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COMPLIANCE

PRELIMINARY BCA REVIEW

Glenhaven Gardens Expansion

Project_13253

DA ISSUE - 20TH APRIL_2017

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Current_Date_11_11_2016	Draft	Trevor Eveleigh

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1.0 INTRODUCTION

1.1 GENERAL

NBRS Architecture have been engaged by Christian Brethren Community Services to develop a design for the expansion of the existing Glenhaven Gardens development at 140-146 Glenhaven Road Glenhaven, NSW

As part of the design process a review has been undertaken of the proposed redevelopment, against the current requirements of the Building Code of Australia 2016 and this report sets out the outcomes of the review.

The preliminary review has been undertaken of the proposed design as set out in the development application drawings prepared by NBRS Architecture.

Table 1

Drawing No.	Issue	Description	Description
13253-DA-	7	Cover page – title sheet	
13253-DA-01	2	Site Analysis Plan	
13253-DA-02	7	Site Plan	
13253-DA-03	7	Ground Floor Plan	
13253-DA-04	3	Roof Plan	
13253-DA-05	4	Elevations	
13253-DA-06	4	Sections	

The review is undertaken against the requirements of

- Volume 2 of the Building Code of Australia 2016 version (BCA) and the
- Associated relevant standards.

1.2 SITE DETAILS

The site for the new works are adjacent, to the western side of the existing Glenhaven Gardens complex at 1a Mill Road Glenhaven.
No. 140 Glenhaven Road has been incorporated into the existing seniors living site lot.
The site details are:

- Lot 102 DP 1205322
- within Climate Zone 6, as defined within the BCA.
- The Hills Shire Council area

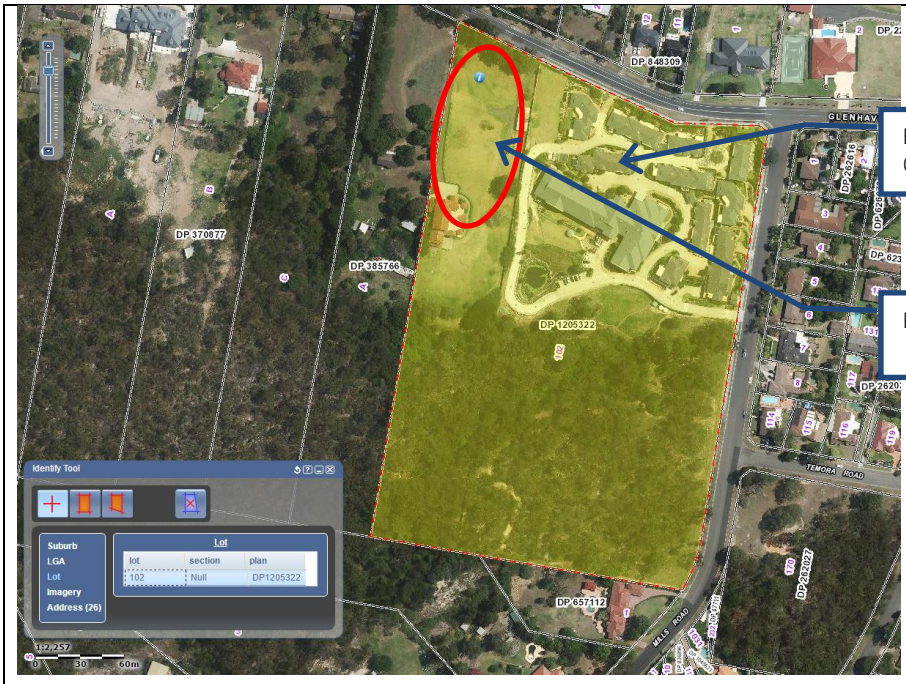


Figure 1- Site Location Plan

1.3 THE PROPOSED BUILDING

The proposal is to add an additional 12 independent living villa units to the western side of the existing complex and associated infrastructure.
Each of the villas are single level Sole Occupancy Units, with connecting roadway and pathways.
Access to the villas will be from Glenhaven Road.
The Villas are considered to be Class 1 usage under the BCA Classifications.

A3.2 Classifications

Buildings are classified as follows:

Class1:

one or more buildings which in association constitute—

(a) Class 1a — a single dwelling being—

(i) a detached house; or

(ii) one of a group of two or more attached dwellings, each being a building, separated by a fire-resisting wall, including a row house, terrace house, town house or villa unit; or

Rise in Storeys & Effective Height

		Rise in storeys	Effective Height
Villa Units (Accommodation)	Class 1	1	0

2.0 BCA DEEMED TO SATISFY PROVISIONS

2.1 SECTION 1 – FIRE COMPARTMENTS AND FIRE RATINGS

The Villas are classified as Class 1 usage and are to comply with the requirements of Volume 2 of the Building Code of Australia.

Conceptually each of the villas are considered to be separate Sole Occupancy Unit under BCA terms and will be fire separated accordingly.

2.2 SECTION 3

2.2.1 PART 3.1 SITE PREPARATION

Preparation of the site and design of foundations and footings are to be undertaken by a Structural /civil engineer to ensure that an appropriate design including consideration of the existing ground conditions, drainage requirements and services.

2.2.1 PART 3.1.3 TERMITE RISK MANAGEMENT

A termite management system for the buildings are required where a primary building element is susceptible to termite attack. This is to be addressed as part of the detailed design.

2.2.2 PART 3.2 – FOOTINGS AND SLABS

The footings and floor slabs are to be designed to suite the ground conditions and the proposed buildings by a suitable qualified Structural Engineer.

2.2.3 PART 3.3 MASONRY

Masonry is proposed as the external façade finish. The design and construction is to be undertaken in accordance with relevant standards including, AS3700.
The detailing of the masonry is to be undertaken to ensure weathertightness of the external façade.

2.2.4 PART 3.4 FRAMING

Building structural framing is to be designed to meet the relevant requirements of the Australian Standards.

2.2.4.1 PART 3.4.1 SUBFLOOR VENTILATION

Subfloor clearances and ventilation are required where a raised floor is provided. This is to be included within the derailed design. Where raised floors are included.
The design is expected to include concrete floor slabs located on ground level, therefore subfloor access and ventilation are no planned to be included,

2.2.5 PART 3.5 ROOF AND WALL CLADDING

Part 3.5.1 sets out the requirements for the detailed design of roofing, for either tiled roofs or metal sheet roofing. The details are to be incorporated within the detailed design of the roof.
Part 3.5.2 sets out the requirements for the detailed design of the gutters and downpipes to roof areas.
The detailed design of the gutters and down pipes is to be undertaken in line with the requirements of Part 3.5.2.
Part 3.5.3 sets out the requirements for the detailed design of external walling. The detail design of the external walling is to be undertaken in line with the requirements of this part.

2.2.6 PART 3.6 GLAZING

Part 3.6 sets out the requirements for the detailed design of glazed elements including windows and skylights
The details are to be incorporated within the detailed design of the windows and skylights to the building.

2.3 PART 3.7- FIRE SAFETY

2.3.1 PART 3.7.1 FIRE SEPARATION

Part 3.7.1 of the BCA requires that the external walls of buildings are to be set back at least 900mm from site boundaries and 1800mm from another buildings on the same site, so as to prevent fire spread from one building to the next and for the protection of the neighbouring occupants.
Any walls closer than this are required to be fire protected.
Within the design all the Villas are set back more than 1m from the site boundaries and therefore meet the requirements of this clause.
As each of the Villa are considered to be a separate Sole Occupancy Unit (class 1), separating walls are required between the villas.
Within the design the plans indicate a central wall between villas without any windows.
These walls are to be fire rated walls with an FRL of 60/60/60 and extend the full height of the building up to the underside of the roof lining if the roofing is non-combustible or 450mm above roofing if combustible. (required by Clause 3.7.1.8).
Note: only timber battens with a sectional area of 75mm x 50mm or less can cross the top of the wall.

If skylights are included within the villas they are to be set back at least 900mm from a site boundary or a fire wall separating two villas. (Clause 3.7.1.10)

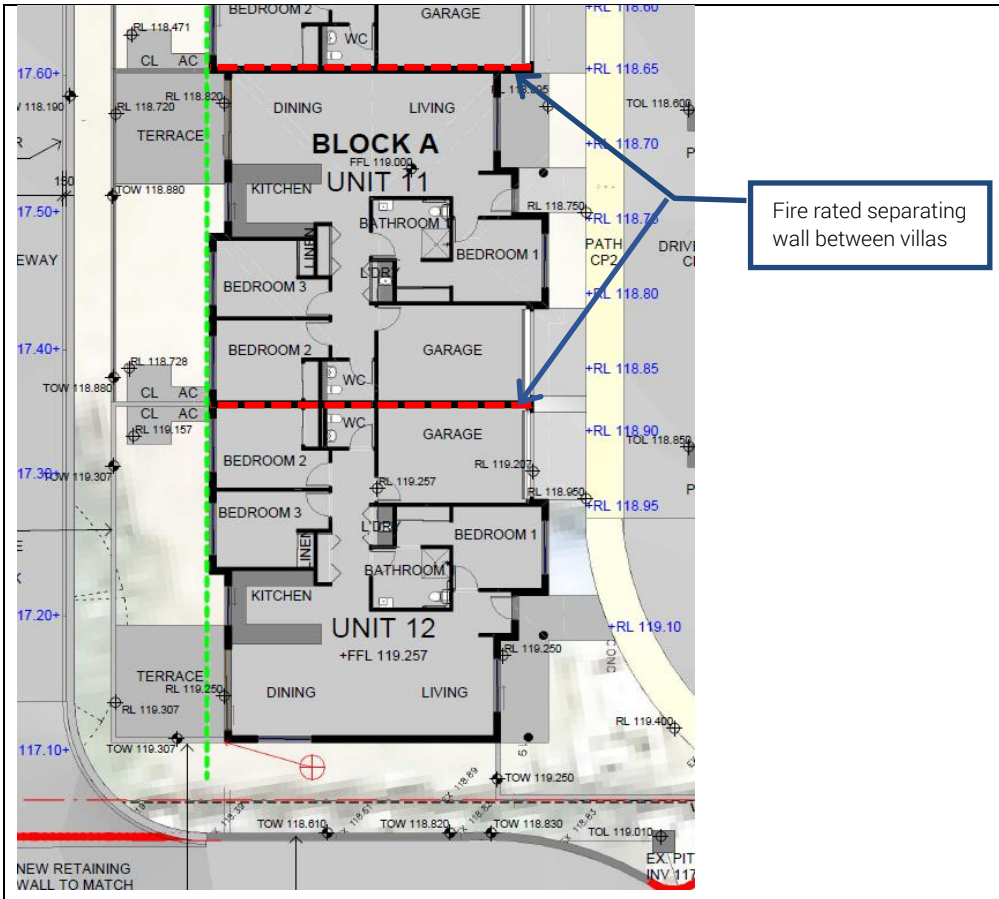


Figure 2- Villa Floor Plans

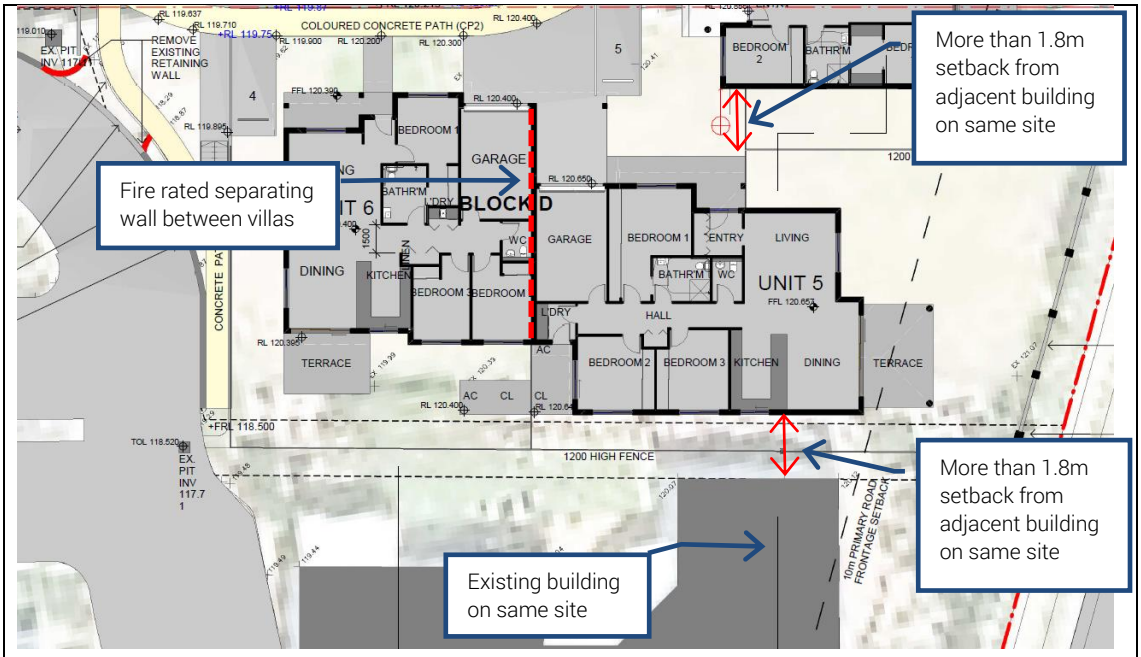


Figure 3- Villa Floor Plan

2.4 PART 3.7.2 SMOKE DETECTORS

Part 3.7.2 requires that each residence or Villa is provided with smoke detector/alarms as follows:
Detectors to AS 3786, permanently connected to power supply.
Positioned as setout within Part 3.7.2.
Interconnected where more than one are included within each unit.

2.5 PART 3.8 HEALTH AND AMENITY

2.5.1 PART 3.8.1 WET AREA WATER PROOFING

This clause sets out the requirements for waterproofing of wet areas within the individual villas, which will include the bathrooms, wc's and laundries. These details are to be followed during the detailed design of the facilities.

2.5.2 PART 3.8.2 ROOM HEIGHTS

Part 3.8.2 sets out the minimum room heights for spaces based on their intended use, as follows:

- Habitable room excluding a kitchen – 2.4m
- Kitchen, Corridors, bathrooms, laundry, store rooms, garage, - 2.1m
- Stairways, ramps and landings – 2m

The clause does permit a ceiling height below these where at least two thirds of the area of the room has the minimum ceiling height required.

Within the design the ceiling height of at least 2.4m would be achievable based on final detailed design.

2.5.3 PART 3.8.3 FACILITIES

This Part sets out the facilities that are required within each villa,

3.8.3.2 Required facilities
(a) A Class 1 building must be provided with—
(i) a kitchen sink and facilities for the preparation and cooking of food; and
(ii) a bath or shower; and

(iii) clothes washing facilities, comprising at least one washtub and space in the same room for a washing machine; and
(iv) a closet pan; and
(v) a washbasin.
(b) If any of the facilities in (a) are detached from the main building, they must be set aside for the exclusive use of the occupants of the building.

Within the design each villa is provided with the required facilities.

Clause 3.8.3.3 also sets out the minimum requirements for access to an enclosed water closet which is for the door to be either:

- Outward opening
- Slide,
- Be removable from the outside, or
- 1.2m clear of any obstruction such the wc fixture

Within the design this requirement could be achieved subject to final detailed design.

2.5.4 PART 3.8.4 LIGHT LIGHTING

Natural light is required to be provided to all habitable rooms in the building.
A Habitable room is defined within the BCA as:
Habitable room means a room used for normal domestic activities, and—
(a) includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room, home theatre and sunroom; but
(b) excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods.

This can be achieved by either an external window, a roof light or a window to an adjacent room that has an external window.
The area of windows is to be at least 10% of the floor area of the room served.
The area of roof light is to be at least 5% of the floor area of the room served.

The design includes an external window to all habitable rooms which appear to be of sufficient area subject to final detailed design.
If roof windows or skylights are included they are to be positioned more than 900mm from the fire ratted separating walls between villas.
Part 3.8.4.3 requires that non habitable spaces that do not have natural light such as Sanitary compartments, bathrooms, laundries, and the like be provided with artificial lighting.

2.5.5 PART 3.8.5 VENTILATION

Ventilation is to be provided to all habitable rooms, as well as bathrooms, wc's, laundries and the like. This is normally achieved by natural ventilation through window or door openings to outside with an area of at least 5% of the floor area of the room served.
To rooms such as wc's, bathrooms and laundries the ventilation can be by way of an exhaust fan instead of natural ventilation.

Within the design the habitable spaces have windows to meet the natural lighting requirements. These windows are to have 50% of the area as openable portions to provide the required ventilation. The wc's and a number of the bathrooms will require an exhaust fan to provide the required ventilation, as they are centrally located without windows.
Clause 3.8.5.3 requires that a sanitary compartment not open onto a kitchen or pantry unless the compartment is provided with an exhaust fan.

Within the design all the sanitary compartments are to be provided with an exhaust fan as they are located centrally, without an external window and located off a hall close to the kitchen area.

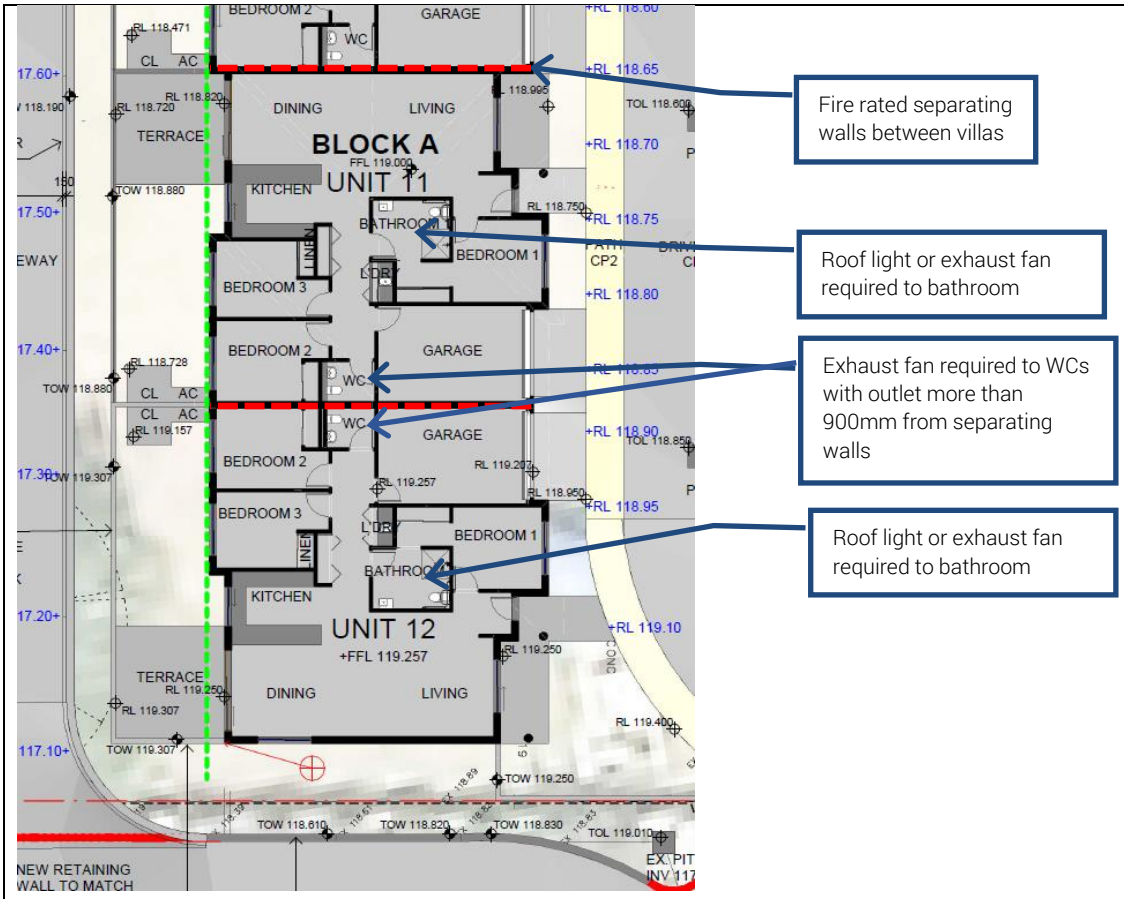


Figure 4- Villa Floor Plans

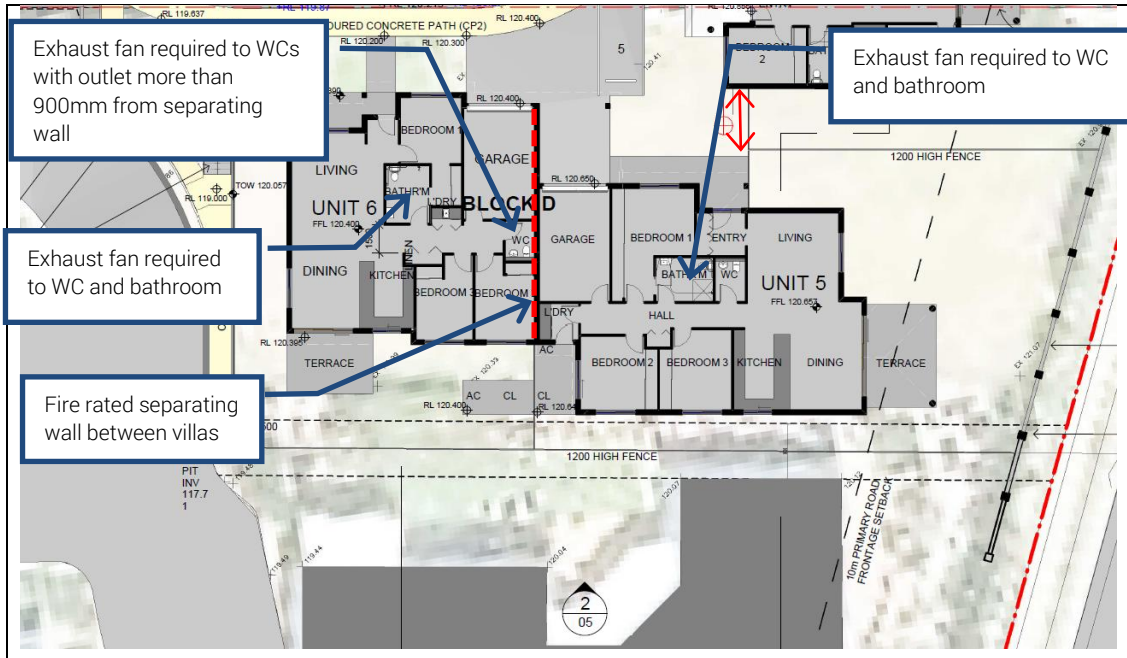


Figure 5- Villa Floor Plan

2.5.6 PART 3.8.6 SOUND INSULATION

Part 3.8.6 requires that separating walls between villas be sound insulated to prevent sound transfer between villas.
The following table(Table 3.8.6.1) sets out the detail requirements which are to be included within the detailed design.
The acoustic walls are to extend to the underside of the roof sheeting.

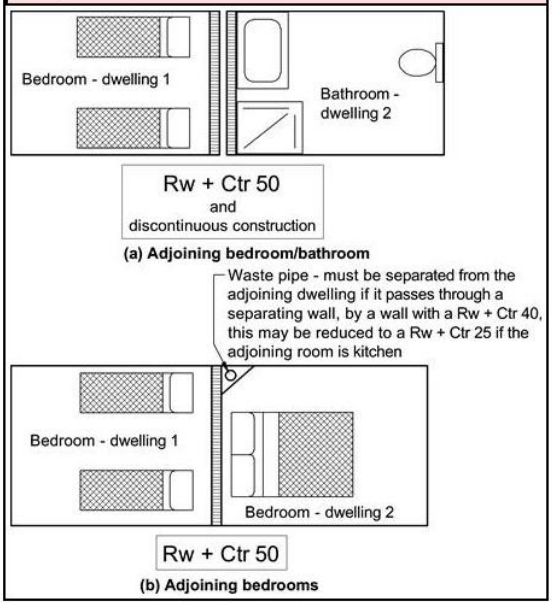
Table 3.8.6.1 REQUIRED R_w AIRBORNE AND IMPACT SOUND LEVELS FOR SEPARATING WALLS

SEPARATING WALL — LOCATION AND PENETRATIONS	DISCONTINUOUS CONSTRUCTION REQUIRED	$R_w + C_{tr}$ (As per Table 3.8.6.2)
Between a bathroom, *sanitary compartment*, laundry or kitchen and a *habitable room* (other than a kitchen) in an adjoining Class 1 building (dwelling) (see Figure 3.8.6.1).	YES	50
In all other cases to those listed above (See Figure 3.8.6.1).	NO	50
DUCT, SOIL, WASTE, AND WATER SUPPLY PIPES AND STORM WATER PIPES		
A duct, soil, waste, or water supply pipe or storm water pipe that passes through a separating wall between Class 1 buildings—		
(a) if the adjacent room is a *habitable room* (other than a kitchen); or	NO	40
(b) if the room is a kitchen or any other room.	NO	25

Notes:

1. Discontinuous construction means a wall system having a minimum 20 mm *cavity* between two separate leaves, with—
   (a) for masonry, where wall ties are *required* to connect leaves, the ties are of the resilient type; and
   (b) for other than masonry, there is no mechanical linkage between leaves except at the periphery.
2. A staggered stud wall is not deemed to be discontinuous construction.

Figure 3.8.6.1
REQUIRED AIRBORNE AND IMPACT SOUND INSULATION — PLAN VIEW



2.6 PART 3.9 SAFE MOVEMENT AND ACCESS

2.6.1 PART 3.9.1 STAIRWAY AND RAMP CONSTRUCTION

Clause 3.9.1 sets out the detail requirements for a design of a stairs and ramps.
Within the design no stairs are proposed. If a stair is to be included in the detailed design then it is to meet these requirements which include:

- Not more than 18 risers and not less than 2 risers in a stair flight.
- Be constant in going and riser dimensions through the flight.
- Not have gaps between treads that would allow a 125mm sphere to pass through.
- Have risers, treads and slope relationship in accordance with table 3.9.1.1 (below)
- Ramps to have a maximum grade of 1:8 with landings at the top and bottom as well as at maximum 15m distances.
- Have slip resistant treads and landings.
- Landing length of minimum 750mm

Table 3.9.1.1 RISER AND GOING DIMENSIONS (mm)

STAIR TYPE	RISER (R) (see Figure below)		GOING (G) (see Figure below)		SLOPE RELATIONSHIP (2R+G)	
	Max	Min	Max	Min	Max	Min
Stairs (other than spiral)	190	115	355	240	700	550
Spiral	220	140	370	210	680	590

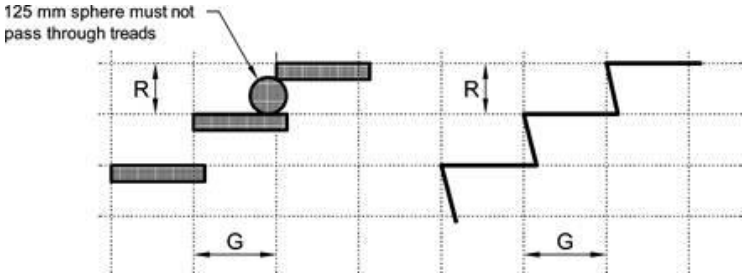


Table 3.9.1.3 SLIP-RESISTANCE CLASSIFICATION

Application	Surface conditions	
	Dry	Wet
Ramp not steeper than 1:8	P4 or R10	P5 or R12
Tread surface	P3 or R10	P4 or R11
Nosing or landing edge strip	P3	P4

2.6.2 PART 3.9.2 BARRIERS AND HANDRAILS

Barriers are required to prevent falls from stairs, landings and where there is a potential to fall from a general access area.

Within the design there may be a number of areas such as at retaining walls where balustrades may be required due to the potential to fall at changes in levels.

Handrails are required to at least one side of stair where the stair is more than 1m above the adjacent ground level.
Clause 3.9.3.5 also requires a barrier where there is potential to fall through a window opening. As the villas are all single level there is no requirement for protection at window openings

2.6.3 PART 3.9.3 SWIMMING POOLS

This section does not apply to the project as a swimming pool is not existing on the site or proposed as part of the works.

2.6.4 PART 3.10 ADDITIONAL CONSTRUCTION REQUIREMENTS

The requirements of Part 3.10 are to be incorporated within the detailed design of the project buy the project structural engineer.

2.6.5 PART 3.11 STRUCTURAL DESIGN MANUALS

The requirements of Part 3.11 are to be incorporated within the detailed design of the project buy the project structural engineer.

2.6.6 PART 3.12 ENERGY EFFICIENCY

Part 3.12 does not apply to construction within New South Wales as BASIX legislation sets out the requirements for energy efficiency of buildings in NSW.
A separate BASIX assessment is to be undertaken for the development, refer to the separate BASIX certification, which will indicate additional items that are to be included within the design.

3.0 CONCLUSION & RECOMENDATIONS

Based on the review of the proposed design, as outlined in the assessment above, it is considered that the proposed design as indicated on the drawings generally will be able to meet the relevant Deemed to Satisfy Provisions of Volume 2 of the Building Code of Australia 2016, subject to detailed design.

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