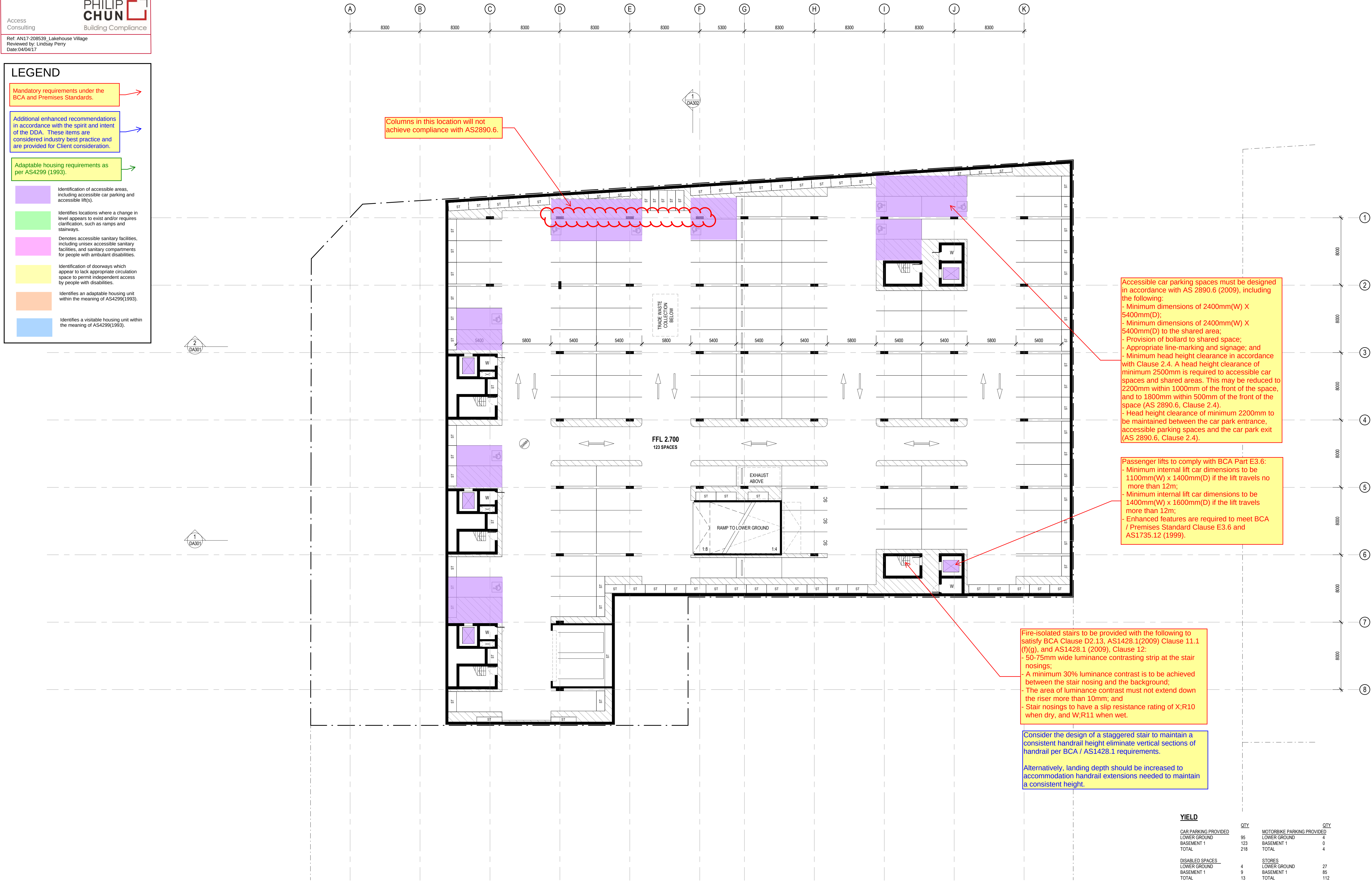
LEGEND

Mandatory requirements under the BCA and Premises Standards.

Additional enhanced recommendations in accordance with the spirit and intent of the DDA. These items are considered industry best practice and are provided for Client consideration.

Adaptable housing requirements as per AS4299 (1993).

- Identification of accessible areas, including accessible car parking and accessible lift(s).
- Identifies locations where a change in level appears to exist and/or requires clarification, such as ramps and stairways.
- Denotes accessible sanitary facilities, including unisex accessible sanitary facilities, and sanitary compartments for people with ambulant disabilities.
- Identification of doorways which appear to lack appropriate circulation space to permit independent access by people with disabilities.
- Identifies an adaptable housing unit within the meaning of AS4299(1993).
- Identifies a visitable housing unit within the meaning of AS4299(1993).



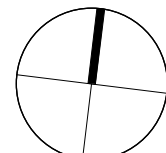
YIELD

CAR PARKING PROVIDED	
LOWER GROUND	95
BASEMENT 1	123
TOTAL	218

DISABLED SPACES	
LOWER GROUND	4
BASEMENT 1	9
TOTAL	13

MOTORBIKE PARKING PROVIDED	
LOWER GROUND	4
BASEMENT 1	0
TOTAL	4

STORES	
LOWER GROUND	27
BASEMENT 1	85
TOTAL	112



A continuous accessible path of travel is to be provided to any building required to be accessible from:

- The main points of pedestrian entry at the allotment boundary; and
- From another accessible building connected by a pedestrian link; and
- From any required accessible car parking space on that allotment.

(BCA Clause D3.1)

Provide ambulant facilities for male and female use.

All accessible sanitary facilities to offer compliance with AS1428.1 (2009).

Directional signage incorporating the international symbol for access is required at the location of sanitary facilities that are not accessible, to direct a person to the location of the nearest accessible unisex sanitary facility.

Stairs to comply with AS1428.1 (2009).

Stairs must be set back at least 600mm to ensure handrail extensions and TGSIs do not protrude into the transverse path of travel (AS1428.1 (2009), Clause 11.1(b)).

Accessible car parking spaces must be designed in accordance with AS 2890.6 (2009), including the following:

- Minimum dimensions of 2400mm(W) X 5400mm(D);
- Minimum dimensions of 2400mm(W) X 5400mm(D) to the shared area;
- Provision of bollard to shared space;
- Appropriate line-marking and signage; and
- Minimum head height clearance in accordance with Clause 2.4. A head height clearance of minimum 2500mm is required to accessible car spaces and shared areas. This may be reduced to 2200mm within 1000mm of the front of the space, and to 1800mm within 500mm of the front of the space (AS 2890.6, Clause 2.4).
- Head height clearance of minimum 2200mm to be maintained between the car park entrance, accessible parking spaces and the car park exit (AS 2890.6, Clause 2.4).

Consider providing a luminance contrast of not less than 30% between columns and the ground surface.

The following areas are not required to be accessible:

- (a) An area where access would be inappropriate because of the particular purpose for which the area is used.
- (b) An area that would pose a health or safety risk for people with a disability.
- (c) Any path of travel providing access only to an area exempted by (a) or (b).

(BCA Clause D3.4).

Toilet associated with this area is considered an exempt area.

LIFTS:

Passenger lifts to comply with BCA Part E3.6:

- Minimum internal lift car dimensions to be 1100mm(W) x 1400mm(D) if the lift travels no more than 12m;
- Minimum internal lift car dimensions to be 1400mm(W) x 1600mm(D) if the lift travels more than 12m;
- Enhanced features are required to meet BCA / Premises Standard Clause E3.6 and AS1735.12 (1999).

FIRE ISOLATED STAIRS:

Consider the design of a staggered stair to maintain a consistent handrail height eliminate vertical sections of handrail per BCA / AS1428.1 requirements.

Alternatively, landing depth should be increased to accommodate handrail extensions needed to maintain a consistent height.

Consider increasing size of stair landings (on all accessible levels) to:

- Incorporate 800mm x 1300mm safe refuge at stair landings of every accessible floor;
- Maintain 1000mm unobstructed egress width.

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Consider increasing size of stair landings (on all accessible levels) to:

- Incorporate 800mm x 1300mm safe refuge at stair landings of every accessible floor;
- Maintain 1000mm unobstructed egress width.

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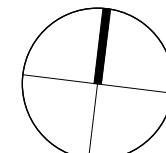
PROJECT

LAKEHOUSE VILLAGE
LOT 384 DP 32518, LOT 1 DP 90877, LOT 1-3
DP 155951, LOT 112 DP 578045
482 THE ESPLANADE, WARNERS BAY

PROJECT No. 1635

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DRAWING TITLE PLAN - LOWER GROUND
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LIVABLE HOUSING REQUIREMENTS (SILVER)

SEPP 65 requires the provision of livable housing units (20% to be livable - silver level).

The eight core design elements for silver level are:

1 Access from Street Entrance and/or Parking:
A minimum 1000mm width to path of travel that is step free from the street entrance and/or car parking area to a dwelling entrance.

2 Step free entrance:
At least one level step-free entrance to the dwelling with reasonable shelter and level landing area of minimum 1200x1200mm at the entrance door. Minimum 820mm clear door opening.

3 Car Parking:
A minimum of 3200 x 5400mm for parking spaces with a maximum 1:40 gradient and maximum 1:33 for bitumen. Note this is only required where the car park forms part of the approach to the livable unit - for example, a carport.

4 Internal doors & corridors:
Internal corridors to be a minimum of 1000mm clear width. 820mm clear door openings are required for living, dining, bedroom, bathroom, kitchen, laundry and toilet. A level transition at thresholds is required.

5 Easy Access Toilet:
a) Provide a toilet on the ground or entry level with a minimum of 900 x 1200mm circulation space in front of toilet pan and clear of door swing.
b) Toilet pan to be in the corner of the room to enable installation of grab-rails.

6 Step Free Shower:
A bathroom should contain a hobless (step-free) shower recess and be located in the corner of the room for grabrails installation at a future date.

7 Reinforced Walls for Grabrails:
Reinforced walls around the toilet, shower and bath to support the safe installation of grabrails at a later date. Refer Livable Housing Design Guidelines for further reinforcement details.

8 Internal Stairway:
Provide a continuous handrail on one side of any stairway where there is a rise of more than one metre.

ADAPTABLE UNIT REQUIREMENTS:

AT TIME OF CONSTRUCTION THE FOLLOWING ARE REQUIRED:

Entrances:
All adaptable units are designed to enable access to and through the main entrance with clear opening widths to entrances of not less than 850mm and appropriate circulation spaces per AS 1428.1 (2009) Clause 13.3.

Visitable Toilet:
An adaptable unit is required to have a toilet on the ground (or main) floor that complies with the requirements for sanitary facilities of AS4299.

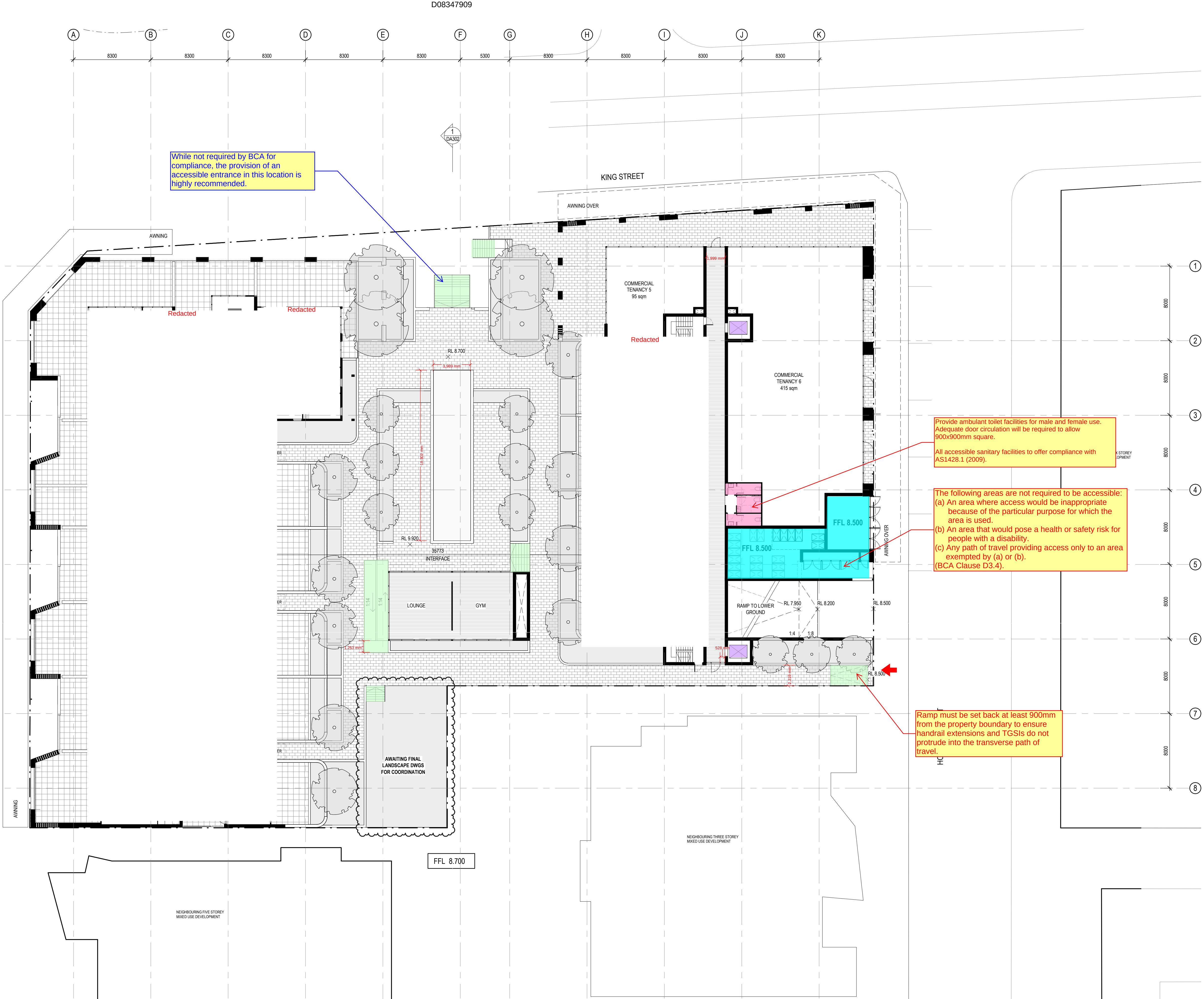
That is, a visitable toilet being a toilet with a space of minimum 2000mm x 10000mm to accommodate. An area 900x1250mm is required between the pan and door swing.

Accessible Path of Travel from Entrance to Visitable Toilet:
Corridors to be minimum 1000mm wide and adequate circulation spaces at doorways required to meet AS1428.1 (2009) requirements.

Accessible Path of Travel from Entrance to a Living Area:
Corridors to be minimum 1000mm wide and adequate circulation spaces at doorways required to meet AS1428.1 (2009) requirements.

Class 2

BCA Clause D3.1 requires access for people with disabilities to:
- from a pedestrian entrance required to be accessible to at least 1 floor containing sole occupancy units and to the entrance doorway of each sole occupancy unit located on that level;
- to and within not less than 1 of each type of room or space used in common by the residents;



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C	FOR INFORMATION	06.03.2017
D	FOR INFORMATION	14.03.2017

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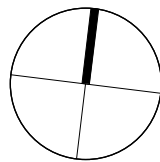
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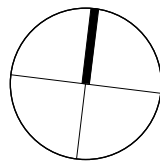
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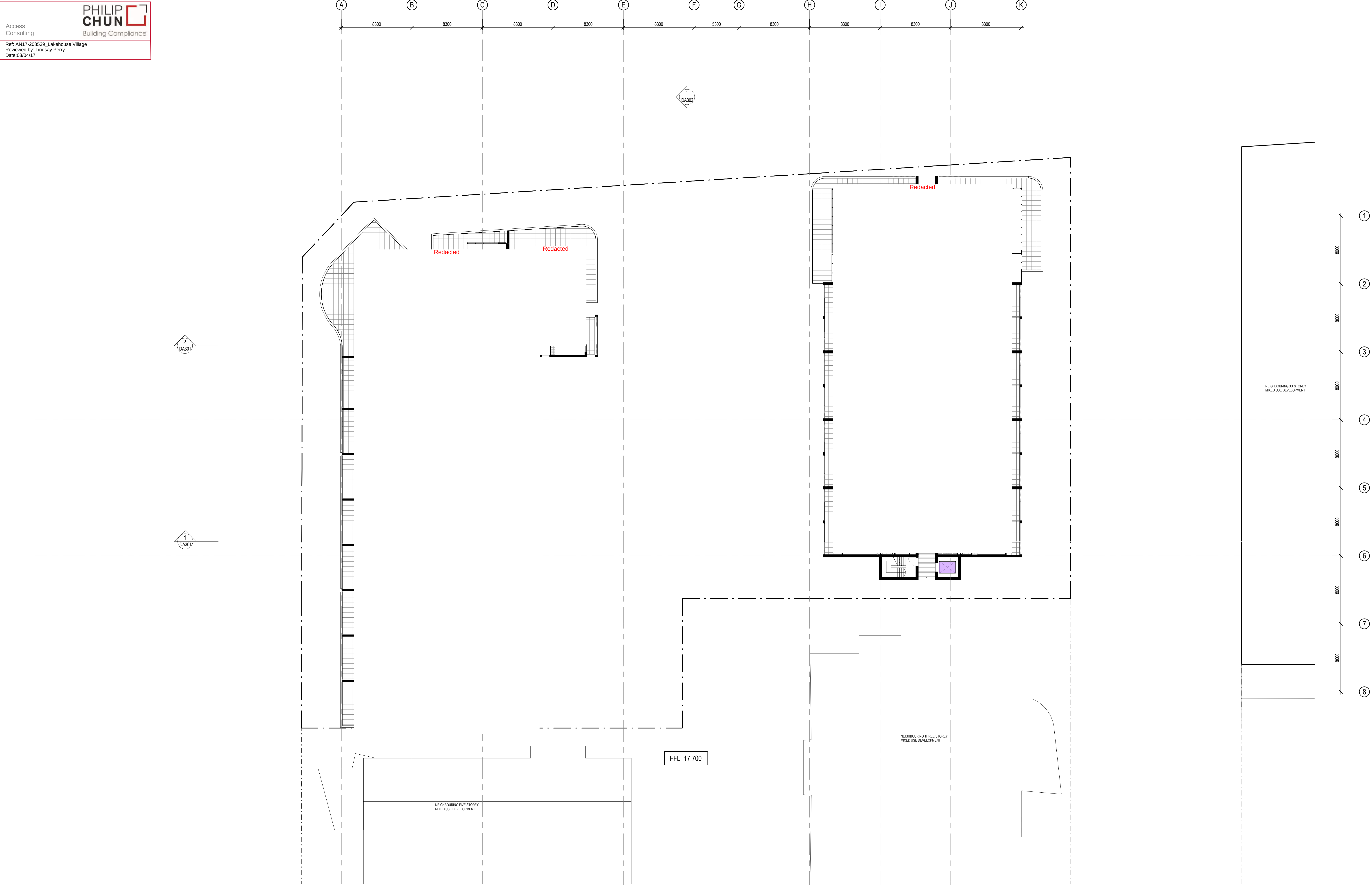
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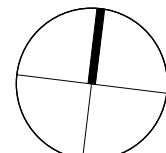
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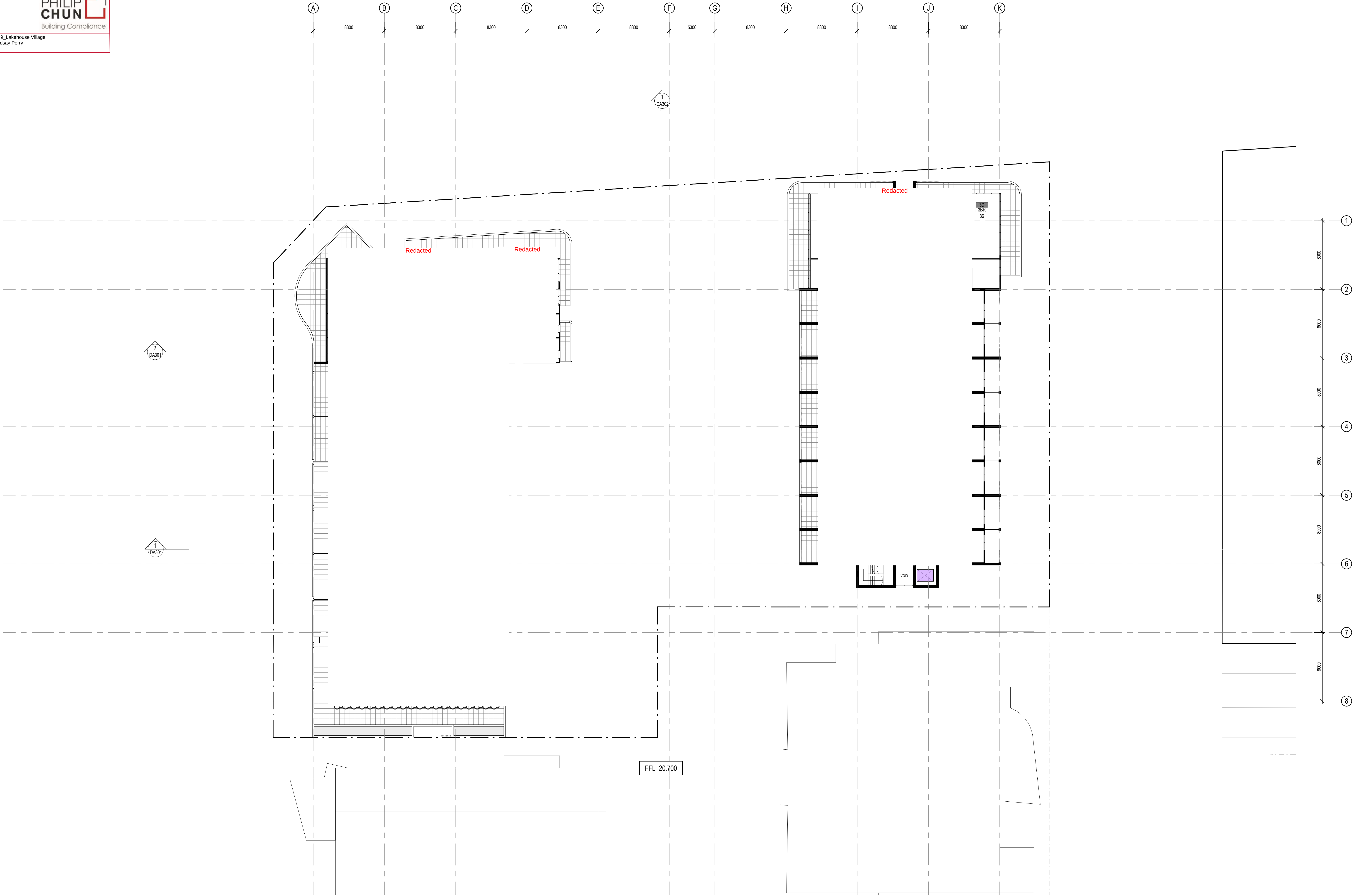
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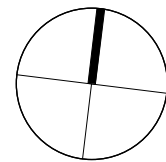
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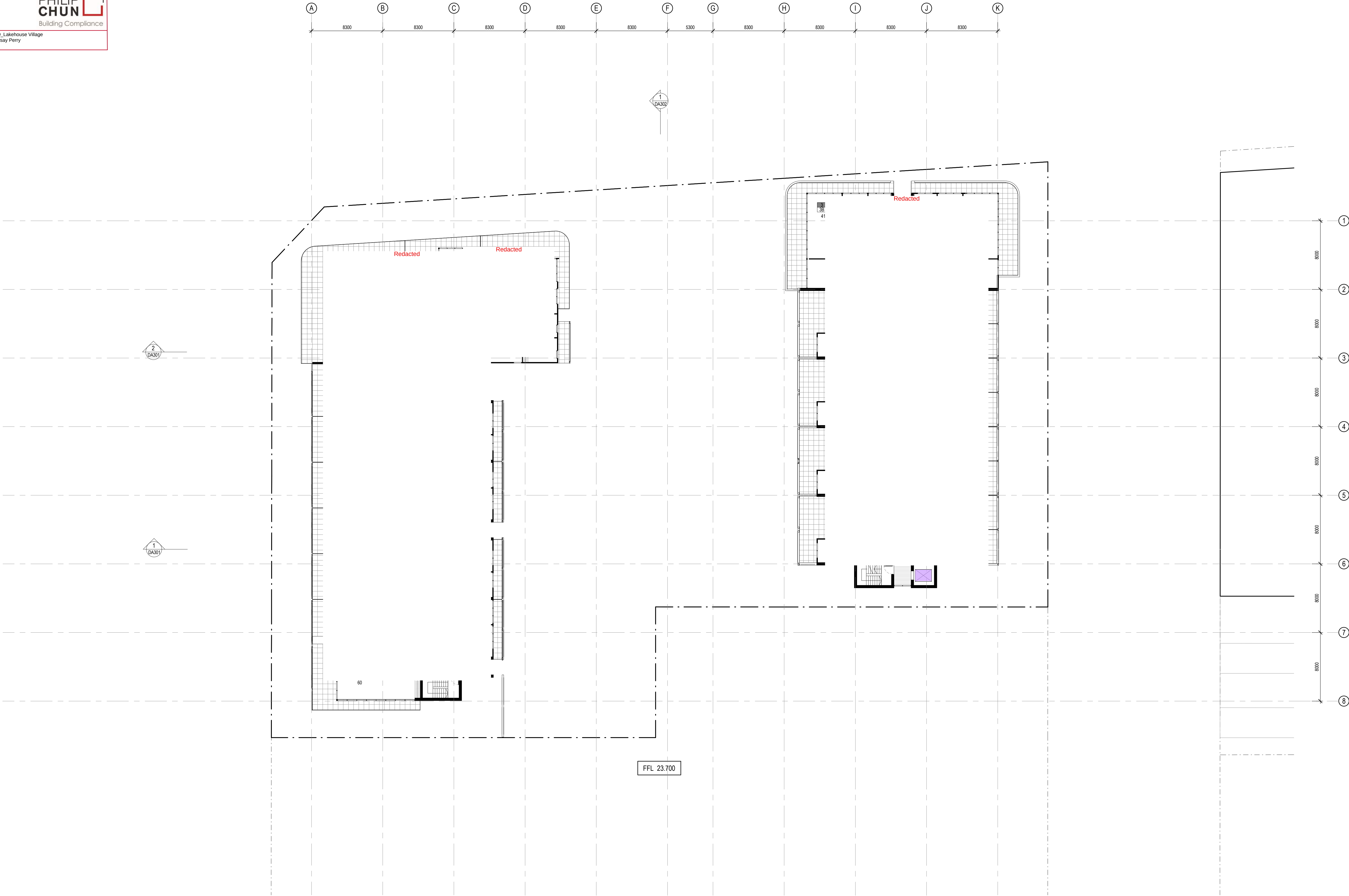
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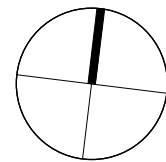
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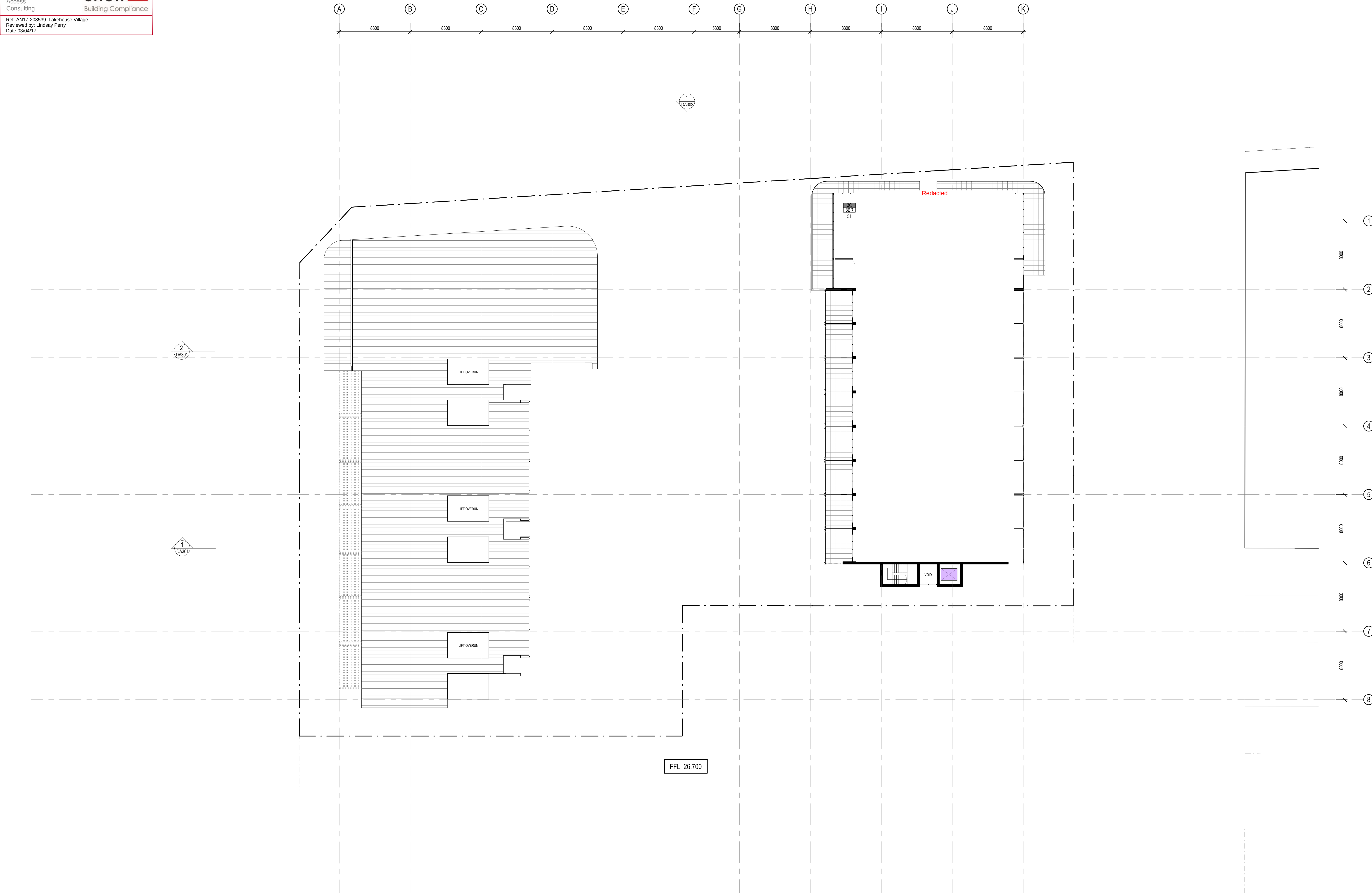
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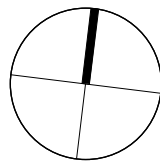
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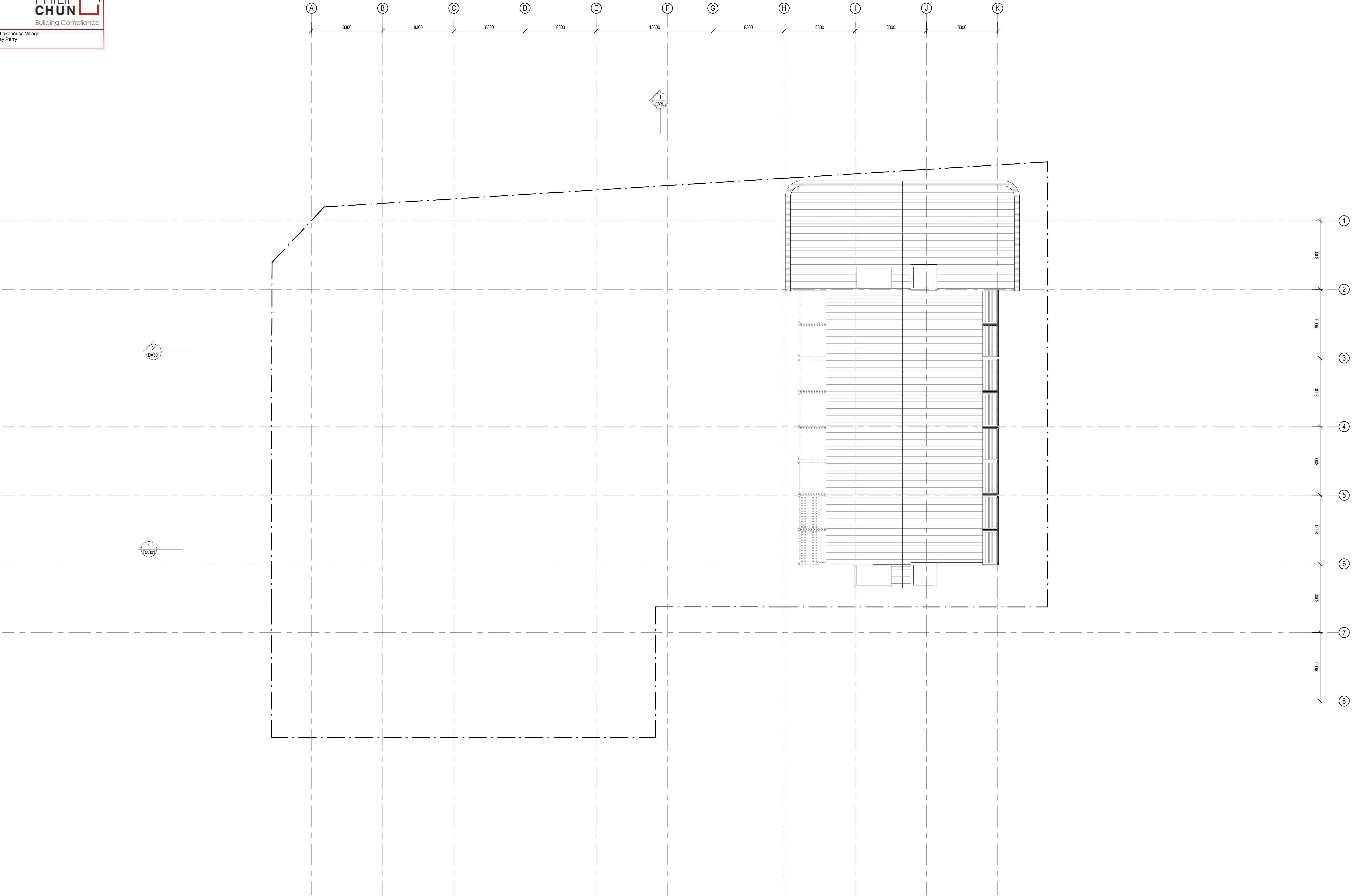
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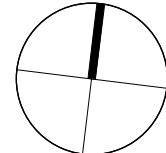
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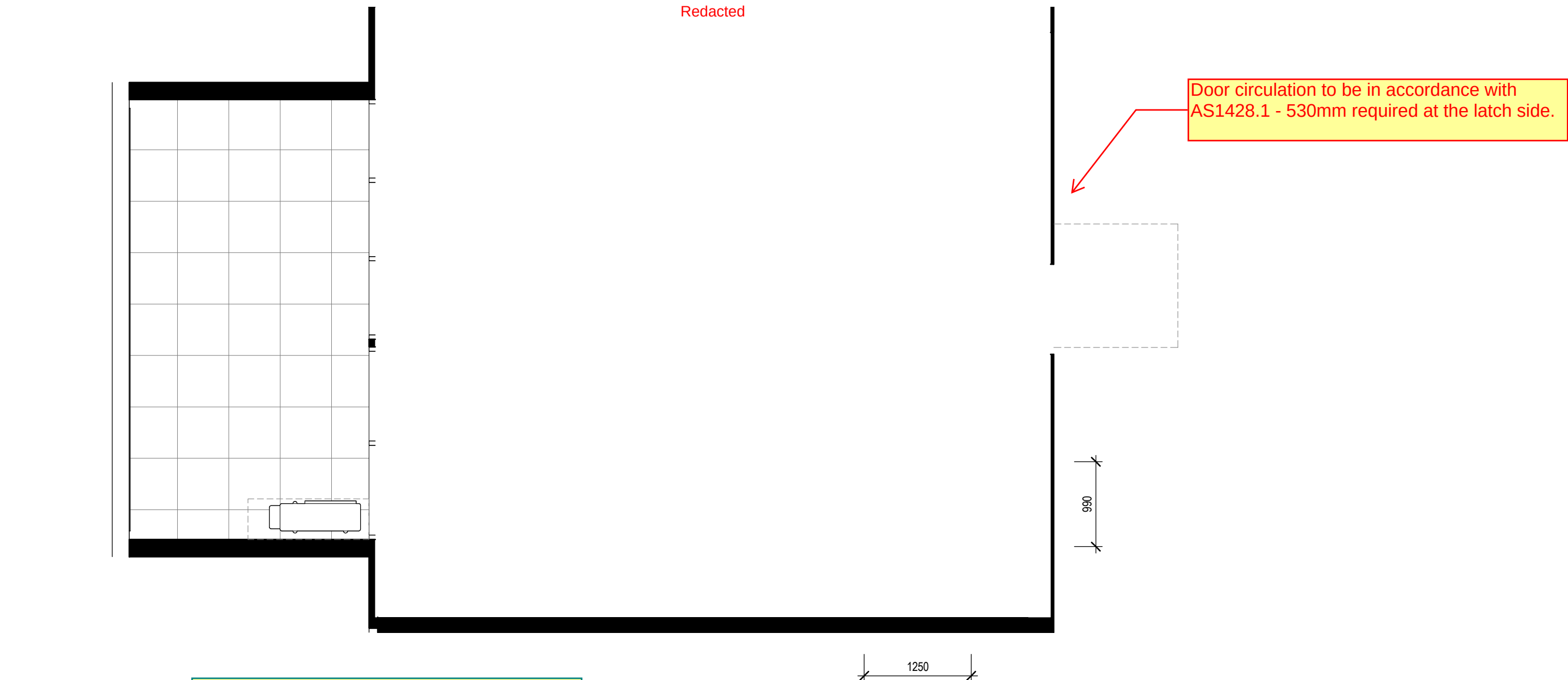
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2 UNIT TYPE 1A

ADAPTABLE UNIT REQUIREMENTS:

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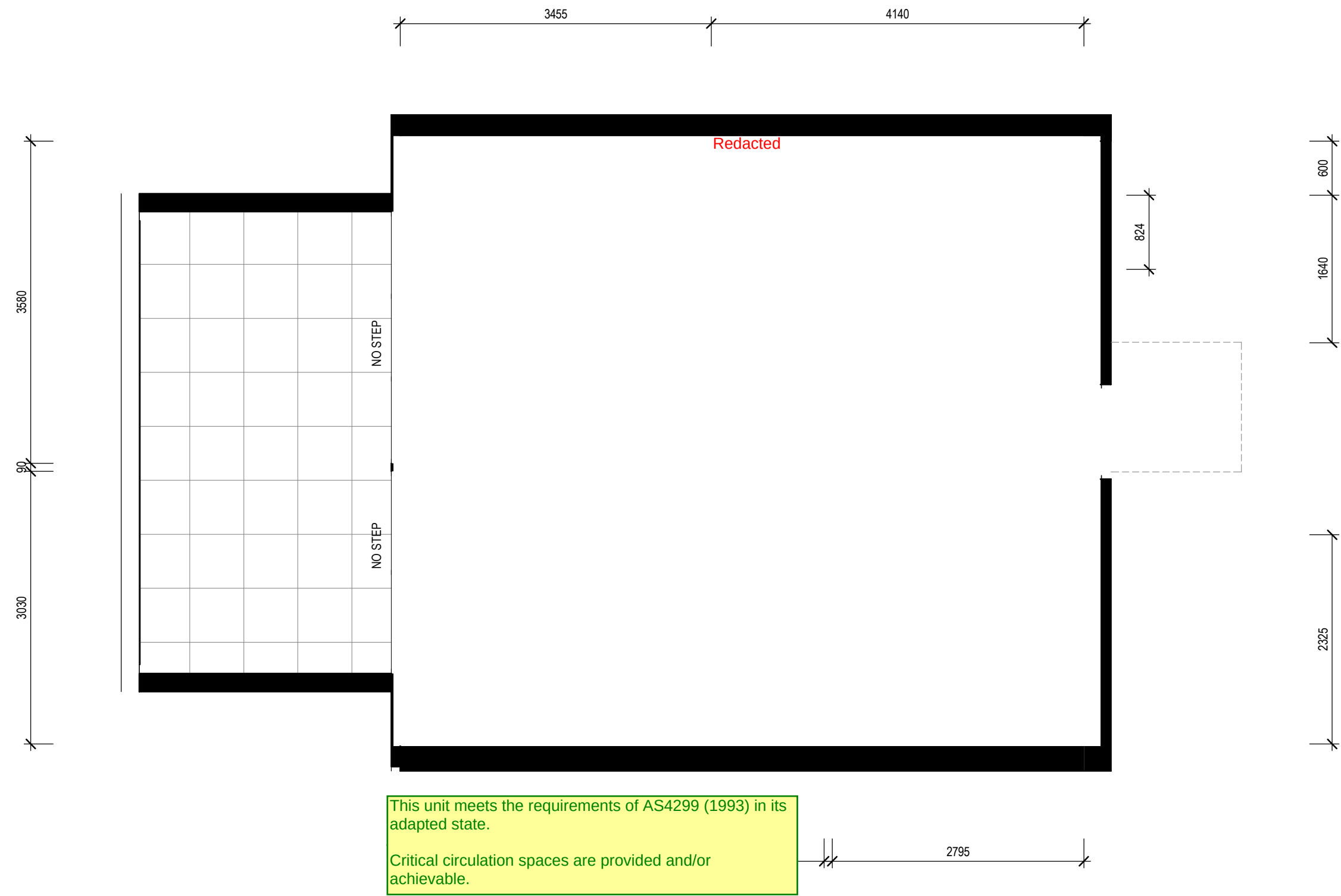
Entrances:
All adaptable units are designed to enable access to and through the main entrance with clear opening widths to entrances of not less than 850mm and appropriate circulation spaces per AS 1428.1 (2009) Clause 13.3.

Visible Toilet:
An adaptable unit is required to have a toilet on the ground (or main) floor that complies with the requirements for sanitary facilities of AS4299.

That is, a visible toilet being a toilet with a space of minimum 2000mm x 1000mm to accommodate. An area 900x1250mm is required between the pan and door swing.

Accessible Path of Travel from Entrance to Visible Toilet:
Corridors to be minimum 1000mm wide and adequate circulation spaces at doorways required to meet AS1428.1 (2009) requirements.

Accessible Path of Travel from Entrance to a Living Area:
Corridors to be minimum 1000mm wide and adequate circulation spaces at doorways required to meet AS1428.1 (2009) requirements.



1 UNIT TYPE 1A - ADAPTED

This unit meets the requirements of AS4299 (1993) in its adapted state.

Critical circulation spaces are provided and/or achievable.

ADAPTABLE UNIT REQUIREMENTS:

ON ADAPTION THE FOLLOWING ARE REQUIRED:

Doorways:
In regards to internal doors, each requires appropriate clear opening width with a minimum clear width of 920mm, with the door to the accessible bathroom meeting AS1428.1 (2009) requirements with a minimum clear width of 850mm. We recommend providing 850mm to all doors in adaptable units from the onset.

Circulation:
Critical minimum circulation areas for adaptable units are as follows:
- 2250mm diameter clear space within living area to allow wheelchair access. Furniture arrangement will need modification.
- 1550mm clear to front of kitchen and laundry benches.
- turning space at foot of bed minimum 1540 mm wide and 2070mm long (in the direction of travel).
- door circulation in accordance with AS1428.1 (2009).

Bathroom:
The dimensions of bathrooms should provide scope for a post adapted bathroom that will provide sufficient circulation space per AS 1428.1 (2009).

Structural support (such as structural ply sheeting) is recommended at toilet and shower grab rail zones to allow for ease of installation of any future fixings.

Service locations should be considered in respect to the potential post adaption layouts, thereby allowing fixtures to easily be relocated.

Kitchen:
Kitchen layout to achieve a minimum circulation of 1550mm between opposing walls, cabinets and appliances to facilitate completion of a 180 degree turn by a wheelchair user.

In addition the design of the kitchen is to accommodate for the potential of adaption including:
- an 800mm length of worktop that can be adjusted in height, with a removable base unit under
- the location of the fridge adjoining a suitable work surface
- potential to adjust sink height, with a sink bowl depth of 150mm - lever type taps to be provided to the side of the sink
- cooktops with side controls
- isolation switches for appliances to be accessible / reachable (e.g. oven and fridge / freezer)
- suitable oven height and worktop adjoining.

Bedroom:
The main bedroom within the adaptable units requires sufficient circulation space to permit movement by a wheelchair user, being not less than 1540mm x 2070mm clear circulation to at least one side and/or base of a queen size bed on post adaption.

Window sills within the bedroom and living areas will be a maximum of 600mm and 730mm above finished floor level respectively, to enable viewing by persons in the seated position and persons who may be confined to bed (AS 4299:1995 Clauses 4.6.2 / 4.7.2).

Laundry:
Laundry facilities and joinery to be designed to allow for adjustment to cater for accessibility in the future, the post adaption location will provide for a clear 1550mm approach to the facility.

LIVABLE HOUSING (SILVER)

- DWELLING ACCESS**
- 1000 mm clear width to path of travel
 - Max 1:14 slope
 - 1200 mm landings
- DWELLING ENTRANCE**
- Min 820 mm clear opening
 - No step at door (may have a 50 mm step with ramping)
 - 1200 mm x 1200 mm landing FINISHED FLOOR LEVEL
- CAR PARKING**
- NOT APPLICABLE AS NOT A PART OF THE DWELLING ENTRANCE
- INTERNAL DOORS & CORRIDORS**
- All internal doors 820 mm clear opening
 - All corridors 1000 mm minimum width
- TOILET**
- A minimum clear 900 width
 - 1200 mm clear in front of the toilet
 - LOCATED IN THE CORNER OF THE ROOM TO ALLOW FUTURE INSTALLATION OF GRAB RAILS
- SHOWER**
- HOBLESS SHOWER ENTRY
 - LOCATED IN THE CORNER OF THE ROOM TO ALLOW FUTURE INSTALLATION OF GRAB RAILS
- WALL REINFORCEMENT**
- WALLS AROUND TOILET AND SHOWER TO HAVE 12MM PLYWOOD TO ALLOW FUTURE INSTALLATION OF GRABRAILS
- INTERNAL STAIRWAYS**
- 1000mm CLEAR WITH CONTINUOUS HANDRAIL

- KITCHEN**
- NIL REQUIREMENTS
- LAUNDRY**
- NIL REQUIREMENTS
- GROUND (OR ENTRY) FLOOR BEDROOMS**
- NIL REQUIREMENTS
- SWITCHED & POWER POINTS**
- NIL REQUIREMENTS
- DOOR & TAP HARDWARE**
- NIL REQUIREMENTS
- FAMILY / LIVING ROOM SPACE**
- NIL REQUIREMENTS
- WINDOW SILLS**
- NIL REQUIREMENTS
- FLOORING**
- NIL REQUIREMENTS

- KITCHEN**
- 1 DOUBLE GPO WITHIN 300mm OF FRONT OF WORK SURFACE
 - SLIP RESISTANT FLOOR TO AS/NZS3661.1
 - RAISED CROSS BAR TO CONTROLS
 - ISOLATING SWITCH TO COOKTOP
 - REFRIGERATOR ADJACENT WORK SURFACE
 - GPO FOR REFRIGERATOR TO BE EASILY WITHIN REACH
 - INSTALLATION OF THERMOSTATIC MIXING VALVES
 - LOCATE HANDLES TOWARDS THE TOP OF UNDER-BENCH CUPBOARDS AND TO THE BOTTOM OF OVER-BENCH CUPBOARDS
 - PROVIDE SPACE FOR MICROWAVE IN OVER-BENCH CUPBOARD
- LIVING**
- POTENTIAL ILLUMINATION TO BE MIN 300LUX
 - PROVISION FOR CIRCULATION SPACE OF MIN 2250mm DIAMETER MIN 4 DOUBLE GPOS
- BEDROOM**
- MIN 1000mm UNOBSTRUCTED SPACE ALONG 1 SIDE OF BED
 - PROVISION FOR CIRCULATION SPACE OF MIN 1540mm X 2070 IN DIRECTION OF TRAVEL
 - MIN 2 DOUBLE GPOS
- EXTERIOR**
- SLIP RESISTANT FLOOR TO AS/NZS3661.1
 - MAX 5mm STEP BETWEEN EXTERNAL FLOORING AND INTERNAL FLOORING
 - AND TO FULL WIDTH OF DOOR OPENING

NOTE: ADAPTABLE UNIT TO MEET AS4299:2009 ON COMPLETION ALL DIMENSION TO STUD WALL

INDICATES ADJUSTABLE BENCHTOP

- PROVIDE DOUBLE GPO
- SLIP RESISTANT FLOOR TO AS/NZS 3661.1
- INSTALLATION OF THERMOSTATIC MIXING VALVES
- PROVIDE 1550mm CLEAR IN FRONT OF WASHING MACHINE
- TUB MIXER TO FRONT OF TUB

REV	DESCRIPTION	DATE
A	FOR INFORMATION	03/04/2017
B	REVISED FOR INFORMATION	04/04/2017

SHAC

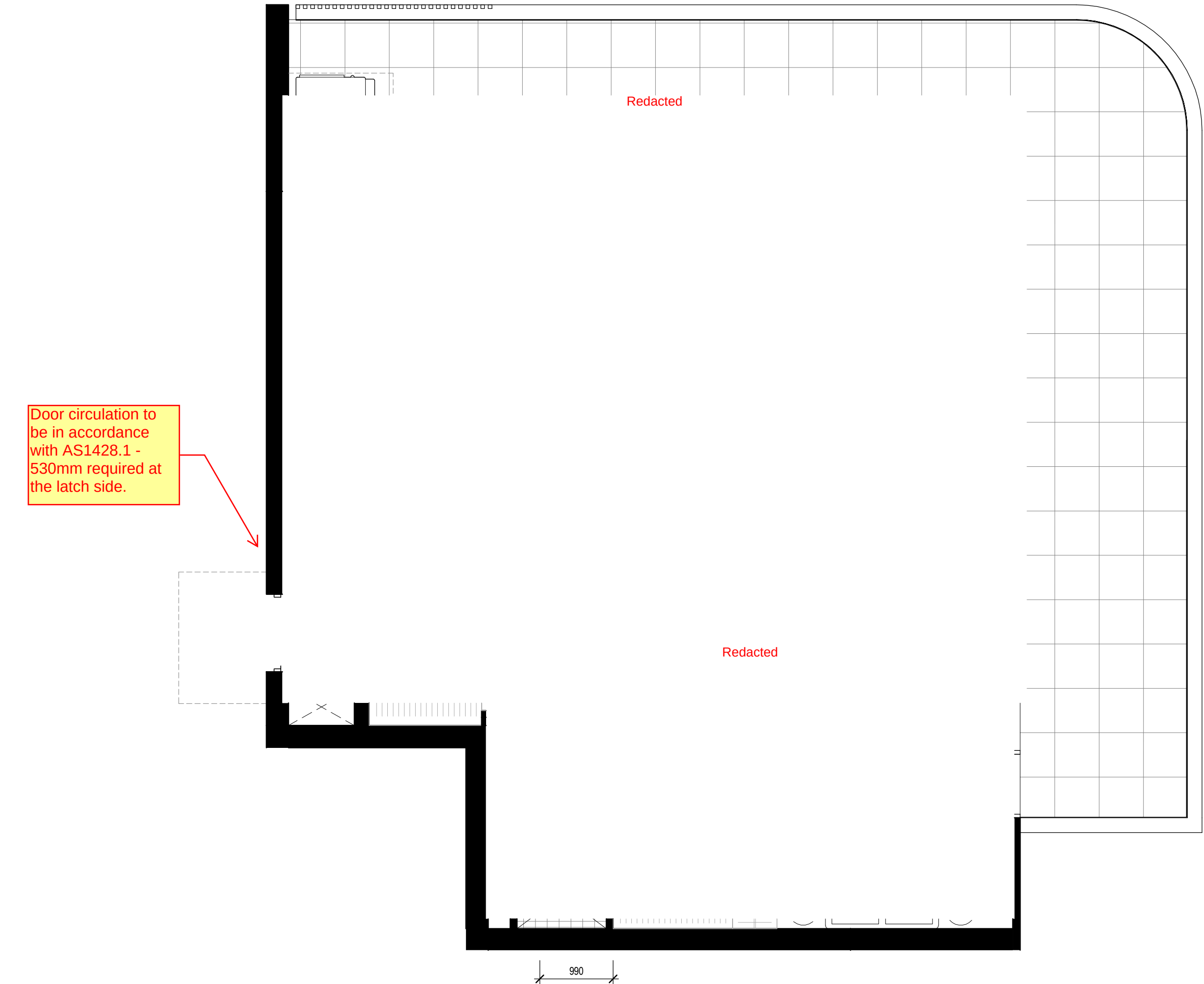
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PROJECT No. 1635
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DRAWING No. DA181
DRAWING TITLE PLAN - ADAPTABLE UNITS
SCALE 1 : 50 @ A1
DATE 2017



2 UNIT TYPE 3D

ADAPTABLE UNIT REQUIREMENTS:

AT TIME OF CONSTRUCTION THE FOLLOWING ARE REQUIRED:

Entrances:
All adaptable units are designed to enable access to and through the main entrance with clear opening widths to entrances of not less than 850mm and appropriate circulation spaces per AS 1428.1 (2009) Clause 13.3.

Visible Toilet:
An adaptable unit is required to have a toilet on the ground (or main) floor that complies with the requirements for sanitary facilities of AS4299.

That is, a visitable toilet being a toilet with a space of minimum 2000mm x 1000mm to accommodate. An area 900x1250mm is required between the pan and door swing.

Accessible Path of Travel from Entrance to Visible Toilet:
Corridors to be minimum 1000mm wide and adequate circulation spaces at doorways required to meet AS1428.1 (2009) requirements.

Accessible Path of Travel from Entrance to a Living Area:
Corridors to be minimum 1000mm wide and adequate circulation spaces at doorways required to meet AS1428.1 (2009) requirements.

This unit meets the requirements of AS4299 (1993) in its adapted state.

Critical circulation spaces are provided and/or achievable.

ADAPTABLE UNIT REQUIREMENTS:

ON ADAPTION THE FOLLOWING ARE REQUIRED:

Doorways:
In regards to internal doors, each requires appropriate clear opening width with a minimum clear width of 820mm, with the door to the accessible bathroom meeting AS1428.1 (2009) requirements with a minimum clear width of 850mm. We recommend providing 850mm to all doors in adaptable units from the onset.

Circulation:
Critical minimum circulation areas for adaptable units are as follows:
- 2250mm diameter clear space within living area to allow wheelchair access. Furniture arrangement will need modification.
- 1550mm clear to front of kitchen and laundry benches.
- turning space at foot of bed minimum 1540 mm wide and 2070mm long (in the direction of travel).
- door circulation in accordance with AS1428.1 (2009).

Bathroom:
The dimensions of bathrooms should provide scope for a post adapted bathroom that will provide sufficient circulation space per AS 1428.1 (2009).

Structural support (such as structural ply sheeting) is recommended at toilet and shower grab rail zones to allow for ease of installation of any future fixings.

Service locations should be considered in respect to the potential post adaption layouts, thereby allowing fixtures to easily be relocated.

Kitchen:
Kitchen layout to achieve a minimum circulation of 1550mm between opposing walls, cabinets and appliances to facilitate completion of a 180 degree turn by a wheelchair user.

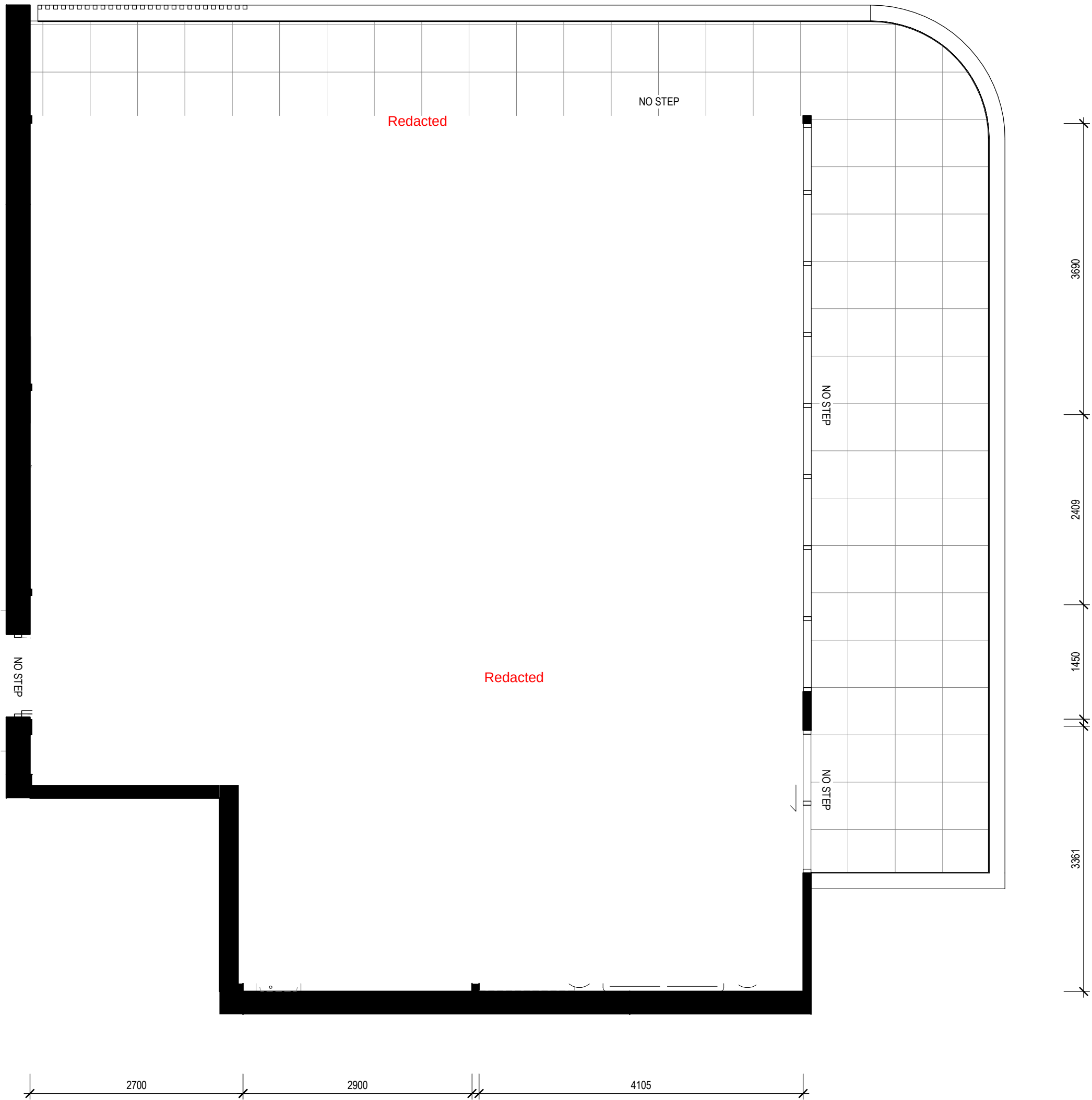
In addition the design of the kitchen is to accommodate for the potential of adaption including:
- an 800mm length of worktop that can be adjusted in height, with a removable base unit under
- the location of the fridge adjoining a suitable work surface
- potential to adjust sink height, with a sink bowl depth of 150mm - lever type taps to be provided to the side of the sink
- cocktops with side controls
- isolation switches for appliances to be accessible / reachable (e.g. oven and fridge / freezer)
- suitable oven height and worktop adjoining.

Bedroom:
The main bedroom within the adaptable units requires sufficient circulation space to permit movement by a wheelchair user, being not less than 1540mm x 2070mm clear circulation to at least one side and/or base of a queen size bed on post adaption.

Window sills within the bedroom and living areas will be a maximum of 600mm and 730mm above finished floor level respectively, to enable viewing by persons in the seated position and persons who may be confined to bed (AS 4299:1995 Clauses 4.6.2 / 4.7.2).

Laundry:
Laundry facilities and joinery to be designed to allow for adjustment to cater for accessibility in the future; the post adaption location will provide for a clear 1550mm approach to the facility.

1 UNIT TYPE 3D - ADAPTED



ADAPTABLE NOTES

GENERALLY

- SWITCHES LOCATED AT 900 - 1100 ABOVE FLOOR AND IN LINE WITH DOOR HANDLES
- GPO ADJACENT TO TELEPHONE
- GPOS LOCATED NO LOWER THAN 300mm ABOVE FLOOR UNLESS NOTED OTHERWISE
- ENTRY DOOR HANDLES & HARDWARE TO AS1428.2
- DOOR HARDWARE TO BE OPERABLE WITH ONE HAND AND LOCATED 900-1100 ABOVE FFL
- ALL DOORS TO HAVE 850mm MIN CLEARANCE
- CORRIDORS MIN WIDTH OF 1200mm (UNLESS NOTED OTHERWISE)
- COMPLIANCE WITH AS1428.1 FOR DOOR APPROACHES

BATHROOMS

- BATHROOM WATERPROOFED TO AS3740
- FALL TO WASTE TO MEET AS1428.1
- PROVIDE RECESSED SOAP HOLDER
- POSITION SHOWER MIXER AS PER AS1428.1
- POSITION SHOWER MIXER BETWEEN 900 AND 1100mm ABOVE THE FINISHED FLOOR LEVEL
- SHOWER RAIL TO BE 580-600mm FROM CORNER OF SHOWER, WITH OUTLET LOCATED BELOW THE RAIL AT 700mm ABOVE THE FINISHED FLOOR
- PROVIDE REINFORCED AREAS TO WALLS FOR INSTALLATION OF GRAB RAILS TO SHOWER AND WC TO AS1428.1
- LEVER MIXER TO BASIN
- SLIP RESISTANT FLOOR TO AS/NZS3661.1
- PROVIDE ONE DOUBLE GPO LOCATED BESIDE MIRROR TO AS1428.1
- SHOWER WASTE MIN DIAMETER 80mm
- BASIN, W/C, GRAB RAILS & FOLDING SHOWER SEAT TO COMPLY WITH AS1428.1
- PROVIDE SHOWER CURTAIN AND RAIL

LAUNDRY

- PROVIDE DOUBLE GPO
- SLIP RESISTANT FLOOR TO AS/NZS 3661.1
- INSTALLATION OF THERMOSTATIC MIXING VALVES
- PROVIDE 1550mm CLEAR IN FRONT OF WASHING MACHINE
- TUB MIXER TO FRONT OF TUB

KITCHEN

- 1 DOUBLE GPO WITHIN 300mm OF FRONT OF WORK SURFACE
- SLIP RESISTANT FLOOR TO AS/NZS3661.1
- RAISED CROSS BAR TO CONTROLS
- ISOLATING SWITCH TO COCKTOP
- REFRIGERATOR ADJACENT WORK SURFACE
- GPO FOR REFRIGERATOR TO BE EASILY WITHIN REACH
- INSTALLATION OF THERMOSTATIC MIXING VALVES
- LOCATE HANDLES TOWARDS THE TOP OF UNDER-BENCH CUPBOARDS AND TO THE BOTTOM OF OVER-BENCH CUPBOARDS
- PROVIDE SPACE FOR MICROWAVE IN OVER-BENCH CUPBOARD

LIVING

- POTENTIAL ILLUMINATION TO BE MIN 300LUX
- PROVISION FOR CIRCULATION SPACE OF MIN 2250mm DIAMETER
- MIN 4 DOUBLE GPOS

BEDROOM

- MIN 1000mm UNOBSTRUCTED SPACE ALONG 1 SIDE OF BED
- PROVISION FOR CIRCULATION SPACE OF MIN 1540mm X 2070 IN DIRECTION OF TRAVEL
- MIN 2 DOUBLE GPOS

EXTERIOR

- SLIP RESISTANT FLOOR TO AS/NZS3661.1
- MAX 5mm STEP BETWEEN EXTERNAL FLOORING AND INTERNAL FLOORING
- AND TO FULL WIDTH OF DOOR OPENING

NOTE: ADAPTABLE UNIT TO MEET AS4299-2009 ON COMPLETION ALL DIMENSION TO STUD WALL

INDICATES ADJUSTABLE BENCHTOP

REV	DESCRIPTION	DATE
A	FOR INFORMATION	03.04.2017
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PROJECT

LAKEHOUSE VILLAGE

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DP 155951, LOT 112 DP 578045
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PROJECT No.

1635

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DRAWING No.

DA183

DRAWING TITLE

PLAN - ADAPTABLE UNITS

SCALE

1 : 50 @ A1

DATE

2017



APPENDIX B

MANDATORY ACCESS COMPLIANCE REQUIREMENTS



B1 ACCESSIBLE CARPARKING

Accessible carparking to be a minimum of 2400mm wide with a shared area to one side of the space 2400mm wide. Circulation space can be shared between adjacent accessible carparks. For a single space, a total width of 4800mm is required. The car space and the shared zone should be a minimum of 5400mm long.

Provide a bollard to the shared circulation space as illustrated in AS2890.6, Figure 2.2. The maximum allowable crossfall of an accessible carparking area is to be 1:40, (1:33 for outdoor spaces). This crossfall applies both parallel and perpendicular to the angle of parking.

For covered carparking, the clear height of the accessible carparking space to be 2500mm as illustrated in AS2890.6, Figure 2.7 and approach path is to have a minimum of 2200mm.

Designated accessible carparking is to be identified using the International Symbol for Access (ISA) and line marked as specified in AS2890.6.

B2 EXTERNAL PATHWAYS AND WALKWAYS

The minimum unobstructed width of all pathways and walkways is to be 1000mm (AS1428.1 (2009), Clause 6.3). A width of 1200mm is preferred for compliance with AS1428.2 (1992).

All pathways and walkways are to be constructed with no lip or step at joints between abutting surfaces. A construction tolerance of 3mm is allowable, 5mm for bevelled edges -refer to Figure 6 of AS1428.1(2009).

The maximum allowable crossfall of pathways and walkways is to be 1:40. The surfaces of an accessible path of travel are to be slip-resistant.

The ground abutting the sides of the pathways and walkways should follow the grade of the pathway and extend horizontally for 600mm. This is not required where there is a kerb or handrail provided to the side of the pathway (refer to AS1428.1 (2009) Clause 10.2).

Maximum allowable gradient of the walkway is 1:20 and maximum length between landings to be 15m (for 1:20 gradient). Landings to be a minimum 1200mm in length (where there is no change in direction). For changes in direction of 180°, landings to be 1540mm in length – refer to AS1428.1 (2009), Clause 10.8.

B3 KERB RAMPS

Kerb ramps to comply with AS1428 (2009) Amendment 1, Clause 10.7.

Maximum gradient of the kerb ramps to be 1:8 and maximum length to be 1520mm (providing a maximum height of 190mm).

Kerb ramps to have a non-slip surface as required by AS1428.

A tooled joint should be provided between parts of the kerb ramp to assist persons with a vision impairment with orientation.

B4 STEP RAMPS

The configuration of the step ramps to comply with the requirements of AS1428.1, Clause 10.6. Maximum gradient of the step ramp is to be 1:10 and maximum length to be 1900mm (providing a maximum height of 190mm).

Provide landings at the top and bottom of the step ramp to comply with AS1428.1, Clause 10.8.2.

Step ramp to be enclosed on both sides (minimum height 450mm) or a kerb and handrail needs to be installed. Where a kerb is to be installed, the height of kerb rails is to be less than 65mm or greater



than 150mm above the finished surface level of the ramp. This is to ensure that the foot plate of a wheelchair cannot become lodged on the kerb rail.

B5 ACCESSIBLE RAMPS

Ramps are to comply with AS1428.1 (2009) Clause 10.3. Maximum allowable gradient of the ramp is 1:14, minimum clear width to be 1000mm and maximum length between landings to be 9m (for 1:14 gradient).

Accessible ramp are to have a maximum rise of 3.6m (BCA Part 3.11).

Externally, ramps are required to be set back a minimum 900mm from the property boundary (AS1428.1 (2009), Clause 10.3 (f)). This allows tactile indicators and handrail extensions to occur within the boundary and not protrude into the footpath area.

Internally, ramps are required to be set back a minimum 600mm from an internal corridor (AS1428.1 (2009), Clause 10.3 (f)). This allows tactile indicators and handrail extensions to be provided an not protrude into the corridor area.

Provide handrails, with extensions, to both sides of the ramp to comply with AS1428.1 (2009), Clause 12. Handrails are to have an external diameter between 30-50mm to assist persons with a manual disability such as arthritis. Handrails are required on both sides of the ramp to cater for left and right handed disabilities.

Where a ramp is not enclosed, provide kerb rails in accordance with AS1428.1 (2009). The height of kerb rails is to be less than 65mm or greater than 150mm above the finished surface level. This is to ensure that the foot plate of a wheelchair cannot become lodged on the kerb rail.

Provide tactile indicators at the top and bottom of the ramps to comply with BCA Part D3.8 and AS1428.4.1 (2009). Tactile indicators are to be detectable, durable, non-slip and have a minimum 30% luminance contrast to the background colour. Tactile indicators at the top and bottom of the ramps to be 600-800mm deep across the width of the ramp and set back 300mm from the edge of the ramp (refer AS1428.4 (2009), Figure A1).

Tactile indicators will be required at a mid-landing where the ramp is not continuous. Where the handrail is continuous along both sides of the mid-landing, tactile indicators are not required.

B6 PEDESTRIAN CROSSINGS

Where kerb ramps are to be provided at pedestrian crossings to provide an accessible path of travel for persons with a disability they are to comply with AS1428.1 (2009), Clause 10.7.

Where a pedestrian crossing is at the same level as the roadway, provide tactile indicators to both sides of the roadway to alert persons with a vision impairment of the hazard. Tactile indicators are to be 600-800mm deep across the width pedestrian crossing. Tactile indicators are to be detectable, durable, non-slip and have a minimum 30% luminance contrast to the background colour.

B7 THRESHOLD RAMPS

Threshold ramps are to comply with AS1428.1 (2009), Clause 10.5.

Threshold ramps are to have a maximum rise of 35mm, maximum length of 280mm and maximum gradient of 1:8.

Threshold ramps to be located within 20mm of the door leaf that it services.

B8 BUILDING ENTRANCES

Entrances are to comply with AS1428.1 (2009), Clause 13 as part of the accessible path of travel.



Doors are to have a minimum clear opening width of 850mm to comply AS1428.1 (2009), Clause 13.2.

Door thresholds are to be level to provide seamless entry to the building. The maximum allowable construction tolerance is 3mm for compliance with AS1428.1 (2009), 5mm where bevelled edges are provided between surfaces – refer to Figure 6.

Door to have hardware within the accessible height range of 900-1100mm above the finished floor level (AS1428.1 (2009), Clause 13.5)

For glass doors, provide decals to assist persons with a vision impairment. Decals to be solid and have a minimum 30% luminance contrast to the background colour and be not less than 75mm high located within the height range of 900-1100mm above the finished floor level. Decals are to be solid pattern to AS1428.1 (2009) Clause 6.6.

B9 TACTILE INDICATORS AT THE BUILDING ENTRANCE

BCA Clause 3.8 (a) (v) states that for a building that is required to be accessible, tactile ground surface indicators must be provided to warn people who are blind or have a vision impairment that they are approaching – in the absence of a suitable barrier – an accessway meeting a vehicular way adjacent to any pedestrian entrance to a building...if there is no kerb or kerb ramp at that point, except for areas exempted by D3.4.

Tactile indicators are to be detectable, durable, non-slip and have a minimum 30% luminance contrast to the background colour.

Tactile indicators are to be 600-800mm deep across the width of the path of travel.

B10 DOORWAYS

Doorways within the accessible path of travel are to have a minimum clear opening width of 850mm (AS1428.1 (2009), Clause 13.2). We recommend the use of a 920 leaf door as a minimum to achieve adequate clear width.

All doorways within the accessible path of travel to have complying circulation areas as illustrated in AS1428.1 (2009), Figure 31. Circulation areas are to have a maximum crossfall of 1:40.

Doorways to have minimum 30% luminance contrast as described in AS1428.1 (2009), Clause 13.1.

Doors to have hardware within the accessible height range of 900-1100mm above the finished floor level (AS1428.1 (2009), Clause 13.5) and allows for single handed operation.

B11 TACTILE INDICATORS

Installation of tactile indicators is to be in accordance with AS1428.4.1 (2009).

Tactile indicators are to be detectable, durable, non-slip and have a minimum 30% luminance contrast to the background colour.

Tactile indicators are to be 600-800mm deep across the width of the path of travel.

B12 VISUAL INDICATION TO GLAZING

Provide decals to assist persons with a vision impairment. Decals to be solid and have a minimum 30% luminance contrast to the background colour and be not less than 75mm high located within the height range of 900-1100mm above the finished floor level. Decals are to be solid pattern to AS1428.1 Clause 6.6.



B13 SIGNAGE

The BCA has requirements for Braille and tactile signage within Specification D3.6. This provides information for the provision of statutory signage

Braille and tactile signage is required to be provided throughout any building required to be made accessible in accordance with BCA specification D3.6 and AS1428.1 (2009) and must identify:

- Each sanitary facility
- Any space with a hearing augmentation system
- Accessible unisex facilities and indicate whether the facility is suitable for left or right handed use
- Ambulant accessible sanitary facilities on the door of the cubicle
- Where an entrance is not accessible, directional signage to identify nearest accessible entrance
- Where a bank of sanitary facilities is not provided with an accessible sanitary facility, directional signage to identify nearest accessible sanitary facility.
- Each door required by Part E4.5 to be provided with an exit sign and state "Exit" and "Level" followed by either the floor level number, the floor descriptor or combination of these.

In addition, AS1428.2 (1992) contains additional information as to the form of signage.

Signage should be easily comprehended by all building users. In this regard, the use of pictograms is highly recommended. The message that the sign conveys should be unambiguous.

Placement of signage should be considered at the following locations:

- Where it is clearly visible to people in both a standing and seated position.
- At changes in direction.
- At locations where directional decisions are made.
- As required to amenities and exits

B14 HEARING AUGMENTATION

A hearing augmentation system must be provided where an inbuilt amplification system is provided, other than one used for emergency purposes only as required by BCA Part D3.7.

Further, for buildings that are required to be accessible, the BCA (Part D3.7) requires hearing augmentation systems at service counters **where the user is screened from the service provider.**

While it is not referenced by the BCA, AS1428.5 (2010): Communication for people who are deaf or hearing impaired contains information regarding assisted listening systems and can be used to ensure equitable facilities are provided for this user group.

The standard provides information relating to design solutions and equipment for the following:

- Assisted listening systems.
- Early warning systems
- Visual display systems for intercommunication, public announcements and the like
- Telephone services and telecommunications available to the public.

B15 WHEELCHAIR SEATING

Where fixed seating is provided in an assembly building, the required wheelchair seating spaces (number per BCA) are required to be:

- Accessed via an accessible path of travel.
- Located adjacent to, and at the same level as, other seating in a row.
- Located to allow lines of sight comparable to those for general viewing areas.

The special requirement for the footprint of a single wheelchair seating space is 800x1250mm.



B16 PASSENGER LIFTS

Every passenger lift in an accessible building must be suitable for use by people with a disability and offer compliance with AS1725.12. Typically, the following is required to be provided:

Lift dimensions

- Lift floor dimensions of not less than 1100mm X 1400mm for lifts which travel not more than 12m.
- Lift floor dimensions of not less than 1400mm X 1600mm for lifts which travel more than 12m.
- Provision for a stretcher facility within at least one emergency lift required by E3.4, or where an emergency lift is not required, if passenger lifts are installed to serve any storey above an effective height of 12m, in at least one of those lifts to serve every floor served by lifts.

Lift Features

- Handrail complying with the provisions for a mandatory handrail in AS1735.12.
- Minimum clear door opening complying with AS1735.12.
- Passenger protection system complying with AS1735.12.
- Lift landing doors at the upper landing.
- Lift car and landing control buttons complying with AS1735.12.
- Lighting in accordance with AS1735.12.
- Emergency hands-free communication, including a button that alerts a call centre of a problem and a light to signal that the call has been received.

All passenger lifts serving more than 2 levels must possess:

- Automatic audible information within the lift car to identify the level each time the car stops.
- Audible and visual indications at each lift landing to indicate the arrival of the lift car.
- Audible information and audible indication must be provided in a range between 20-80dB(A) at a maximum frequency of 1500Hz.

B17 PLATFORM LIFTS – LOW RISE

The BCA has limitations for the use of this type of lift. They must not travel more than 1m. Confirmation should be sought from the manufacturers to confirm compliance with AS1735.16 prior to installation.

Basic access requirements for Part 16 lifts are as follows (BCA Table E3.6a).

- Car size should be a minimum of 1100x1400mm to accommodate a wheelchair.
- Clear opening of the lift door to be minimum 900mm.
- All lift control buttons are to be in the accessible height range of 900-1100mm affl and have a minimum 30% luminance contrast to the background colour. This includes buttons within the lift car and at each public lift lobby. All buttons are to be provided with information in Braille and tactile formats.

B18 PLATFORM LIFTS - OTHER THAN LOW RISE

The BCA has limitations for the use of this type of lift. They must not travel more than 2m when unenclosed or 4m when enclosed.

Confirmation should be sought from the manufacturers to confirm compliance with AS1735.16 prior to installation.

- Basic access requirements for Part 16 lifts are as follows (BCA Table E3.6a).
- Car size should be a minimum of 1100x1400mm to accommodate a wheelchair.



- Clear opening of the lift door to be minimum 900mm.
- Handrail complying with the provisions for a mandatory handrail in AS1735.12.
- All lift control buttons are to be in the accessible height range of 900-1100mm affl and have a minimum 30% luminance contrast to the background colour. This includes buttons within the lift car and at each public lift lobby. All buttons are to be provided with information in Braille and tactile formats.

B19 STAIRWAY PLATFORM LIFTS

The BCA has limitations for the use of this type of lift .It must not:

- Be used to serve a space in a building accommodating more than 100 persons,
- Be used in a high traffic public use areas, or
- Be used where it is possible to install another type of passenger lift, or
- Connect more than 2 storeys

Stairway platform lifts must comply with AS1735.7. When in the folded position, it must not encroach on the minimum width of a stairway required by D1.6.

B20 ESCALATORS

Escalators do not form a part of the accessible path of travel within the meaning of AS 1428.1 (2009). However, they are subject to BCA requirements with regard to the provision of tactile indicators. TGSIs to be provided at the top and bottom of escalators to be setback 300±10mm from the moving handrail and extend a depth of 600-800mm per AS 1428.4.1 (2009).

B21 TRAVELATORS

Travelators do not form a part of the accessible path of travel within the meaning of AS 1428.1 (2009). However, they are subject to BCA requirements with regard to the provision of tactile indicators. TGSIs to be provided at the top and bottom of travelators to be setback 300±10mm from the moving handrail and extend a depth of 600-800mm per AS 1428.4.1 (2009).

B22 STAIRS

Stair construction is to comply with AS1428.1 (2009) Clause 11.1.

Stairs are to have closed or opaque risers. Open risers cause confusion for persons with a vision impairment and may trigger conditions such as epilepsy due to light penetrating through the open risers.

Where the stair intersects with an internal corridor, the stair shall be set back in accordance with AS1429.1 (2009) Figure 26C/D to allow adequate space for handrail extensions and tactile indicators.

Provide handrails, with extensions, to both sides of the stair (AS1428.1 (2009), Clause 11.2). Handrails are to have an external diameter between 30-50mm to assist persons with a manual disability such as arthritis. Handrails should be continuous around the landings where possible. Handrails are required on both sides of the stair to cater for left and right handed disabilities. A central handrail is also an acceptable solution where adequate width is available.



Stair nosings to have minimum 30% luminance contrast strip 50-75mm wide to the top of the stair tread to assist persons with a vision impairment. The strip can be set back 15mm from the edge of the riser.

Stair nosings shall not project beyond the face of the riser.

Provide tactile indicators at the top and bottom of the stair to comply with BCA Part D3.8 and AS1428.4.1 (2009).

Tactile indicators are to be detectable, durable, non-slip and have a minimum 30% luminance contrast to the background colour.

Tactile indicators at the top and bottom of the stair to be 600-800mm deep across the width of the stair set back 300mm from the edge of the stair.

B23 FIRE ISOLATED STAIRS

Stair nosings to have minimum 30% luminance contrast strip 50-75mm wide to the top of the stair tread to assist persons with a vision impairment. The strip can be set back 15mm from the edge of the riser. Stair nosings shall not project beyond the face of the riser.

B24 UNISEX ACCESSIBLE SANITARY FACILITIES

Set-out of fixtures and fittings within the accessible sanitary facilities to offer compliance with AS 1428.1 (2009) Clause 15 as follows.

Crucial dimensions for the toilet are 450mm from centreline of pan to side wall, 800mm from front of pan to rear wall and a seat height of 470mm.

A minimum clear dimension of 1400mm is required from the toilet pan to any other fixture (see figure 43).

For the basin, a minimum dimension of 425mm is required from the centreline of the basin to the side wall and height of basin to be between 800 and 830mm.

Grabrails are to be provided at the side and rear of the toilet in compliance with AS1428.1 at a height of 800mm.

Taps are to have lever handles, sensor plates or similar controls. For lever taps a minimum of 50mm clearance to be provided to adjacent surfaces.

Toilet seat shall be of the full round type, be securely fixed in position when in use and have fixings that create lateral stability. They should be load rated to 150kg, have a minimum 30% luminance contrast to the background colour (e.g. pan, wall or floor) and remain in the upright position when fully raised.

Provide a backrest to accessible toilets to comply with AS1428.1, Clause 15.2.4.

Accessible toilet to be identified using the International Symbol for Access. Pictograms / lettering to have a minimum 30% luminance contrast to the background colour. Signage is to comply with AS1428.1, Clause 8 and include information in tactile and Braille formats (as required by the BCA).

Doorways are to have a minimum clear opening width of 850mm to comply AS1428.1 (2009), Clause 13.2 as part of the accessible path of travel. Adequate circulation area at the latch side of the doorway is required to allow independent access to the facility – for details refer to AS1428.1, Figure 31.



Door hardware are to be located within the accessible height range of 900-1100mm above the finished floor level. The use of lever handles is encouraged to assist persons with a manual disability such as arthritis.

Controls within the accessible toilet facilities, such as light switches, are to be in the accessible height range of 900-1100mm above the finished floor level to comply with AS1428.1 (2009), Clause 14. Controls should be located not less than 500mm to a corner.

B25 UNISEX ACCESSIBLE SHOWERS

Showers are to comply with AS 1428.1, Clause 15.5 and include accessible features such as grabrails, adjustable height shower rose and fixtures within an accessible height range. The minimum dimensions of an accessible shower are to be 1160 x 1000mm. A folding seat, at a height of 470mm is to be provided. All taps to be located within the height range of 900-1100mm above the finished floor level.

Circulation space in front of the shower is to be provided as illustrated in AS1428.1, Figure 47.

B26 PEOPLE WITH AMBULANT DISABILITIES CUBICLES (PAD)

PAD cubicles within male and female toilets to be in compliance with AS1428.1, Clause 16.

Width of PAD cubicles is to be 900-920mm.

Provide grabrails to PAD cubicles to comply with AS1428.1, Clause 17 and Figure 53A.

Doors are to have a minimum opening width of 700mm and comply with AS1428.1 Figure 53B.

Provide signage to the PAD cubicles to comply with AS1428.1, Clause 16.4.

Provide 900x900 circulation space in front of pan and each side of doors on path to the toilet. Door are not to swing into circulation spaces.



APPENDIX C

ADAPTABLE HOUSING REQUIREMENTS



C1 PERFORMANCE REQUIREMENTS

The performance requirements of AS4299 (Clause 2.2) state that an adaptable unit will be designed and constructed to meet the following requirements:

- a) Visitability – all adaptable units are required to be "visitable" from the outset. That is, there must be at least one wheelchair entry and path of travel to the living area and to a toilet that is either visitable or accessible.
- b) Avoidance of level Change – all units to have no steps which will ensure adaptability will be easy to accommodate.
- c) Manoeuvrability – adequate space for a wheelchair to manoeuvre within a living area, bedroom and bathroom with an accessible path of travel linking these areas to the entrance.
- d) Ease of adaption – if the design for adaption requires demolition of walls, these need to be non-loadbearing and free of services.
- e) Ease of reach – key services and controls should be located so they are within the reach range of a wheelchair user.
- f) Laundry facilities – these need to be capable of being accessible against the provisions of AS4299 post-adaption.

C2 ACCESS TO COMMON USE AREAS

Access routes required for access by those living in the adaptable units is to comply with AS1428.1 (2009) requirements. Access is to be provided to all common use facilities. Letterboxes are to have a hard standing area and be connected to an accessible pathway.

C3 CAR PARKING

One car parking space is required for each of the adaptable units to comply with AS4299 Clause 3.7. The allocated spaces for the adaptable units are to have a minimum width available of 3.8 m and have 2.5m head clearance over the parking space to allow the use of wheelchair loading ramps.

C4 ENTRANCE, DOORWAYS AND INTERNAL CIRCULATION

All adaptable units are designed to enable access to and through the main entrance with clear opening widths to entrances of not less than 850mm and appropriate circulation spaces per AS 1428.1 (2009) Clause 13.3.

In regards to internal doors, each requires appropriate clear opening width with a minimum clear width of 820mm, with the door to the accessible bathroom meeting AS1428.1 (2009) requirements with a minimum clear width of 850mm. We recommend providing 850mm to all doors in adaptable units from the onset.

A minimum unobstructed width of internal pathways will be 1000mm.

C5 BATHROOM

At least one pre adaption toilet is to provide 1250x900mm clear circulation space in front of the toilet so as to comply as a visitable toilet.

The post adapted bathroom that is to provide sufficient circulation space for compliance with AS1428.1 (2009).

Structural support (such as structural ply sheeting) is to be provided at toilet and shower grab rail zones, to allow for ease of installation of any future fixings.



C6 KITCHEN

On adaption, the kitchen facilities will need to achieve a minimum circulation of 1540mm between opposing walls, cabinets and appliances to facilitate completion of a 180 degree turn by a wheelchair user.

In addition the design of the kitchen should accommodate the following on adaptation:

- An 800mm length of worktop that can be adjusted in height, with a removable base unit under
- The location of the fridge adjoining a suitable work surface
- Potential to adjust sink height, with a sink bowl depth of 150mm - lever type taps to be provided to the side of the sink
- Cooktops with side controls
- Isolation switches for appliances to be accessible / reachable (e.g. oven and fridge / freezer)
- Suitable oven height and worktop adjoining

C7 BEDROOM

The main bedroom, on adaption, will require sufficient circulation space to permit movement by a wheelchair user, being not less than 1540mm x 2070mm clear circulation to at least one side and/or base of a queen size bed on post adaption.

Window sills within the bedroom and living areas should be a maximum of 600mm and 730mm above finished floor level respectively, to enable viewing by persons in the seated position and persons who may be confined to bed (AS 4299:1995 Clauses 4.6.2 / 4.7.2).

C8 LIVING AREAS

Living areas are to be designed to enable a wheelchair to turn 360 degrees after the placement of furniture so as to be visitable. An area of 2250mm minimum diameter is required to facilitate this.

C9 LAUNDRY

On adaption, laundry facilities and joinery will need to accommodate a clear 1500mm in front of the appliances to allow for wheelchair access.

C10 BALCONIES

It is recommended that the width of the balconies to adaptable units should be 1540mm or greater which will permit access to these spaces and facilitate completion of a 180 degree turn by wheelchair user. Internal and external surfaces will be designed and constructed at grade (the maximum change in level between abutting surfaces to be 3mm, or 5mm where edges are rounded or bevelled) to enable access by all.

Where waterproofing is a concern a maximum threshold of 35mm will be provided, with a 1:8 graded ramp abutting the door (with a maximum length of 280mm). Alternatively, consideration will be given to a raised, permeable balcony surface, such as decking which will not impede drainage. The door accessing the balcony will possess appropriate clear opening width and circulation space to permit independent operation by a person with a disability and either provided with door furniture complying with AS1428.1 (2009) or capable of being added or modified.

C11 POWER AND LIGHTING SWITCHES AND TELEPHONE / TELEVISION OUTLETS

AS4299 has guidance on the location of key services and switches to assist residents with a disability. As part of the detailing of the apartments this will be considered, including:

- Power outlets located at strategic points, 600mm - 1000mm off floor level, including
 - o points 300mm from the edge of kitchen worktops



- o adjoining the bedhead
 - o in living room (four outlets)
 - o laundry areas (double outlet)
- Light switches, 900mm - 1100mm of floor level at convenient locations including:
 - o adjoining potential bedhead
- Telephone points in the bedroom and living room (both adjoining a power outlet)
- Television outlets in the bedroom (opposite potential bedhead) and two points in living / dining areas



APPENDIX D

EXTRACTS FROM LIVEABLE HOUSING GUIDELINES



1 Dwelling access

Performance Statement

There is a safe, continuous, step-free pathway from the street entrance and/or parking area to a dwelling entrance that is level.



Silver Level

- a. Provide a safe and continuous pathway from:
 - i. the front boundary of the allotment; or
 - ii. a car parking space, where provided, which may include the driveway on the allotment, to an entrance that is level (step-free) as specified in Element 2.

This provision does not apply where the average slope of the ground where the path would feature is steeper than 1:14.

- b. The path of travel as referred to in (a) should have a minimum clear width of 1000mm and –
 - i. an even, firm, slip resistant surface;
 - ii. a crossfall of not more than 1:40;
 - iii. a maximum pathway slope of 1:14, with landings provided at no greater than 9m for a 1:14 ramp and no greater than 15m for ramps steeper than 1:20. Landings should be no less than 1200mm in length; and
 - iv. be step-free
- c. A step ramp may be incorporated at an entrance doorway where there is a change in height of 190mm or less. The step ramp should provide:
 - i. a maximum gradient of 1:10
 - ii. a minimum clear width of 1000mm (please note: width should reflect the pathway width)
 - iii. a maximum length of 1900mm

Level landings no less than 1200mm in length, exclusive of the swing of the door or gate than opens onto them, must be provided at the head and foot of the ramp.

Note The width of the landing will be determined by the adjoining pathway.



If the landing directly adjoins the doorway please refer to Element 2 for dimensional requirements:

Gold Level

As for silver level except in (b) replace the minimum clear pathway width of 1000mm with 1100mm.

Platinum Level

As for silver level except in (b) replace with a minimum clear pathway width of 1100mm with 1200mm provided from:

- i. the front boundary of the allotment, and
- ii. any car parking space, where provided, which may include the driveway on the allotment, to an entrance that is level (step-free) as specified in Element 2.



2 Dwelling entrance

Performance Statement

There is at least one level (step-free) entrance into the dwelling to enable home occupants to easily enter and exit the dwelling.



e. rance

Silver Level

- a. The dwelling should provide an entrance door with -
 - i. a minimum clear opening width of 820mm (see Figure 2(a));
 - ii. a level (step-free) transition and threshold (maximum vertical tolerance of 5mm between abutting surfaces is allowable provided the lip is rounded or beveled); and
 - iii. reasonable shelter from the weather.
- b. A level landing area of at least 1200mm x 1200mm should be provided at the level (step free) entrance door.
- c. Where the threshold at the entrance exceeds 5mm and is less than 56mm, a ramped threshold may be provided (see Figure 1(b)).
- d. The level (step-free) entrance should be connected to the safe and continuous pathway as specified in Element 1.

Note The entrance must incorporate waterproofing and termite management requirements as specified in the NCC.

Gold Level

As for silver level except replace:

- {b} with a level landing area of at least 1350mm x 1350mm, and
- {a} (i) with minimum clear door opening width of 850mm (see Figure 2(b)).

Platinum Level

As for silver level except replace:

- {b} with a level landing area of at least 1500mm x 1500mm, and
- {a} (i) with a minimum clear door opening width of 900mm (see Figure 2(c)).



3 Car parking (Where part of the dwelling access)

Performance Statement

Where the parking space is part of the dwelling access it should allow a person to open their car doors fully and easily move around the vehicle.



Silver Level

- a. Where the parking area forms part of the dwelling access the space should incorporate:
 - i. minimum dimensions of at least 3200mm (width) x 5400mm (length);
 - ii. an even, firm and slip resistant surface; and
 - iii. a level surface (1:40 maximum gradient, 1:33 maximum gradient for bitumen).

Gold Level

As for silver level with the following additional features incorporated for Class 1a dwellings:

- iv. a vertical clearance over the parking space of at least 2500mm; and
- v. a covered parking space to ensure protection from the weather.

Platinum Level

As for gold level for Class 1a dwellings except that the parking space in (a)/(i) should be at least 3800mm (width) x 6000mm (length).

- b. For Class 2 dwellings, parking spaces compliant with the accessible parking provisions detailed in AS2890.6 (2009), should be provided as follows:
 - i. where individual parking spaces form part of the individual unit's title, at least one accessible parking space should be provided for each unit; and
 - ii. if visitor parking is provided, then at least 1 space per 100 units (or part thereof) should be an accessible parking space.



4 Internal doors & corridors

Performance Statement

Internal doors and corridors facilitate comfortable and unimpeded movement between spaces.



Silver Level

- a. Doorways to rooms on the entry level used for living, dining, bedroom, bathroom, kitchen, laundry and sanitary compartment purposes should provide:
 - i. a minimum clear opening width of 820mm (see Figure 2(a)); and
 - ii. a level transition and threshold (maximum vertical tolerance of 5mm between abutting surfaces is allowable provided the lip is rounded or beveled).
- b. Internal corridors/passageways to the doorways referred to in (a) should provide a minimum clear width of 1000mm.

* Corridor widths should be measured as described in Clause 6.3 of AS 1428.1 – 2009

Gold Level

As for the silver level except replace:

- (a)/(i) with a minimum clear opening width of 850mm (see Figure 2(b)), and
- (b) with a minimum corridor/passageway width of 1200mm.

Platinum Level

As for the silver level except replace:

- (a)/(i) with a minimum clear opening width of 900mm (see Figure 2(c)), and
- (b) with a minimum corridor/passageway width of 1200mm.



5 Toilet

Performance Statement

The ground (or entry) level has a toilet to support easy access for home occupants and visitors.



Silver Level

- a. Dwellings should have a toilet on the ground (or entry) level that provides:
 - i. a minimum clear width of 900mm between the walls of the bathroom if located in a separate room; and
 - ii. a minimum 1200mm clear circulation space forward of the toilet pan exclusive of the swing of the door in accordance with Figure 3(a).
- b. If the toilet is located within the ground (or entry) level bathroom, the toilet pan should be located in the corner of the room to enable the installation of grabrails.

Gold Level

As for silver level except replace (a)/(i) with a minimum clear width of 1200mm between the walls of the bathroom if located in a separate room; or between amenities if located in a combined bathroom.

Platinum Level

As for the gold level with the following features added to (a):

- iii. a toilet pan positioned between 450mm – 460mm from the nearest wall as measured from the centre line of the toilet;
- iv. 600mm minimum clearance forward of the cistern measured from the front of the cistern to the front of the toilet pan. 800mm (+/-10mm) clearance is required if the cistern is recessed; and
- v. a height for the pan of between 460mm – 480mm above the finished floor level as detailed in Figure 4.



6 Shower

Performance Statement

The bathroom and shower is designed for easy and independent access for all home occupants.



Silver Level

- a. One bathroom should feature a slip resistant, hobless (step-free) shower recess. Shower screens are permitted provided they can be easily removed at a later date.
- b. The shower recess should be located in the corner of the room to enable the installation of grabrails at a future date.

Gold Level

As for silver level except:

- c. The hobless (step-free) shower recess described in (a) should:
 - i. be located in a bathroom on the ground (or entry) level;
 - ii. provide minimum dimensions of 900mm (width) x 900mm (length); and
 - iii. provide a clear space of at least 1200mm (width) x 1200mm (length) forward of the shower recess entry as detailed in Figure 5(a).

Platinum Level

As for gold level except:

- i. replace (c)/(ii) with dimensions of at least 1160mm (width) x 1100mm (length); and
- ii. replace (c)/(iii) with dimensions of at least 1600mm (width) x 1400mm (length) forward of the shower recess as detailed in Figure 5(b).



7 Reinforcement of bathroom & toilet walls

Performance Statement

The bathroom and toilet walls are built to enable grabrails to be safely and economically installed.



Silver Level

- a. Except for walls constructed of solid masonry or concrete, the walls around the shower, bath (if provided) and toilet should be reinforced to provide a fixing surface for the safe installation of grabrails.
- b. The fastenings, wall reinforcement and grabrails combined must be able to withstand at least 1100N of force applied in any position and in any direction. When it comes to assessing the existence of wall reinforcing, the Assessor Handbook provides information on a Wall Scanning device that can be used to verify that reinforcement exists behind wall sheeting. This information along with evidence such as details and drawings collected from the builder may be sufficient to satisfy an assessor. It is also possible that an inspection of the walls prior to sheeting is needed. Assessors should determine the inspection requirements for As Built inspections with their client and builder as early in the construction process as possible. Often asking the builder to photograph the wall before the sheeting is applied is sufficient.
- c. The walls around the toilet are to be reinforced by installing:
 - i. noggings with a thickness of at least 25mm in accordance with Figure 6(a); or
 - ii. sheeting with a thickness of at least 12mm in accordance with Figure 6(b).
- d. The walls around the bath are to be reinforced by installing:
 - i. noggings with a thickness of at least 25mm in accordance with Figure 7(a); or
 - ii. sheeting with a thickness of at least 12mm in accordance with Figure 7(b).
- e. The walls around the hobless (step-free) shower recess are to be reinforced by installing:
 - i. noggings with a thickness of at least 25mm in accordance with Figure 8(a); or
 - ii. sheeting with a thickness of at least 12mm in accordance with Figure 8(b).



Gold Level

Silver level requirements apply.

Platinum Level

Silver level requirements apply.

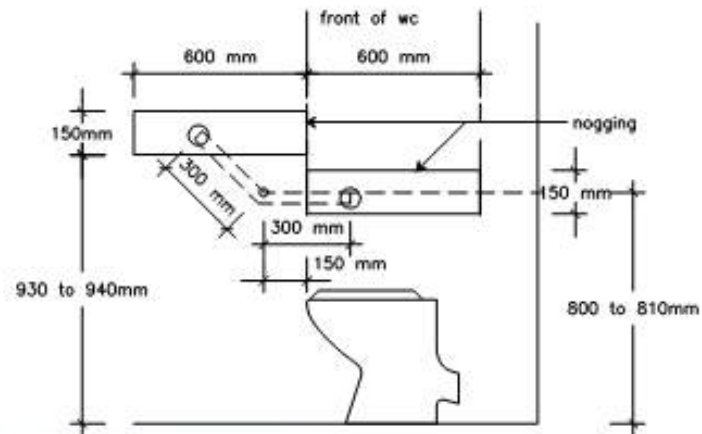


Figure 6(a) Toilet - Location of noggings

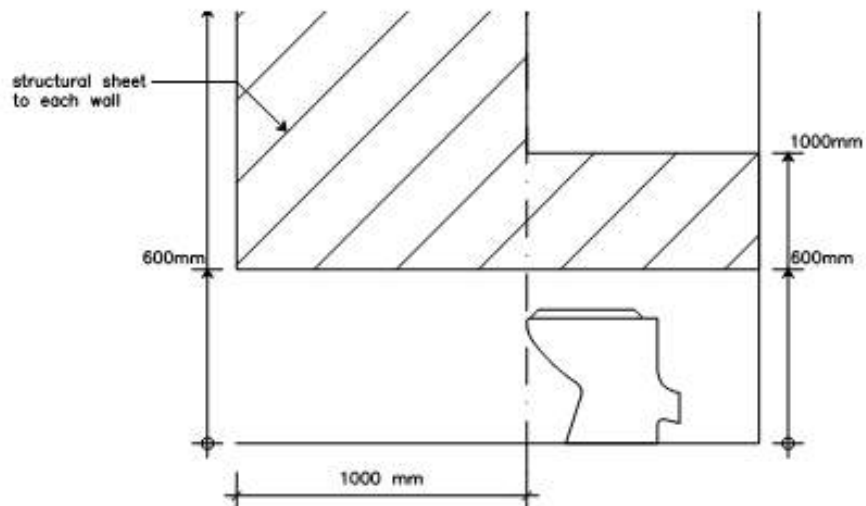


Figure 6(b) Toilet - Location of sheeting

Performance Statement

The bathroom and toilet walls are built to enable grabrails to be safely and economically installed.



8 Internal stairways

Performance Statement

Where installed, stairways are designed to reduce the likelihood of injury and also enable future adaptation.



Silver Level

- a. Stairways in dwellings must feature:
 - i. a continuous handrail on one side of the stairway where there is a rise of more than 1m.

Gold Level

As for the silver level with the following additional features:

- ii. a minimum clear width of 1000mm;
- iii. be straight in design; and
- iv. be positioned adjoining a load bearing wall.

Note The steps must provide a slip resistant finish and suitable non-slip tread as specified in the NCC. Handrails on both sides of the stairway are preferred.

Platinum Level

As for the gold level with the following additional features:

- v. closed risers;
- vi. continuous handrails on both sides of the stairway; and
- vii. minimum landing areas of 1200mm x 1200mm at the top and base of the stairway.

Note The steps must provide a slip resistant finish and suitable non-slip tread as specified in the NCC.



9 Kitchen space

Performance Statement

The kitchen space is designed to support ease of movement between fixed benches and to support easy adaptation.



Silver Level

No requirements.

Gold Level

- a. The kitchen space should be designed to support ease of movement and adaptation with:
 - i. at least 1200mm clearance provided in front of fixed benches and appliances; and
 - ii. slip resistant flooring.⁶
- b. Where practicable, floor finishes should extend under kitchen cabinetry to enable cupboards to be removed without affecting the flooring. An Assessor should ask the builder / client if he/ she can confirm that flooring runs completely under cupboards. Sometimes it is relatively easy to confirm that floor coverings have been applied after cupboards have been installed and sometimes it is not so easy. If relying on advice from a third party, Assessors are advised to provide a note in the notes column of the Assessment.

Platinum Level

As for the gold level except that the kitchen space described in (a) should be designed to support ease of movement and adaptation with:

- i. at least 1550mm clearance should be provided in front of fixed benches and appliances;
- ii. slip resistant flooring⁶; and
- iii. task lighting installed above workspaces.

⁶ Slip Resistance is referenced in the National Construction Code and ultimately, Usable Housing Australia would like to defer to the NCC and the Australian Building Codes Board (ABCB) for rulings related to slip resistance. Standards Australia publish a number of standards as well as a handbook that address slip resistance of surfaces.



10 Laundry space

Performance Statement

The laundry space is designed to support ease of movement between fixed benches and to support easy adaptation.



Silver Level

No requirements.

Gold Level

As for silver level except:

- a. The laundry space should be designed to support ease of movement and adaptation with:
 - i. at least 1200mm clearance provided in front of fixed benches and appliances; and
 - ii. slip resistant flooring.⁶
- b. Where practicable, floor finishes should extend under laundry cabinetry to enable cupboards to be moved without affecting the flooring.

Platinum Level

As for the gold level except that in laundry space described in (a) should be designed to support ease of movement and adaptation with:

- i. at least 1550mm clearance should be provided in front of fixed benches and appliances;
- ii. slip resistant flooring; and
- iii. task lighting installed above workspaces.



11 Ground (or entry level) bedroom space

Performance Statement

There is a space on the ground (or entry) level that can be used as a bedroom.



Silver Level

No requirements.

Gold Level

- a. The dwelling should feature a space (or room) on the ground (or entry) level that:
 - i. is of at least 10m² with one wall a minimum length of 3m;
 - ii. provides for a minimum path of travel of at least 1000mm on at least one side of the bed.

Platinum Level

As for the gold level, but it also:

- i. provides a space of at least 1540mm (width) x 2070mm (in the direction of travel) on the side on the bed that is closest to the door approach; and
- ii. provides for a minimum path of travel of 1000mm on the remaining side of the bed.

For Platinum level, it should be assumed that a bed with dimensions 1500mm x 2000mm (as shown on the sketch overleaf) is present. This will mean that the minimum clear dimensions of a room would need to be 3000mm x 4040mm to meet the Platinum level requirements. Where a bed is present (in the case of an As Built Inspection), the clearance should be measured to the edges of the bed for beds smaller than 1500mm x 2000mm. If the bed provided is larger than 1500mm x 2000mm compliance should be determined based upon a bed with dimensions 1500mm x 2000mm.



12 Switches and powerpoints

Performance Statement

Light switches and powerpoints are located at heights that are easy to reach for all home occupants.



Silver Level

No requirements.

Gold Level

- a. Light switches should be positioned in a consistent location:
 - i. between 900mm – 1100mm above the finished floor level; and
 - ii. horizontally aligned with the door handle at the entrance to a room.
- b. Powerpoints should be installed not lower than 300mm above the finished floor level.

Platinum Level

As for gold level with the following feature:

- c. Light and powerpoint switches should be rocker action, toggle or push pad in design with a recommended width of 35mm.



13 Door and tap hardware

Performance Statement

Home occupants are able to easily and independently open and close doors and safely use tap hardware.



Silver Level

No requirements.

Gold Level

- a. Doorways should feature door hardware installed at between 900mm – 1100mm above the finished floor.

Platinum Level

As for gold level with the following features:

- b. Doorways should feature lever or D-pull style door hardware; and
- c. Basins, sinks and tubs should feature lever or capstan style tap hardware with a central spout.

For Gold and Platinum level, the handle clearances for D-pull style door hardware should be the same as AS1428.1, AS 1428.1 is the most relevant set of specifications aimed at providing the greatest access to the greatest number of people and as such is an appropriate standard to reference for this Element.



14 Family/living room space

Performance Statement

The family/living room features clear space to enable the home occupant to move in and around the room with ease.



Silver Level

No requirements.

Gold Level

No requirements.

Platinum Level

- a. The family/living room should accommodate a free space, minimum 2250mm in diameter; to enable ease of movement clear of furniture.



15 Window sills

Performance Statement

Windows sills are installed at a height that enables home occupants to view the outdoor space from either a seated or standing position.



Silver Level

No requirements.

Gold Level

No requirements.

Platinum Level

- a. Window sills on the ground (or entry) level in living areas and bedroom spaces should be positioned no higher than 1000mm above the finished floor level to enable enjoyment of the outlook.
- b. Window controls should be able to be easy to operate with one hand and located within easy reach from either a seated or standing position.

Note A concession from (a) is reasonable in kitchen, bathroom and utility spaces.



16 Flooring

Performance Statement

Floor coverings are slip resistant to reduce the likelihood of slips, trips and falls in the home.



Silver Level

No requirements.

Gold Level

No requirements.

Platinum Level

- a. All floor coverings should:
 - i. be firm and even, and
 - ii. feature a level transition between abutting surfaces (a maximum vertical tolerance of 5mm between abutting surfaces is allowable provided the lip is rounded or beveled).



APPENDIX E

BEST PRACTICE RECOMMENDATIONS



E1 FIRE EGRESS FOR PEOPLE WITH DISABILITIES

HREOC Advisory notes on access to premises, Item 5.21 states that, in an emergency, all users should be provided with a means of egress from a premises to a place of comparative safety. This ensures people with disabilities to be provided with the same level of protection as other premises users or building occupants.

Consider providing a refuge area within fire isolated stairs by incorporating a 800mm x 1300mm area at stair landings of every accessible floor. A 1000mm unobstructed egress width to the area should be provided.

We recommend that signage displaying the International Symbol of Access (ISA) be provided to identify any places of comparative safety provided. Signage should state that the area is safe in the event of an emergency. Evacuation procedures for the building should address the provision of places of comparative safety for people with limited mobility. Signage should comply with BCA D3.6 and BCA Specification 3.6 and have braille and tactile components.

We also recommend that as a part of the emergency evacuation plan for the building, egress for persons requiring assistance be addressed. The provision of places of comparative safety within fire isolated passages would be advantageous to persons with a disability. This consists of a waiting area large enough to accommodate a wheelchair where persons can wait for assistance from emergency services. The waiting area should be identified with appropriate signage that incorporates the International Symbol for Access.

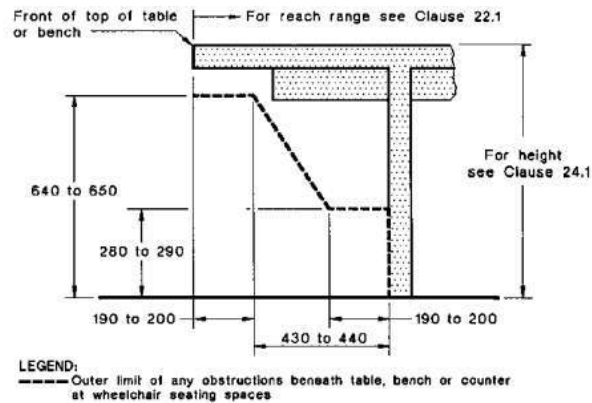
E2 RECEPTION COUNTERS

We recommend the provision of accessible reception counters designed in accordance with AS1428.2 (1992), Part 24.1.

- Provide a lower section of counter at a height between 830mm and 870mm above finished floor level.
- A counter required to be accessible must comprise a clear length of no less than 900mm.
- Where the counter requires a high level of interaction or worktop function: provide knee clearance of no less than 800mm in height for a minimum depth of 350mm; and foot clearance of not less than 300mm in height for a depth of 650mm.
- Where the counter requires brief or minimal interaction: provide knee clearance of no less than 750mm in height for a minimum depth of 350mm; and foot clearance of not less than 300mm in height for a depth of 400mm.
- Unobstructed circulation space must be provided in front of the lower height counter of 1540mm by 2070mm, with maximum grade of 1:40.
- Finished surfaces, including counter face and top, and the background to which each is viewed to be selected to ensure adequate definition for people with varying degrees of vision impairment, such as minimum 30% luminance contrast between counter top and counter face.
- Way-finding principles to be considered in the identification of the reception area, including provisions to aid detection of the accessible counter.



- Under the BCA an assistive listening is to be provided where the client is screened from the service provider. In order to satisfy the requirements of the DDA it is recommended that an assistive listening system, including Braille and tactile signage, be provided at any place where a service provider deals with a client or customer (reception desk) (AS 1428.2:1992 Clause 21.1).



NOTE: For width of seating spaces see Clause 24.1.3.

DIMENSIONS IN MILLIMETRES

FIGURE 25 KNEE AND FOOT CLEARANCE BENEATH A TABLE, BENCH OR COUNTER

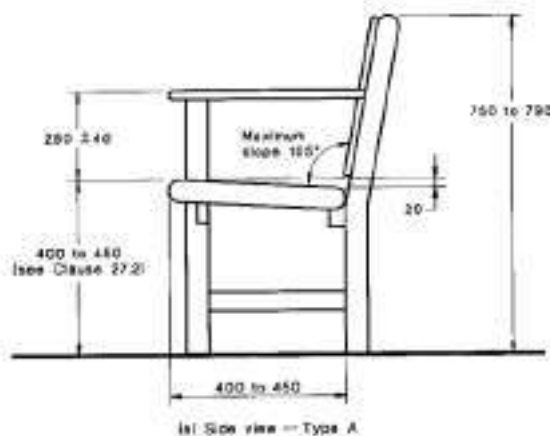
E3 SEATING TO PUBLIC AREAS

Where seating is located within public areas (for example to waiting area at Level 16), a proportion of accessible seating should be provided offering compliance with AS1428.2:1992 Clause 27.

Provide a seat height of 450mm; with side arms that extend a further 260mm +/- 40mm in height. Seating to have a back height of 750mm-790mm (AS 1428.2:1992 Clause 27.2). · Armrests must not extend beyond the perimeter of the base or legs of the seat to ensure stability of the chair when rising with use of only one armrest. · Heel space of at least 150mm with a minimum width of 350mm should be provided under seats to assist in rearward adjustments of feet when rising.

Seats located adjacent to pathways to set back at least 600mm to allow leg room without obstructing the adjacent path (AS 1428.2:1992 Clause 27.1(a)).

At casual seating spaces, waiting areas and the like, provide a minimum of 900mm space between seats or at either end to accommodate wheelchair users.



In addition, the provision wheelchair seating places within waiting areas is highly recommended. These spaces to allow a floor space of 800x1300mm.

E4 SIGNAGE AND WAYFINDING



Signs and symbols should be provided to inform all users. Provide a signage system which informs all users (HREOC Advisory notes on access to premises, Item 5.15). The use of pictograms is recommended as is the use of luminance contrast to ensure the message is clear and legible.

The height of letters in signs shall be not less than that show in the table below – AS1428.2(1992), Table 2.

HEIGHT OF LETTERS FOR VARYING VIEWING DISTANCES	
Required viewing distance m	Minimum height of letters* mm
2	6
4	12
6	20
8	25
12	40
15	50
25	80
35	100
40	130
50	150

* For further information on the heights of letters for different situations, reference should be made to [AS 1744](#).

NOTE: Helvetica Medium typeface is preferred.

The development of a way-finding strategy with consideration to landmarks and visual features of the development is recommended. This would include the use of varied finished surfaces to differentiate areas of each building.

Signs including symbols, numbering and lettering shall be located where they are clearly visible to people in both a seated and standing position. That is, they should be placed within a zone at a height not less than 1400 mm and not more than 1600 mm above the plane of the finished floor. Where space in this zone is used up, the zone for placement of signs may be extended downward to not less than 1000 mm from the plane of the finished floor. This height assists people to read from either a seated or a standing position, and also assists people with low vision to read the information on the sign. Letters and symbols in relief assist people with severe visual disabilities.

Where a sign can be temporarily obscured, e.g. in a crowd, the sign should be placed at a height of not less than 2000 mm above the plane of the finished floor.

Signs to assist way-finding should be provided at changes of direction and at sites where directional decisions are made, to enable the appropriate decisions to be made before a change of direction occurs.

Where the surface of the wall surrounding the sign provides insufficient contrast (e.g. patterned wallpapers), the background area to the sign may need to be increased in size.

The message that the sign carries should be unambiguous.

Tactile floor plans or maps and prerecorded auditory instructions at the main entrance and at other useful locations can be of assistance to people with visual impairment.



E5 STAFF WORKSTATIONS

Consideration should be given to the provision of accessible staff workstations within the building. Height adjustable workstations which can be adjusted by the user are highly recommended, with an adjustment capability between 610 and 760mm from the floor (AS 4442:1997 Clause 2.2.2 (b)).

Where provided, fixed height workstations to be provided at a height between 700 and 720mm (AS 4442:1997 Clause 2.2.4).

It is recommended that adjustable tables have a height adjustment capacity accommodating standing and seated users per AS4442 (1997).

Power and data outlets to be provided at desk top height at a distance not greater than 550mm from the front edge of the desktop (AS 1428.2:1992 Clause 22.; Figure 20 (b)).

The provision of a clear floor space of not less than 1370mm between the table edge and the opposing wall or fixtures will allow access by a person in a wheelchair to or past the table.

Ensure the layout of furniture and fittings allows for the provision of accessways in accordance with AS 1428.1 (2009), including:

- Minimum widths of paths of travel to be not less than 1000mm;
- Passing spaces with a minimum width of 1800mm and minimum length of 2000mm to be provided along paths of travel at maximum 20m intervals where a direct line of sight is not available; and
- Turning spaces of minimum 1540mm width and minimum 2070mm length to be provided within 2m of the end of paths of travel and at maximum 20m intervals.
Note: a passing space may serve as a turning space.
- Increased landings are required at changes of direction, including 1500mm X 1500mm turning spaces to facilitate a 60°-90° turn.

This may form part of a client management plan and associated operational procedures relating to individual facilitation of employees with temporary or permanent disabilities

E6 KITCHEN / KITCHENETTE FACILITIES

Consideration should be given to the provision of accessible kitchen /kitchenette facilities which are designed and constructed in accordance with AS 4299:1995 Clause 4 and AS 1428.2:1992 Clause 24.

This includes consideration to a bench height of 870mm in lieu of 900mm, appropriate knee and foot clearance to the underside of utility benches and appropriate circulation space within the room.

To provide access for people using wheelchairs, the sink should be located at a height between 850mm-870mm above the finished floor. The design of the sink must allow knee and foot clearance to the underside of the bowl for a clear width of no less than 900mm, in accordance with the following:

- Provision of knee clearance of no less than 680mm in height for a minimum depth of 300mm.
- Provision of foot clearance of not less than 290mm in height for a depth of 200mm (AS 1428.2:1992 Figure A2).
- Provide a section of clear bench space of no less than 900mm in length adjacent to the sink
- Provide a maximum depth to the sink of 150mm. This applies to the main bowl where a double sink is installed.



E7 LUMINANCE CONTRAST

Luminance contrast is the light reflected from one surface or component, compared to the light reflected from another surface or component. A luminance contrast of 30% between two surfaces is generally accepted as a minimum when considering it as a navigational / way-finding tool for people with Vision impairment.

In this regard, we recommend that the provision of a minimum 30% luminance contrast between surfaces be adopted in the following instances to assist people with Vision impairment negotiate the built environment:

- Provide luminance contrast between walls and doors.
- Generally, contrasting wall and floor surfaces should be provided. At a minimum, skirting boards which provide suitable contrast to the floor surface assist people with low vision in identifying perimeters of corridors and accessible spaces.
- For joinery, Counters or benches to achieve a minimum 30% luminance contrast with the counter / bench face to which it is viewed. Additionally, Counter / bench surfaces to have a matte or low sheen finish;
- For handrails and grabrails, provide a luminance contrast between the rail and the wall colour;
- For signage, provide luminance contrast so that message can be conveyed – luminance contrast required between the information in the sign and base sign colour.

Note: Statutory requirements for luminance contrast include tactile indicators, stair nosing strips, toilet seats and door / wall identification.

E8 CHANGING PLACES

Changing Places Australia is an initiative of the Association for Children with a Disability to provide safe and clean accessible toilets for use by people with severe disabilities. The goal is to have “changing places” incorporated within high use public buildings such as sporting venues, shopping centres and transport interchanges. A standard unisex accessible toilet offers a facility for independent use. Often being designed to minimum dimensions, they generally do not allow for assistance from a carer which is required by many people with severe disabilities. The lack of suitable changing places presents a barrier to inclusion within the community for many Australians.

Philip Chun Access is taking a pro-active role in ensuring that the provision of a changing place is at least considered within the design / redevelopment of major public buildings. The key design principles to be incorporated include a ceiling hoist, adequate circulation areas to allow for up to two assistants, and an adult change table which is fully adjustable.

Over 200,000 Australians are in need of facilities like this to be able to participate in their communities. The provision of changing places promotes inclusion and is expected to be adopted by many Councils' planning policies in the near future.

E9 LOCKERS

The provision of lockers at a suitable height for people using a wheelchair is recommended. The height range for accessible lockers to be 230mm-1350mm AFFL based on the reach ranges prescribed in AS1428.2 (1992).



E10 FURNITURE HARDWARE

Generally, drawer and cupboard fronts that have recessed finger pull handles do not comply with AS 1428.1 (2009) Clause 13.5.2(b) and therefore are not recommended.

We recommend the use of D-type pull handles to furniture generally which provide a minimum 35mm clearance between the rear face of the handle and the face of the drawer.

E11 LIGHTING AND GLARE

Minimum interior lighting levels of maintenance illumination are to be in accordance with AS1680.1 (1990) and with consideration to AS1428.2 (1992) Clause 19. Consistent lighting levels should be provided throughout, without pools of light or dark areas.

Glare and excessively reflective surfaces should be avoided. This includes glare from windows.

AS1428.2 (1992) recommends the following minimum illumination levels:

- Entrances 150lx
- Passages and walkways 150lx
- Stairs 150lx
- Toilets and Locker rooms 200lx
- Counter tops 250lx
- Generally displays 200-300lx

At reception counters, appropriate lighting levels at the counter areas must be provided in accordance with AS 1680.2.2 (1994).

Generally, a task lighting of no less than 320lx must be provided with environmental lighting of no less than 160lx. That is:

(i) Where general lighting only is provided to provide both task and environmental lighting, the illuminance throughout the area shall be no less than 320lx; or

(ii) Where a system of local lighting is provided for tasks in combination with reduced environmental lighting, this may be provided as noted above (AS 1680.2.2:1994 Appendix F (b); AS1680.2.2:1994 Table F1).

E12

16 – CL4.6 STATEMENT

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Clause 4.6 Exception to Development Standard for Height of Building

Proposed:
Mixed Use Development
112 Residential Apartments
1,514m² of Commercial Space
and Associated Works

Property:
482, 486 and 488 The Esplanade,
12 -16 King Street and 1 Howard Street, Warners Bay.
Lots 1 & 2 DP 1116535, Lots 3 & 4 DP 32518,
Lots 1, 2 & 3 DP 155951 and Lot 122 DP 578045

Applicant:
YPI Property Investments (Warners Bay Pty Ltd)

Date:
April 2017

Document Control Sheet

Issue No.	Amendment	Date	Prepared By	Checked By
A		20/04/2017	Brett Stein	Marion Lourens

Limitations Statement

This report has been prepared in accordance with and for the purposes outlined in the scope of services agreed between ADW Johnson Pty Ltd and the Client. It has been prepared based on the information supplied by the Client, as well as investigation undertaken by ADW Johnson and the sub-consultants engaged by the Client for the project.

Unless otherwise specified in this report, information and advice received from external parties during the course of this project was not independently verified. However, any such information was, in our opinion, deemed to be current and relevant prior to its use. Whilst all reasonable skill, diligence and care have been taken to provide accurate information and appropriate recommendations, it is not warranted or guaranteed and no responsibility or liability for any information, opinion or commentary contained herein or for any consequences of its use will be accepted by ADW Johnson or by any person involved in the preparation of this assessment and report.

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1.0 Introduction

This submission supports an application for mixed use development on land bounded by The Esplanade, King Street and Howard Street at Warners Bay. The subject site includes Lots 1 & 2 DP 1116535, Lots 3 & 4 DP 32518, lots 1, 2 & 3 DP 155951 and Lot 122 DP 578045 referred to as 482, 486 and 488 The Esplanade, 12 - 16 King Street and 1 Howard Street, Warners Bay (the site).

The site has an area of 5,093.9 m².

A maximum building height development standard of 22m applies across the site. The building has been designed so that it sits below the 22m height limit around the perimeter of the site, however, due to variances in levels across the site and the building design there are some marginal areas where the building nominally exceeds the height limit. The areas affected by this nominal height exceedance are indicated in white on the image below. The exceedance in height is confined to parts of the roof structure and part of the lift overruns.



Figure 1: Image showing extent of height exceedance.

As the current proposal does not satisfy the height limit for the whole of the site, a variation is required to the maximum building height development standard. This variation is permitted through the application of clause 4.6 Exception to Development Standard for Height of Building, set out within the Lake Macquarie Local Environmental plan (LMLEP 2014).

This report is submitted in support of the proposed variation and should be read in conjunction with the prepared Statement of Environmental Effects and development plans and associated reports.

2.0 Variation to Development Standards

2.1 METHODOLOGY

The mechanism that permits the determining authority to consider a variation to a Development Standard is Clause 4.6 of the LMLEP 2014.

Development Standard as defined in the Environmental Planning and Assessment Act means provisions of an environmental planning instrument or the regulations in relation to the carrying out of development, being provisions by or under which requirements are specified or standards are fixed in respect of any aspect of that development, including, but without limiting the generality of the foregoing, requirements or standards in respect of:

- (a) the area, shape or frontage of any land, the dimensions of any land, buildings or works, or the distance of any land, building or work from any specified point,
- (c) the character, location, siting, bulk, scale, shape, size, height, density, design or external appearance of a building or work,

4.6 Exceptions to Development Standards

- (1) *The objectives of this clause are as follows:*
 - (a) *to provide an appropriate degree of flexibility in applying certain development standards to particular development,*
 - (b) *to achieve better outcomes for and from development by allowing flexibility in particular circumstances.*
- (2) *Development consent may, subject to this clause, be granted for development even though the development would contravene a development standard imposed by this or any other environmental planning instrument. However, this clause does not apply to a development standard that is expressly excluded from the operation of this clause.*
- (3) *Development consent must not be granted for development that contravenes a development standard unless the consent authority has considered a written request from the applicant that seeks to justify the contravention of the development standard by demonstrating:*
 - (a) *that compliance with the development standard is unreasonable or unnecessary in the circumstances of the case, and*
 - (b) *that there are sufficient environmental planning grounds to justify contravening the development standard.*
- (4) *Development consent must not be granted for development that contravenes a development standard unless:*
 - (a) *the consent authority is satisfied that:*
 - (i) *the applicant's written request has adequately addressed the matters required to be demonstrated by subclause (3), and*

- (ii) the proposed development will be in the public interest because it is consistent with the objectives of the particular standard and the objectives for development within the zone in which the development is proposed to be carried out.*

The Land & Environment Court has over the years, developed a basis for the consideration of objections to development standards, initially in the context of SEPP 1 and then more recently with the introduction of Clause 4.6 in standard template LEPs.

2.2 PREVIOUS CASELAW

Wehbe v Pittwater Council (2007) NSWLEC 827 established a series of five tests for variation of a development under the former SEPP 1 provisions.

The Whebe tests for variation of a development standard are outlined and addressed as follows:

- i) The objectives of the standard are achieved notwithstanding the noncompliance with the standard.*

As demonstrated in this report the proposed development is consistent with the objectives of the standard.

- ii) The underlying purpose is not relevant in the circumstances.*

It is argued that as the proposed development is close to achieving the standard the purpose of the standard is generally met.

- iii) The purpose of the standard would be thwarted if compliance was required.*

The non – compliance with the standard is small and if compliance was required as less efficient design outcome would be achieved on the site.

- iv) The standard has been abandoned via previous approvals.*

Not argued.

- v) The zoning is unreasonable.*

Not argued.

More recently in Moskovich v Waverley Council [2016] NSWLEC 1015 it was found that the Whebe tests are still applicable for a Clause 4.6 variation with the qualification that previously it was required to determine achievement of the objectives of the standard, whereas under Clause 4.6 it should only be necessary to determine consistency with the objectives of the standard.

This report is structured to present the relevant planning background and context in the first instance and then addresses the relevant Clause 4.6 considerations.

3.0 Variation Sought

The standard to which exception is sought under Clause 4.6 of Lake Macquarie LEP 2014 is established by Clause 4.3 of the LMLEP 2014.

4.3 Height of Buildings

- (1) *The objectives of this clause are as follows:*
 - (a) *to ensure the height of buildings are appropriate for their location,*
 - (b) *to permit building heights that encourage high quality urban form.*
- (2) *The height of a building on any land is not to exceed the maximum height shown for the land on the [Height of Buildings Map](#).*

An extract from the Height of Buildings map is shown below. The maximum height of buildings for the subject site is 22 metres.



Figure 2: Lake Macquarie Height of Buildings Map.

It is relevant to note the following:

- The 22 metre height limit applies to land to the east of Howard Street and to land on the corner of King and John Street which have ground levels higher than the subject land.
- To the south of the site a height limit of 22 metres applies even though the existing building does not reach this limit and was constructed prior to the current height limits being adopted.
- The southern boundary of the site fronting Howard Street adjoins land with a 13 metres height limit.

The proposed development comprises two separate buildings elements linked by a shared podium and basement car parking. The two elements are referred to in this report as the Howard Street building (fronting King Street and Howard Street) and the lakefront building (fronting The Esplanade and King Street).

The Howard Street building is largely setback at a distance of 4.8m from the side boundary with the exception of the lift and stair core. It does not have any habitable rooms or balconies which face the side boundary.

There is a 3.6m separation between the lakefront building and the existing adjacent development for the first 12m. This separation is increased to 8.7 above 12m in height. Habitable rooms to the side boundary are only on level 6 and 7, above the height of the existing building.

4.0 Relevant Planning Context

4.1 ZONING

The subject site is zoned B2 Local Centre under the LMLEP2014 (see Figure 4). This is the same zoning as the main part of the Warners Bay Town Centre to the north and also to the east and south of the site.

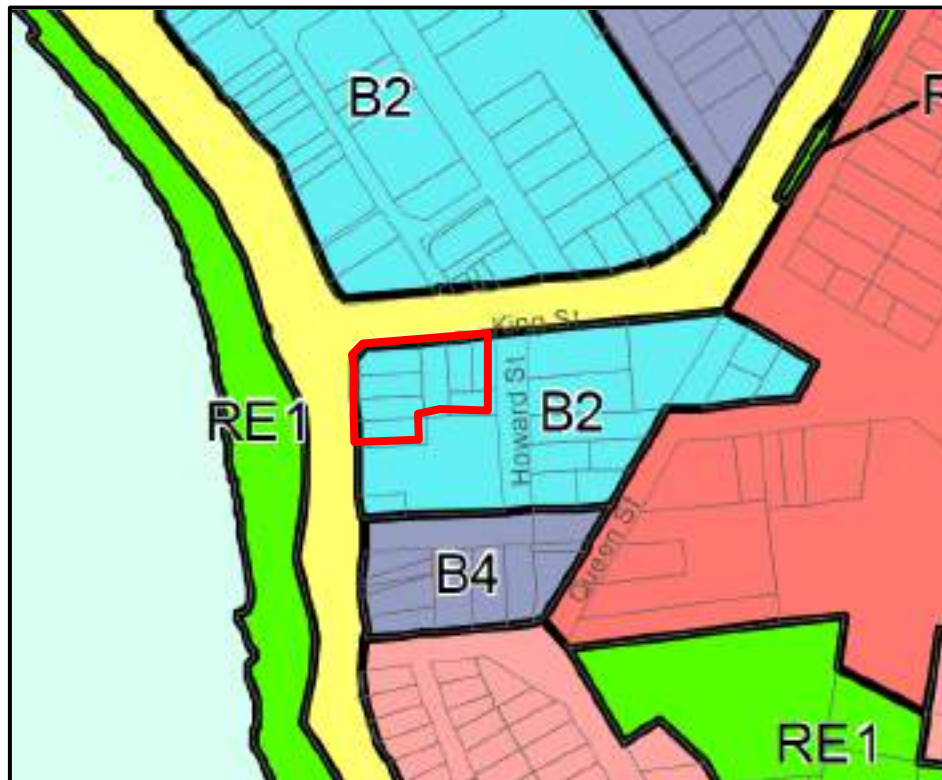


Figure 3: Zoning Extract from LMLEP 2014.

The Objectives of B2 Local Centre Zone are:

- To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area.
- To encourage employment opportunities in accessible locations.
- To maximise public transport patronage and encourage walking and cycling.
- To create spaces that are accessible and are a central focus for the community.
- To provide for housing as part of mixed use developments.

The proposal provides a high quality mixed use development incorporating business employment and housing and is consistent with the objectives of the zone.

Non-compliance with the development standard will not be inconsistent with the zone objectives.

5.0 Matters for Consideration under Clause 4.6

The relevant matters to be dealt with under Clause 4.6 of the LMLEP 2014 for the purpose of the variation are addressed below. The response seeks to justify the contravention of the development standard.

5.1 DEVELOPMENT STANDARD

The objective of the clause 4.3 Height of Buildings is to:

- (a) to ensure the height of buildings are appropriate for their location, and
- (b) to permit building heights that encourage high quality urban form.

Given that a building height of 22 metres was deemed as being satisfactory as part of the process undertaken in preparing the Warners Bay Area Plan, the height of the proposed building is considered as being appropriate for the location. The outer edges of the building comply with the height limit and the areas where the building exceeds the height limit are minor.

The proposed built form is consistent with the type of development envisaged for the site. The building design responds to the slope of the site which contributes to the marginal encroachment of the height.

It is not considered that the proposal compromises the objectives of the clause.

5.2 MATTERS FOR CONSIDERATION

Clause 4.6 of the LMLEP 2014 allows the consent authority to consider a contravention to a development standard providing the following can be demonstrated:

- (a) that compliance with the development standard is unreasonable or unnecessary in the circumstances of the case,
- (b) that there are sufficient environmental planning grounds to justify contravening the development standard,
- (c) the proposed development will be in the public interest because it is consistent with the objectives of the particular standard and the objectives for development within the zone in which the development is proposed to be carried out,
- (d) whether contravention of the development standard raises any matter of significance for State or regional environmental planning, and
- (e) the public benefit of maintaining the development standard.

Is compliance with the development standard unreasonable or unnecessary in the circumstances of the case? (Clause 4.6(3))

The site is a relatively large in area with approximately 4 metres of fall from west to east. The reduced level of the height plane therefore varies across the site.

Compliance with the development standard in this instance is unnecessary because the extent of the exceedance of the standard is minor and will not have any significant impact particularly as the majority of the proposed building sits below the height limit.

The exceedance to the building height limit occurs at various locations toward the central part of the buildings, described as follows:

- Lift over runs
 - at its maximum, the height limit is exceeded by 900mm
 - other lift over runs exceed the height limit by 800mm, 600mm, 200mm and 100mm.
- Roof structure
 - Howard Street building - the part of the roof structure that exceeds the height limit is limited to a maximum of 300mm over approximately one third of the roof area.
 - Lakefront building – the part of the roof structure that exceeds the height limit is limited to a maximum of 200mm over approximately 10% of the roof area.

The development complies with the maximum building height limit around the perimeter of the site. The height exceedance of the Howard Street building element is towards the eastern part of the roof structure which is internalised within the development and results from the slope of the land.

The height exceedance for the lakefront building is confined to a very small part of the roof structure and lift over runs.

The lift over runs will not be visible from near views due to the height of the outer edge of building and setback of lifts from the edge of the building. Architectural roof features are not considered necessary.

The following extracts from the architectural plans show relevant building heights and envelopes for neighbouring development.

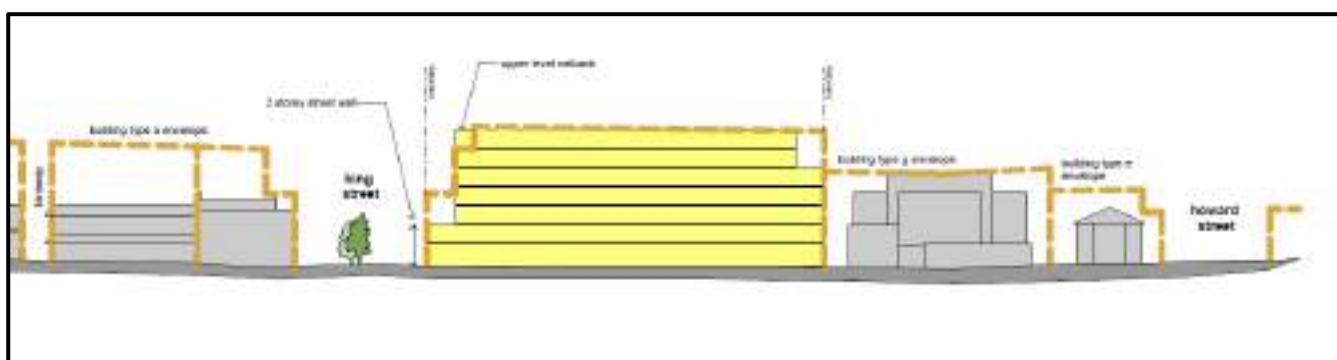


Figure 4: The Esplanade Elevation.

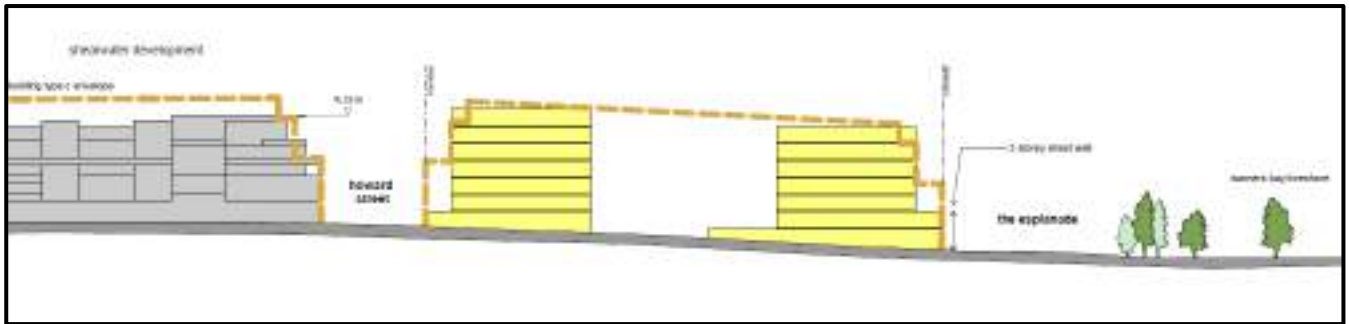


Figure 5: King Street Elevation.

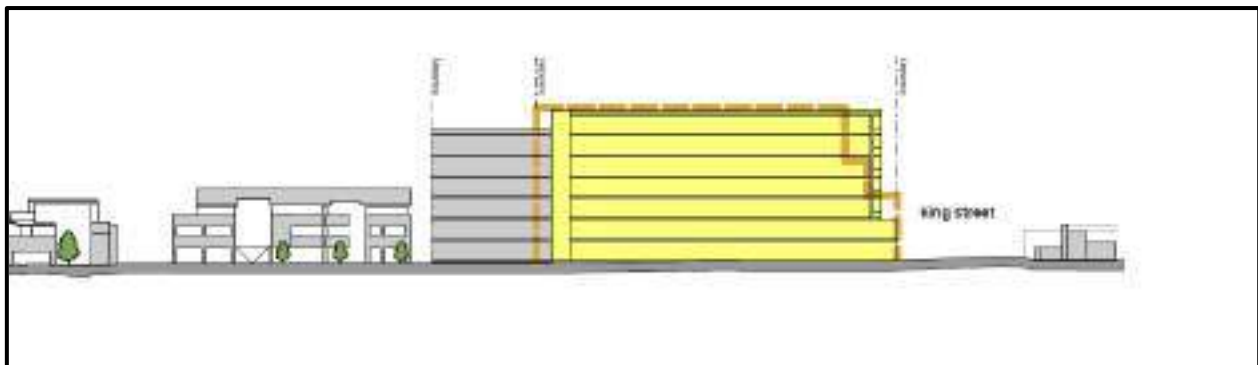


Figure 6: Howard Street Elevation.



Figure 7: Height of building encroachments.

Is there sufficient environmental planning grounds to justify contravening the development standard?

The proposed development is a form that is consistent with the objectives of the zone and Part 10 Town Centre Area Plans – Warners Bay of Council's Development Control Plan.

The following images taken from the visual analysis and the street elevations show the building in context and it is clear that the negligible exceedance in building height proposed will not be discernible when viewed major view corridors. Further, the elements of the building, when viewed from close range cannot be seen as they are set back from the street frontages. Further, no additional overshadowing will occur to neighbouring properties as a result of the minor building exceedance.

The building design takes into consideration, the varied street levels at Howard Street and The Esplanade. The footpath in Howard Street is a low level footpath which needs to be raised to slope towards the street. This effectively reduces the available height envelope for the building.

Given the minor nature of the non-compliance, there are considered to be planning grounds to support the contravention of the development standard.



Figure 8: Site viewed from Lake Macquarie

The proposed development will be in the public interest because it is consistent with the objectives of the particular standard and the objectives for development within the zone in which the development is proposed to be carried out.

The proposed development delivers on the vision of the Warners Bay Area Plan adopted by Council in December 2016. A minor exceedance of the height limit for part of the building is considered justified having regard to the development outcome proposed. The height of the building is not higher than the roof of adjoining development to the east when viewed from the Lake and sits below the ridgeline that frames The Warners Bay Town Centre.

Whether contravention of the development standard raises any matter of significance for State or regional environmental planning.

Contravention of the development standard does not raise any matter for State or regional planning. The proposal will achieve efficient delivery of additional housing in the area and achieves strategic goals for the town centre and satisfies zone objectives.

The public benefit of maintaining the development standard.

There is no significant public benefit in maintaining the development standard given the negligible impact of the minor extent of non-compliance. It is considered in the public interest to encourage development of the site as proposed.

6.0 Conclusion

The proposed development is appropriate for the zone. Given the limited impact of the minor non compliance with the development standard the contravention of the development standard is considered justified.

Council and the community can have confidence that the recently adopted controls for the Warners Bay Town Centre will be achieved through the proposed high quality mixed use development.