PENRITH
CITY COUNCIL

MAJOR ASSESSMENT REPORT

Application number:	DA17/1341
Proposed development:	Demolition of Existing Structures & Construction of a Six (6) Storey Residential Flat Building containing 45 Apartments & Two (2) Levels of Basement Car Parking
Property address:	34 Hope Street, PENRITH NSW 2750 36 Hope Street, PENRITH NSW 2750 32 Hope Street, PENRITH NSW 2750
Property description:	Lot 38 DP 31239 Lot 39 DP 31239 Lot 37 DP 31239
Date received:	21 December 2017
Assessing officer	Paul Anzellotti
Zoning:	Zone R4 High Density Residential - LEP 2010
Class of building:	Class 2 , Class 7a
Recommendations:	Approve

Executive Summary

Council is in receipt of a development application from Designcorp Architects proposing the demolition of existing structures and construction of a six (6) storey residential flat building containing forty five (45) apartments and two (2) levels of basement car parking at 32-36 Hope Street, Penrith.

The subject site is zoned R4 High Density Residential under Penrith Local Environmental Plan 2010 (PLEP 2010). Development for the purposes of a residential flat building is permissible within the R4 High Density Residential zone.

The Minister for Planning recently gave directions under Section 9.1 of the Environmental Planning and Assessment Act 1979 on the development applications that are to be determined on behalf of Council by a Local Planning Panel. These directions, dated 23 February 2018, outline that development within the Penrith Local Government Area (LGA) that is for a residential flat building under the provisions of State Environmental Planning Policy No. 65 - Design Quality of Residential Apartment Development require determination by a Local Planning Panel.

The proposed development was advertised in the local newspaper and notified to the owners and occupiers of adjoining and nearby properties. The public exhibition period for the proposal was from between the 4th January to the 31 January, 2018. During this period, no submissions were received.

Key issues identified for the proposed development include:

Non compliance with maximum height requirements

The application proposes a numerical non compliance to the maximum 18m building height with an exceedance above the maximum building height of 24% to the lift overrun and 9% to the uppermost habitable floor area. In this regard, the application has been accompanied with a Clause 4.6 variation request prepared by Think Planners requesting a variation to the development standard. The accompanying Variation request has been reviewed and taking into consideration the circumstances of the case is considered acceptable in this instance as outlined within this report.

Building Form and Presentation

The built form is considered to provide for appropriate articulation to the Hope Street frontage with the proposal maintaining an articulated ground floor base presentation, well proportioned balcony layout and window openings to the upper levels and architectural features serving to diminish scale and bulk for the built form and provide depth to each façade. It is noted that the proposal is compliant with building separation requirements as provided by the Apartment Design Guide. In this regard, the building is considered an acceptable addition to Hope Street which is current undergoing a transition from low density to high density residential developments in accordance with the existing R4 High Density Zoning.

Building layout

The application is provided with a split finished floor level on the ground floor for apartments in turn providing for 4 proposed apartments being 1.1m above the lobby area (this finished level accessed via stairs within these units as part of their entry area). This design solution is considered appropriate in this instance noting the fall in the subject site which is followed via the proposed layout along with providing for the minimum height clearance to the waste serves area for the western elevation of the built form.

In addition, the application will provide for 9 apartments to levels 1 to 3 which exceeds the maximum number of apartments off a circulation core as provided by the Apartment Design Guide by 1. While so, the proposal is provided with 1.55m wide corridor width, short corridor lengths, appropriate lobby layouts to these levels and numerical compliance overall for solar access and natural ventilation to apartments which is considered to allow for an acceptable variation to this design criteria in this instance.

Landscaped Area

The provision of a residential flat building under the requirements of the Penrith Development Control Plan 2014 is required to provide for 35% landscaped area. An assessment of the provided plans has identified that 28% of the site is provided as landscaped area and is therefore non compliant. While so, it is noted that the application is compliant with the requirements of communal open space and deep soil area under the Apartment Design Guide with the proposed roof top communal open space also embellished with a significant amount of landscaping. In this regard, a variation is considered justified in this instance.

An assessment under Section 4.15 of the EP&A Act 1979 (as amended) has been undertaken and the application is recommended for approval subject to appropriate conditions.

Site & Surrounds

The subject site is known as 32 - 36 Hope Street, Penrith and is legally known as Lots 37, 38 and 39, DP 31239. The allotment is rectangular in shape with a frontage onto Hope Street of 46.635m and a depth of 40.045m resulting in an overall site area of 1,867.49m^2. Each lot is currently provided with a single storey residential dwelling and associated structures. The subject site falls from the rear to the front with a fall of 2m across the depth of the site towards Hope Street.

This section of Hope Street is currently in a state of transition from traditional detached dwellings to higher density development with a number of approvals recently granted for the construction of residential flat buildings. In this regard, directly adjoining the subject site to the west (No. 38-40 Hope Street) is a constructed five (5) storey residential flat building containing 24 apartments with basement car parking (approved under DA15/0683) while to the north of the subject site along the opposite side of Hope Street (25-31 Hope Street) are two six (6) storey residential flat buildings containing 61 apartments with basement car parking currently under construction under DA15/1185.

To the east of the subject site at No. 12-14 Hope Street is a five storey residential flat building containing 27 apartments and basement car parking approved under DA16/0123 currently under construction. Council is also currently in receipt of development applications at No. 26-30 Hope Street (six (6) storey residential flat building containing 45 apartments & two (2) levels of basement car parking under DA18/0488) and at 16-24 Hope Street (two (2) x six (6) storey residential apartment developments including 76 apartments & two (2) levels of basement car parking under DA18/0792) which are currently under assessment and are yet to be determined.

Proposal

The development proposes the demolition of existing structures and construction of a six (6) storey residential flat building containing 45 apartments & two (2) levels of basement car parking. Specifically, the proposed development includes the following key aspects;

Basement Level 2

- The provision of a total of thirty two (32) car parking spaces including three (3) accessible spaces, one (1) car wash bay and one (1) service vehicle bay,
- Bicycle parking room containing twelve (12) spaces,
- Twenty seven (27) residential storage spaces,
- Ramp access for vehicles to upper level, and
- Circulation core providing for two (2) lifts, two (2) fire stairs and mechanical ventilation shaft.

Basement Level 1

- The provision of a total of twenty nine (29) car parking spaces including two (2) accessible spaces, one (1) car wash bay and one (1) service vehicle bay,
- Sixteen (16) residential storage spaces,
- Service room with hydrant booster,
- Ramp access for vehicles to ground level, and
- Circulation core providing for two (2) lifts, two (2) fire stairs and mechanical ventilation shaft.

Ground Floor Level

- Vehicular access to the basement level from Hope Street,
- Provision of a garbage truck / loading bay including garbage room, bin collection room and bulky waste room. The garbage truck / loading bay area is provided with a separate access way for service vehicles along the western boundary of the subject site to and from Hope Street,
- Pedestrian access to the proposed residential flat building and associated site landscaping,
- Provision of six (6) apartments consisting of 4 x 2 bedroom and 2 x 1 bedroom units each provided with a separate courtyard area, and
- Foyer entry area, lobby with circulation core providing for two (2) lifts, one (1) fire stairs and mechanical ventilation shaft.

Levels 1 to 3

- The provision of nine (9) x 2 bedroom units each with an associated balcony, and
- Lobby area with circulation core providing for two (2) lifts, one (1) fire stairs, garbage room with dual chutes and mechanical ventilation shaft. Each lobby area is also provided with an identified separate sitting area.

Level 4

- The provision of seven (7) apartments consisting of 3 x 1 bedroom, 3 x 2 bedroom and 1 x 3 bedroom units each with an associated balcony, and
- Lobby area with circulation core providing for two (2) lifts, one (1) fire stairs, garbage room with dual chutes and mechanical ventilation shaft. Each lobby area is also provided with an identified separate sitting area.

Level 5

- The provision of five (5) apartments consisting of 2 x 2 bedroom and 3 x 3 bedroom units each with an associated balcony, and
- Lobby area with circulation core providing for two (2) lifts, one (1) fire stairs, garbage room with dual chutes and mechanical ventilation shaft. Each lobby area is also provided with an identified separate sitting area.

Rooftop Level

- The provision of a communal open space area consisting of planter boxes, tables and chairs and bbq area,
- Circulation core providing for two (2) lifts and one (1) fire stairs. As separate w.c and cleaner room is also provided.

The proposed apartment mix is provided by the following table below;

Unit Type	No of units
1 bedroom unit	5
2 bedroom unit	36
3 bedroom unit	4

Background

The application was subject to a pre-lodgement meeting held with relevant Council staff members on the 28 August, 2017. In addition, the application has been subject to an Urban Design Review Panel Meeting (UDRP) held with Council on the 11 October, 2017. The application was also subject to a further UDRP meeting since the receipt of the application and the matters raised during the panel meetings have been addressed in the proposed design.

Plans that apply

- Local Environmental Plan 2010 (Amendment 4)
- Development Control Plan 2014
- State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
- State Environmental Planning Policy No 55—Remediation of Land
- State Environmental Planning Policy No 65—Design Quality of Residential Flat Development
- Sydney Regional Environmental Plan No.20 - Hawkesbury Nepean River

Planning Assessment

- ## Section 4.15 - Evaluation

  The development has been assessed in accordance with the matters for consideration under Section 4.15 (previously Section 79C) of the Environmental Planning and Assessment Act 1979, and having regard to those matters, the following issues have been identified for further consideration:

Section 79C(1)(a)(i) The provisions of any environmental planning instrument

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

The application was originally submitted with BASIX Certificate No. 881520M dated 24 November, 2017, which confirmed that the development will meet the NSW government's requirements for sustainability. The layout of the proposed residential flat building has subsequently been modified via the provision of amended plans but while so a revised BASIX Certificate has not been submitted with the amended application to clearly indicate that the revised development unit mix meets the required water, thermal comfort and energy targets. In this regard, a condition is to be included with any consent granted requesting that an amended Basix Certificate be provided prior to the issue of any Construction Certificate.

State Environmental Planning Policy No 55—Remediation of Land

Clause 7 of State Environmental Planning Policy No. 55 (SEPP 55) outlines the following requirements that a consent authority must consider prior to the issue of a consent for any development:

A consent authority must not consent to the carrying out of any development on land unless:

(a) it has considered whether the land is contaminated, and
(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and
(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

There is no record that the subject site is contaminated. The proponent has outlined that the site has been historically used for residential purposes while the surrounding area is also used for residential purposes. In this regard, given the residential use of the subject site and surrounding properties, it is not considered that further analysis is required as the proposal is not a change of land use being residential to residential. While so, should any 'unexpected findings' occur during excavation and earthworks, work is to cease immediately and Penrith City Council is to be notified. This is addressed by way of recommended conditions of consent.

State Environmental Planning Policy No 65—Design Quality of Residential Flat Development

An assessment has been undertaken of the development proposal against the aims and objectives and specific provisions of State Environmental Planning Policy No. 65—Design Quality of Residential Apartment Development. In particular, the development proposal has been assessed against Clause 30 of the Policy which states that:

"Development consent must not be granted if, in the opinion of the consent authority, the development or modification does not demonstrate that adequate regard has been given to the design quality principles, and the objectives specified in the Apartment Design Guide for the relevant design criteria"

The development application as lodged, was submitted with a design verification statement prepared by Joe El Sabbagh. The statement is considered to address the matters required under Clause 50(1B) of the Environmental Planning and Assessment Act 2000 (the Regulations), in that the explanation verifies how the development:

(i) addresses how the design quality principles are achieved, and
(ii) demonstrates, in terms of the Apartment Design Guide, how the objectives in Parts 3 and 4 of that guide have been achieved.

An assessment against Schedule 1 'Design Quality Principles', of the Policy has been undertaken and is included in **Table 1** and an assessment against the accompanying Apartment Design Guide is also provided in **Table 2** below.

Table 1: Assessment Against Schedule 1 - Design Quality Principles Assessment Against Schedule 1 - Design Quality Principles	Officer Discussion

Principle 1: Context and neighbourhood character	Good design responds and contributes to its context. Context is the key natural and built features of an area, their relationship and the character they create when combined. It also includes social, economic, health and environmental conditions. Responding to context involves identifying the desirable elements of an area's existing or future character. Well designed buildings respond to and enhance the qualities and identity of the area including the adjacent sites, streetscape and neighbourhood. Consideration of local context is important for all sites, including sites in established areas, those undergoing change or identified for change.	The design is considered to respond to the context of the site. The development as proposed does have regard to the recommended building separation distances and is considered to respond adequately to the approved and constructed development to the west at No. 38-40 Hope Street.
Principle 2: Built form and scale	Good design achieves a scale, bulk and height appropriate to the existing or desired future character of the street and surrounding buildings. Good design also achieves an appropriate built form for a site and the building's purpose in terms of building alignments, proportions, building type, articulation and the manipulation of building elements. Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook	The development does adequately respond to the site's context and is considered to be sympathetic with the bulk and scale of surrounding approved residential flat buildings. The visual presentation of the built form is also considered an acceptable addition to a streetscape which is currently in transition from older low scale residential dwellings to larger residential flat buildings.
Principle 3: Density	Good design achieves a high level of amenity for residents and each apartment, resulting in a density appropriate to the site and its context. Appropriate densities are consistent with the area's existing or projected population. Appropriate densities can be sustained by existing or proposed infrastructure, public transport, access to jobs, community facilities and the environment.	The development is considered to be of an appropriate bulk and scale and does provide for acceptable internal or external amenity for residents. The density of the development is not considered excessive for the subject site resulting in appropriate unit amenity, car parking and waste collection and common open space proposed.

Principle 4: Sustainability	Good design combines positive environmental, social and economic outcomes. Good sustainable design includes use of natural cross ventilation and sunlight for the amenity and liveability of residents and passive thermal design for ventilation, heating and cooling reducing reliance on technology and operation costs. Other elements include recycling and reuse of materials and waste, use of sustainable materials and deep soil zones for groundwater recharge and vegetation.	The application is considered to identify that adequate solar access and natural ventilation is provided in accordance with the Apartment Design Guide rates. Internal living areas are provided with direct access to external living areas while solar shades to the northern elevation will also assist in restricting overbearing sunlight during the warmer summer period.
Principle 5: Landscape	Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in attractive developments with good amenity. A positive image and contextual fit of well designed developments is achieved by contributing to the landscape character of the streetscape and neighbourhood. Good landscape design enhances the development's environmental performance by retaining positive natural features which contribute to the local context, co-ordinating water and soil management, solar access, micro-climate, tree canopy, habitat values and preserving green networks. Good landscape design optimises useability, privacy and opportunities for social interaction, equitable access, respect for neighbours' amenity and provides for practical establishment and long term management.	Deep soil has been co-located with private open space areas for ground floor apartments. Landscaping provided to the street frontage is considered to enhance the built form while boundary landscaping is also considered to improve the presentation of the proposed built form to direct adjoining neighbours. In addition, landscaping to the communal roof area will offer areas of relief for future residents using this area.

Principle 6: Amenity	Good design positively influences internal and external amenity for residents and neighbours. Achieving good amenity contributes to positive living environments and resident well being. Good amenity combines appropriate room dimensions and shapes, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts and service areas and ease of access for all age groups and degrees of mobility.	The proposal is considered to provide for an appropriate level of amenity for the majority of future occupants in accordance with the requirements of the Apartment Design Guide in regard to room dimensions, privacy, ventilation and solar access. It is noted that units 3 to 6 are provided with a stepped entry area, but while so, as the proposed finished floor levels for these units follow to existing natural ground levels on the subject site, this is considered an appropriate design outcome which will not decrease amenity to these units. It is also noted that this split level design to the ground floor has also been provided to accommodate the necessary service vehicle clearance requirements for the collection of waste.
Principle 7: Safety	Good design optimises safety and security within the development and the public domain. It provides for quality public and private spaces that are clearly defined and fit for the intended purpose. Opportunities to maximise passive surveillance of public and communal areas promote safety. A positive relationship between public and private spaces is achieved through clearly defined secure access points and well lit and visible areas that are easily maintained and appropriate to the location and purpose.	The application is considered to have appropriate regard to the principles of Crime Prevention through Environmental Design. The proposal will present to Hope Street with casual surveillance achieved via the location of balconies and windows to all elevations. The building design is not considered to create areas of concealment with clear lines provided in separating public and private areas.
Principle 8: Housing Diversity and Social Interaction	Good design achieves a mix of apartment sizes, providing housing choice for different demographics, living needs and household budgets. Well designed apartment developments respond to social context by providing housing and facilities to suit the existing and future social mix. Good design involves practical and flexible features, including different types of communal spaces for a broad range of people and providing opportunities for social interaction among residents.	The mix of units in the development is acceptable.

Principle 9: Aesthetics	Good design achieves a built form that has good proportions and a balanced composition of elements, reflecting the internal layout and structure. Good design uses a variety of materials, colours and textures. The visual appearance of a well designed apartment development responds to the existing or future local context, particularly desirable elements and repetitions of the streetscape.	The development is assessed to be appropriate in bulk and scale. As detailed elsewhere in this table and in the assessment of the development against the Apartment Design Guide (ADG) below, the development is considered to be consistent with the design criteria and design guidance statements of the ADG. The design of the building is considered to respond adequately to the constrains of the site, the site dimensions and the needs of the future residents. The development is considered an acceptable addition to the streetscape providing for adequate landscaping, deep soil and canopy tree planting along the frontage of the site.

Table 2: Assessment Against the Apartment Design Guide (ADG)
Assessment Against the Apartment Design Guide (ADG)

Part 3	Required	Discussion	Complies
3A-1	Each element in the Site Analysis Checklist should be assessed.	A Site Analysis plan was submitted with the application and identifies applicable elements as required within the Checklist. A written description of the proposal and subject site are also included in the submitted Statement of Environmental Effects and accompanying plans and reports.	Yes.
3B-1	Buildings to address street frontages.	The building frontage onto Hope Street is naturally orientated to north and allows for direct access from the street.	Yes.
3B-2	Living areas, Private Open Space (POS) and Communal Open Space (COS) to received compliant levels of solar access.	Refer discussion under Part 3D and 4A.	N/A.

	Solar access to living rooms, balconies and private spaces of neighbours should be considered.	Submitted shadow diagrams are considered to adequately demonstrate that additional overshadowing attributed to the subject development, does not reduce the amount of solar access available for the private open spaces and living zones of the adjacent property to the approved residential flat building to the west (38-40 Hope Street) to allow for compliance with the Apartment Design Guide. The submitted shadow diagrams have identified that the adjoining properties to the south of the subject site will be impacted by additional overshadowing but while so, noting the compliant setbacks provided to all boundaries as well as to the upper levels, the proposal is not considered to create an inappropriate relationship with surrounding lots. In addition, it is noted that overshadowing for the majority of the morning period will fall upon an at grade parking area associated with an existing facility providing housing for older people or people with a disability approved in May, 1998 while existing vegetation along the common boundary with the southern neighbour is also considered to currently contribute to overshadowing.	Yes.
	If the proposal will significantly reduce the solar access of neighbours, building separation should be increased.	As discussed above, adequate information has been submitted with the development application to enable an accurate assessment in this regard. It is also noted that the proposed building has been orientated at 90 degrees to the boundary with neighbouring properties to minimise overshadowing created, also noting the compliant building separations provided to each boundary.	Yes.
3C-1	Terraces, balconies and courtyard apartments should have direct street entry, where appropriate.	Ground floor apartments with street frontage to Hope Street are provided with direct access to the street.	Yes.
	Changes in level between private terraces, front gardens and dwelling entries above the street level provide surveillance and improve visual privacy for ground level dwellings.	Limited level difference (up to 100mm) is provided between the pavement height and the finished floor height of the ground floor apartments.	Yes.
	Upper level balconies and windows to overlook the street.	All apartments along the street frontage overlook Hope Street.	Yes.

	Length of solid walls should be limited along street frontages.	The presentation of the northern elevation fronting Hope Street is provided with acceptable openings which has minimised the presentation of any solid walls. While it is noted that the entry to the basement level is provided with a blank wall above the basement access (from unit 1 above), as this blank wall is setback 16m from the northern boundary and also noting the landscaping adjoining the driveway entry, it is not considered that this wall will present as a dominant feature along the streetscape.	Yes.
	Opportunity for concealment to be minimised.	Due to the central location of the lobby, areas of concealment and crime are not considered to be provided along the main ground floor lobby entry. A portico structure to the front entryway is not considered to prevent views to the entry pathway from above while the entry from Hope Street is considered to be distinguished and linear in nature maintaining a straight line to the ground floor lobby area so as to minimise and areas of concealment. The lift also faces internally towards the lobby entry doors.	Yes.
	Opportunities should be provided for casual interaction between residents and the public domain. Design solutions may include seating at building entries, near letter boxes and in private courtyards adjacent to streets.	A seat is near the building entry is provided. Mail box locations are also nominated on plans adjoining the proposed seat.	Yes.
3C-2	Mail boxes should be located in lobbies, perpendicular to the street alignment or integrated into front fences where individual street entries are provided.	Mail box locations are nominated on plans adjoining the building entry which is considered an appropriate design solution.	Yes.

	Substations, pump rooms, garbage storage areas and other service requirements should be located in basement carparks or out of view.	While a potential electrical substation has been identified to the north eastern corner of the subject lot forward of the building, the nature of landscaping proposed is considered to allow for suitable screening. Garbage storage rooms are adequately integrated into the building with the entry proposed along the western elevation and not in view from the street. This location is considered appropriate and is not considered to create a negative streetscape or visual impacts.	Partial non compliance but acceptable in this instance.
3D-1	Communal Open Space (COS) to have minimum area of 25% of site.	467.05m^2 of COS is required under the ADG (25% of total site area). Submitted plans state that 498m^2 or 27% of site is provided as COS. The area of COS is provided to the roof top level. The proposed COS area is assessed to be a high amenity and usable space for residents with equitable access to this area provided from all levels via a lift core.	Yes.
	Achieve a minimum of 50% direct sunlight to the principle usable part of the communal open space.	As the communal open space is proposed to the roof area adequate solar access is maintained throughout the day.	Yes.
	COS to be consolidated into a well-designed, usable area.	Refer to discussion above.	Yes.
	COS to be co-located with deep soil.	As the communal open space is located to the roof level, co-existance with deep soil area is not provided for. While so, it is considered that a range of vegetation features has been provided for to the roof top area within planter box areas (provided with a depth of up to 1m) to allow for some form of natural relief for users.	No, but acceptable in this instance.
3D-2	COS is to be provided with facilities such as barbeque areas and seating.	Seating or barbeque areas are provided within the COS area.	Yes.
	COS is to be well lit and readily visible from habitable rooms.	The location of the communal open space to the roof level does not provide for visibility from habitable rooms, but while so, this area is not considered to provide for any areas of entrapment, is allowed equitable access via the proposed lift service with the location on the roof considered to allow for a greater area of use as compared to a confined location along a side boundary or a rear corner of the subject site..	No, but acceptable in this instance.

3D-4	Boundaries should be clearly defined between public open space and private areas.	Boundaries between public and private space are clear noting the continuation of front courtyard fencing to the rear of the potential substation location and fire stairs leading from the basement located to the north eastern corner of the subject site. In addition, it is also considered that appropriate fencing has been provided between private open space areas on the ground floor and areas accessible from Hope Street to minimise inappropriate movement of persons.	Yes.
3E-1	Deep soil is to be provided at a rate 15% with a minimum dimension of 6m.	280.23m^2 of deep soil is required under the ADG (15% of total site area). Submitted plans state that 284.2m^2 or 15.2% of site is provided as deep soil and is provided in a 6m wide strip primarily along the rear of the site. Small pockets of deep soil are provided within the front setback which will allow for landscaping to be provided to assist in screening courtyard areas fronting Hope Street.	Yes.

3F-1	Minimum required shared separation distances between habitable rooms and balconies are to be as follows: 1-4 Storeys – 12m 5-8 storeys – 18m	Building separation is as follows (measured from the face of the balcony/building to the side boundary): <u>South Separation</u> A setback of between 6.066m is provided to the ground and the third levels. A setback of 9.068m is provided for level 4 upwards. It is noted that plans as amended have provided for a portion of the bin collection room to be located 3.013m from the southern boundary at a height of 1.296m above the rear natural ground level. As this portion is not provided with any openings and in turn is also provided with a planter box above to minimise its masonry presentation, no amenity of bulk and scale concerns are created to the adjoining southern neighbour. In addition, non-habitable rooms are allowed a 3m setback to a boundary. As no openings are provided to this portion of the bin collection room and noting the setback provided, this area of the ground floor is compliant with the Apartment Design Guide. <u>Western Separation</u> A setback of between 6.003m is provided to the ground and the third levels. A setback of between 9.116m and 9.120m is provided for level 4 upwards. <u>East Separation</u> A setback of between 6.007m and 6.013mis provided to the ground and the third levels. A setback of between 9.014m and 9.101m is provided for level 4 upwards.	Yes.
3F-2	Communal open space, common areas and access paths to be separated from private open space and windows to apartments.	The proposal is provided with landscaping and fencing to allow for appropriate separation.	Yes.
	Bedrooms, living spaces and other habitable rooms should be separated from gallery access and other open circulation space by the apartment's service areas.	An acceptable separation has been provided between habitable rooms and circulation spaces	Yes.
	Balconies, and private terraces should be located in front of living rooms to increase internal privacy.	Balconies are generally provided adjacent living rooms.	Yes.

	Windows should be offset from the windows of adjacent buildings.	An acceptable separation is provided between proposed windows and openings on adjoining properties. In addition, it is noted that the proposal is provided with an 3m indented design feature between units to level 1 to 3 on the southern elevation. While a living room window from one unit is located in the vicinity of a kitchen and bathroom window of the unit opposite, as the latter unit windows are to be treated in obscured glazing, no direct overlooking concerns are created, concern also minimised noting that the kitchen window will not serve as a primary source of sunlight for this unit.	Yes.
3G-1	Building entries to be clearly identifiable.	The entryway is adequately articulated with landscaping and a timber pergola to allow it be clearly identifiable from Hope Street.	Yes.
3G-2	Building access ways and lift lobbies to be clearly visible from the public domain and communal spaces.	The main pedestrian entry is visible from the street. The lift faces the lobby entry and is visible from the front door.	Yes.
3H-1	Carpark access should be integrated with the building's overall façade.	The entry to the basement carpark is adequately integrated into the building with access directly off Hope Street. The location of the driveway has also allowed for the provision of a splayed landscaped buffer along the northern boundary fronting Hope Street which will serve to minimise the visual impact of the basement entry.	Yes.
	Clear sight lines to be provided for drivers and pedestrians.	Adequate sight lines are provided for pedestrians or drivers exiting the basement.	Yes.
	Garbage collection, loading and servicing areas are screened.	The bulky waste and garbage areas are screened from the street.	Yes.
3J-1	The site is not located within 800m of a railway station and is required to comply with the car parking rates as stipulated within the Penrith DCP 2014.	Refer discussion under Penrith DCP 2014.	N/A
3J-2	Secure undercover bicycle parking should be provided for motorbikes and scooters.	12 secure bicycle parking spaces are provided at Basement 2.	Yes.
3J-3	Carpark design and access is safe and secure - A clearly defined and visible lobby area or waiting area should be provided to lifts and stairs.	Lift lobby areas within Basement 1 and 2 are clearly defined and appropriately located.	Yes.

4A-1	Living rooms and private open spaces of at least 70% of apartments to receive 2 hours direct sunlight between 9am and 3pm mid-winter.	Submitted plans are considered to demonstrate that compliance with this design criteria is met in that 37 of the proposed 45 units (82%) will receive adequate solar access. A review of the submitted 'Solar Access and View from the Sun' plans (Plan No's. G24-G32) has been undertaken and it considered that the diagrams have appropriately indicated solar access to living zones and open spaces.	Yes.
	A maximum of 15% of apartments in a building receive no direct sunlight between 9am and 3pm at mid winter.	Submitted plans are considered to demonstrate that a total of 6 units (13%) will not receive any solar access. It is noted that solar access to units 31 and 39 has been improved via modifications accompanying amended plans to allow for compliance with this clause of ADG requirements.	Yes.
4A-2	Courtyards, skylights and high level windows (with sills of 1,500mm or greater) are used only as a secondary light source in habitable rooms.	The application is not provided with any highlight windows. A skylight is proposed for unit 43 which will serve as a secondary light source and also allow for appropriate natural ventilation. Units 4, 13, 22 and 31 from the ground floor to level 3 respectively are provided with a 'snorkel bedroom' with the window to the bedroom setback 3m from the buildings eastern facade. The setback of this window to the façade is not considered unacceptable with the snorkel portion of the rooms floor area considered to provide for an appropriate size for use. It is also noted that units 31 and 39 were redesigned to allow for improved solar access to the main living room of these units. In this regard, only 4 of the overall proposed 89 bedrooms (4.5%) are provided in a snorkel manner which is considered an acceptable design outcome.	Yes.
4A-3	Sun shading devices are to be utilised.	Sun shading devices are provided to a number of windows along the northern elevation.	Yes.
4B-3	60% of apartments are naturally ventilated and overall depth of cross-through apartments 18m maximum glass-to-glass line.	The submitted plans indicate that 60% of apartments can achieve natural cross ventilation. This calculation includes unit 43 which was provided with an amended design to incorporate a skylight to achieve compliance.	Yes.

4C-1	Finished floor to finished ceiling levels are to be 2.7m for habitable rooms, 2.4m for non-habitable rooms.	The proposal is for 3.1m measured from finished floor to finished floor level resulting in a 2.8m finished floor to underside of ceiling, which is compliant with the ADG. It is noted that units 1 and 2 are provided with a 4m floor to ceiling height noting the split level nature of the ground floor.	Yes.
4D-1	Apartments are to have the following min. internal floor areas: 1 bed – 50sqm 2 bed – 70sqm 3 bed – 90sqm Additional bathroom areas increase minimum area by 5sqm.	All proposed apartment sizes comply with the ADG requirements.	Yes.
4D-2	In open plan layouts the maximum habitable room depth is 8m from a window.	All units comply with this requirement.	Yes.
4D-3	Master bedrooms to be 10sqm's and other rooms 9sqm's.	All units comply with this requirement.	Yes.
	Bedrooms to have a minimum dimension of 3m.	All units comply with this requirement.	Yes.
	Living rooms to have minimum width of 3.6m for a 1 bedroom unit and 4m for 2 & 3 bedrooms.	All units comply with this requirement.	Yes.
4E-1	All units to have the following primary balcony areas: 1 bed – 8sqm (2m deep) 2 bed – 10sqm (2m deep) 3 bed – 12sqm (2.4m deep)	All units comply with this requirement.	Yes.
4E-3	Air-conditioning units should be located on roofs, in basements, or fully integrated into the building design.	A mechanical unit is identified on the roof level.	Yes.
4F-1	The maximum number of apartments off a circulation core on a single level is eight	The application provides for a maximum of 9 units to level's 1 to 3 which is non compliant in this instance. While so, as the proposal will provide for overall compliance with solar access and natural ventilation requirements with only 1 unit on each of these levels not provided with solar access. The additional apartment to each of these levels is therefore not considered to diminish the overall amenity of future occupants. In addition, it is noted that the amenity for future occupants is improved via the provision of two (2) lifts which is provided in a centralised location to minimise travel distances from the lift to the front door of units.	Partial non compliance but acceptable in this instance

4F-1	Daylight and natural ventilation to be provided to all common circulation spaces.	As the ground floor lobby area is provided with a northern facing entry onto Hope Street it is considered that an adequate amount of solar access is provided to this area. The application has been also provided with a southern facing indented perspective with louvre windows adjoining a planter box area for levels 1 to 5. These lobby areas on each upper level above the ground floor is considered to provide for filtered light access noting their orientation, but while so is considered an appropriate design solution in this instance as priority has been given to the location of northern facing units on each level to allow for optimal solar access. In addition, a small sitting area is provided to the lobby area of each level adjoining the proposed southern inlets creating the potential for interaction between residents.	Yes.
4F-1	Primary living room or bedroom windows should not open directly onto common circulation spaces, whether open or enclosed. Visual and acoustic privacy from common circulation spaces to any other rooms should be carefully controlled.	All primary bedroom and living room windows do not directly front onto common circulation spaces. In this regard, visual and acoustic privacy is considered to be maintained.	Yes.
4G-1	In addition to storage in kitchens, bathrooms and bedrooms, the following storage is to be provided: 1 bed – 4m^3 2 bed – 6m^3 3 bed – 10m^3 With 50% of the above to be provided within the Units.	Submitted plans indicate that storage cages are provided with the basement carpark. Adequate area for internal storage could be accommodated within apartments.	Yes.

4K-1	Flexible apartment configurations are provided to support diverse household types.	The development proposes a range of unit sizes, configurations and number of bedrooms to accommodate change over time and cater for differing households. Unit mix is calculated as follows: 5 x 1 bedroom apartments (11.5%) 36 x 2 bedroom apartments (80%) 4 x 3 bedroom units (8.5%) It is noted that units 3, 4, 5 and 6 on the eastern side of the proposed buildings ground floor are provided with a 1.1m difference in height to the lobby area with an R.L of 44.8 provided to these units compared to an R.L of 43.7 to the lobby area requiring the provision of stairs from the unit door entry area. This difference in finished levels is provided in response to the contours of the subject site and to allow for an appropriate waste service facility accessed along the western side of the subject site. Each entry to units 3 to 6 is considered to allow for the appropriate movement of persons as well as household items noting that these entry areas range in width from 1.2m to 1.6m.	Yes.
4L-1	Direct street access should be provided to ground floor apartments.	Direct street access is provided for ground floor apartments 1, 2 and 3.	Yes.
4M-1	Building facades to be well resolved with an appropriate scale and proportion to the streetscape and human scale.	The proposed street elevation is considered to provide for a strong form and presence with the building design incorporating varied building elements to provide visual interest along the street. The façade is provided with both horizontal and vertical elements with stacked balconies creating clearly identifiable vertical lines while horizontal division is provided via dominant storey levels. The proposed building is also provided with a solid brick base with cantilevered middle element forms and topped with recessed upper 2 levels. The materials proposed provide for a mixture of brick, render and cladding which are considered to be appropriately coloured to allow for a favourable addition to the existing streetscape.	Yes.

4O-1	Landscape design to be sustainable and enhance environmental performance.	The proposed landscaping design will allow for medium sized trees (ranging in height from 10m to 12m when mature) to be incorporated within deep soil areas with planter boxes provided to each upper level. The nature of the landscaping proposed is considered to allow for subtle screening of apartments from adjoining premises in association with boundary fencing while also providing for an appropriate streetscape relationship along the sites northern façade. In this regard, the proposed landscaping is considered will enhance the environmental performance of the structure. In addition, sections are provided through upper level planting proposed via planter boxes which has identified that planting will be sustainable and practical with the depth of planter boxes ranging from 600mm to 1m.	Yes.
4Q-2	Adaptable housing is to be provided in accordance with the relevant Council Policy.	A total of 5 adaptable units is proposed (11.1%) which is acceptable having regard to the legislation.	Yes.
4U-1	Adequate natural light is provided to habitable rooms.	Apartment depths and open floor plan arrangements allow light into kitchens, dining and living areas.	Yes.
4V-2	Water sensitive urban design systems to be designed by suitably qualified professional.	The development application was referred to Council's internal Environmental Waterways Unit and was supported subject to the provision of appropriate conditions with and development consent granted.	Yes.
4W-1	A Waste Management Plan is to be provided.	A Waste Management Plan is generally acceptable subject to conditions.	Yes.
	Circulation design allows bins to be easily manoeuvred between storage and collection points.	Waste areas and manoeuvring is compliant with Council's DCP. Garbage collection will be provided onsite within a proposed garbage truck loading bay.	Yes.

Sydney Regional Environmental Plan No.20 - Hawkesbury Nepean River

An assessment has been undertaken of the application against relevant criteria with Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River (No 2—1997). This Policy aims *"to protect the environment of the Hawkesbury-Nepean River system by ensuring that the impacts of future land uses are considered in a regional context".* The Policy requires Council to assess development applications with regard to general and specific considerations, policies and strategies.

The proposal is not found to be contrary to these general and specific aims, planning considerations, planning policies and recommended strategies of the plan. The site is not located within a scenic corridor of local or regional significance and it is considered that the proposed development will not significantly impact on the environment of the Hawkesbury-Nepean River either in a local or regional context.

Local Environmental Plan 2010 (Amendment 4)

Provision	Compliance
Clause 1.2 Aims of the plan	Complies
Clause 2.3 Permissibility	Complies
Clause 2.3 Zone objectives	Complies
Clause 4.1A Minimum lot sizes for dual occupancies, multi dwelling housing and residential flat buildings	Complies
Clause 4.3 Height of buildings	Does not comply - See discussion
Clause 4.4 Floor Space Ratio	N/A
Clause 4.6 Exceptions to development standards	Complies - See discussion
Clause 5.9 Preservation of trees or vegetation	Complies - See discussion
Clause 5.10 Heritage conservation	N/A
Clause 7.2 Flood planning	Complies
Clause 7.4 Sustainable development	Complies - See discussion
Clause 7.6 Salinity	Complies - See discussion
Clause 7.7 Servicing	Complies - See discussion
Schedule 5 Environmental Heritage	N/A

Clause 4.3 Height of buildings

The subject site is provided with a maximum building height of 18m under the PLEP. The application is provided with a flat roof (RL63.40) which also incorporates seating areas (RL63.55) for part of the roof area used for communal open space purposes which provides for a non compliance on the subject site of between 4.45m (overall height of 22.45m or 22% above the maximum height required) to the lift overrun and 1.70m (overall height of 19.70m or 9% above the maximum height required) to the uppermost habitable floor area (for units 41 to 45 on Level 5).

In this regard, the application was accompanied with a *'4.6 Exception to development standard'* which has discussed the nature of the height non compliance. Discussion in regard to the non compliance is provided for under a separate title within this report.

Clause 4.6 Exceptions to development standards

The application is non compliant with the height of buildings development standard under Clause 4.3 of the Penrith Local Environmental Plan 2010. In this regard, the proposal is provided with a flat roof (RL63.40) which also incorporates seating areas (RL63.55) for part of the roof area used for communal open space purposes which provides for a non compliance on the subject site of between 4.45m (overall height of 22.45m) to the lift overrun and 1.7m (overall height of 19.70m) to the uppermost habitable floor area (for units 41 to 45 on Level 5).

Clause 4.6 of the Penrith Local Environmental Plan 2010 provides that development consent may be granted for development even though the development would contravene a development standard. This is

provided that the relevant provisions of the clause are addressed, in particular subclause 3-5 which provide:

(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, and

(b) the concurrence of the Secretary has been obtained.

(5) In deciding whether to grant concurrence, the Secretary must consider:
(a) whether contravention of the development standard raises any matter of significance for State or regional environmental planning, and
(b) the public benefit of maintaining the development standard, and
(c) any other matters required to be taken into consideration by the Secretary before granting concurrence.

In this regard, the non compliance is to be discussed below;

Building Height

The application has been accompanied by a revised Clause 4.6 Variation Request prepared by Think Planners dated 26 October, 2018 in relation to the building height non-compliance. In this regard, the accompanying Variation request has provided for the following evaluation as to the identified variation in relation to Clause 4.3 of the PLEP;

The current development proposal is predominantly consistent with the building height except for a portion of level 6 however, the proposal remains consistent with the objectives based on the following:

- *The proportion of the building that protrudes above the 18m height limit contains limited habitable floor space and continues to be 6 storeys, reinforcing that the breach to the height standard does not result in the development representing an overdevelopment of the site but rather a suitable contextual response to the topographical fall on the site in order to achieve a suitable ground floor outcome with sufficient amenity for the apartments at this level as well as catering for the additional height required for waste servicing trucks- which is a requirement that has been adopted by Council well after the adoption of the 18m height limit control in the LEP and therefore results in an increased height beyond the 18m.*

- *The overall height of the development presents as a compatible form of development to the anticipated high density residential development that are emerging in the locality, noting that the emerging character is for 6 storey residential flat buildings in the locality and 6 storeys is the prevailing form of development being carried in the R4/18m height limit area. The 6th storey of the proposal is recessed behind the main building alignment to downplay visual dominance as viewed from the public domain and adjoining residential properties.*

- *The proposed buildings will present an appropriate bulk and scale on the site with 3 balanced vertical components/proportions that are consistent with other approved and already constructed 6 storey*

residential flat building developments in Hope Street and surrounding area.

- *The additional height does not generate any additional amenity impacts given the location of the site and the surrounding site context.*

- *Given the scale of the proposal, and the extent of the variation is not perceptible at street level given the upper level of the building is setback behind the lower levels which means the additional height will not be seen from a pedestrian level when standing in the public domain.*

- *The proposal provides for a suitable planning outcome through limiting south facing units. Therefore the design response has been to maximise the amenity of apartments through a cut-out in the building and suitable recessed elements rather than a 'square' building utilising every available area of floor space.*

- *In the absence of additional height, the ability to deliver a satisfactory waste management and truck turning areas within the site is not achievable or feasible- again noting the requirement for on-site collection came into effect after the adoption of the LEP amendments- and therefore nearly all residential flat buildings represent a degree of departure from the 18m control to facilitate this. The additional floor to ceiling height needed for truck turning areas for a heavy rigid vehicle is 4.5m which is significantly larger than the normal requirements for floor to floor heights within a residential development and is a key driver of the extent of the height non- compliance.*

- *The proposal ensures that the area is provided with high density residential development to support the growth of Penrith and to align with the principles of urban consolidation that seek to ensure the efficient use of community infrastructure by providing higher density residential development at strategic locations, noting that both the Penrith train station and CBD are located within walking distance as well as arterial roads that service the area.*

- *The proposal has been designed to ensure that privacy impacts are mitigated against and that the proposal will not obstruct existing view corridors.*

- *The proposal does not result in any discernible increased shadow impact given the orientation of the site and setbacks that fully comply with the requirements of the Apartment Design Guide.*

- *The non-compliance to the height control has no impact on the setting of any items of environmental heritage or view corridors.*

- *The proposal does not adjoin any low-density areas or sensitive interfaces and will integrate with future development to the north, east, south and west.*

As outlined above the proposal remains consistent with the underlying objectives of the control and as such compliance is considered unnecessary or unreasonable.

The accompanying Variation request has also provided the following discussion in relation to Clause 4.6(4) and 4.6(5) of the Penrith Local environmental Plan 2010,

Clause 4.6(4)

In accordance with the provisions of Clause 4.6(4) Council can be satisfied that this written request has adequately addressed the matters required to be demonstrated by Clause 4.6(3). As addressed the proposed development is in the public interest as it remains consistent with the objectives of the building height control. In addition, the proposal is consistent with the objectives of the R4 zone, being:

- *To provide a variety of housing types within a high density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To ensure that a high level of residential amenity is achieved and maintained.*
- *To encourage the provision of affordable housing.*
- *To ensure that development reflects the desired future character and dwelling densities of the area.*

The proposal will provide a high quality residential development in a strategic location within close proximity

to the Penrith train station and CBD, bus interchange to maximise public transport patronage and to encourage walking and cycling. The scale of the development will help to revitalise the area with delivery of an activated ground floor and an attractive overall development.

As a result, the development will contribute towards creating a vibrant and sustainable neighbourhood that will support both the function and growth of Penrith.

Furthermore, the proposal will complement and enhance the local streetscape by virtue of the strong articulated built form and recessed upper level and will provide clear legibility building at the street level.

It is understood that the concurrence of the Director-General can be assumed in the current circumstances.

Clause 4.6(5)

As addressed, it is understood the concurrence of the Director-General may be assumed in this circumstance, however the following points are made in relation to this clause:

a) The contravention of the building height control does not raise any matter of significance for State or regional environmental planning given the nature of the development proposal; and

b) There is no public benefit in maintaining the development standard as it relates to the current proposal. The departure from the building height control is acceptable in the circumstances given the underlying objectives are achieved and it will not set an undesirable precent for future development within the locality based on the observed building forms in the locality. The significant benefits of the proposal must be emphasised in considering the merits of the departure to the height control and the proposal is a site-specific response and is not replicated elsewhere as such 'precedent' issues are not relevant.

Strict compliance with the prescriptive building height requirement is unreasonable and unnecessary in the context of the proposal and its unique circumstances. The proposed development meets the underlying intent of the control and is a compatible form of development that does not result in unreasonable environmental amenity impacts.

The design response aligns with the intent of the control and provides for an appropriate transition to the adjoining properties.

The proposal promotes the economic use and development of the land consistent with its zone and purpose. Council is requested to invoke its powers under Clause 4.6 to permit the variation proposed.

The objection is well founded and considering the absence of adverse environmental, social or economic impacts, it is requested that Council support the development proposal.

Discussion in regard to building height non-compliance

It is considered that the commentary provided by the accompanying 4.6 Variation in relation to the non compliant height has adequately addressed why compliance with the development standard is unreasonable and unnecessary in this instance. It is noted that the ground floor level is provided with a varied stepped finish floor level difference of 1.1m which is in part provided due to the existing contours of the subject site but to also allow for the incorporation of a on site garbage truck loading bay area. This will provide for an increased overall height above the maximum development standard but is also considered an appropriate response to the constraints of the subject site and the provision of a functional garbage collection arrangement in this instance.

The application will also provide for compliant separation distances to all adjoining lot boundaries for the proposed building to both the rear and side elevations also noting that varied separations to be provided up to four (4) levels and five (5) levels and greater which has been achieved. In this regard, the position of the proposed building is considered appropriate with the amount of additional habitable area provided to the upper level not considered to create an additional amount of inappropriate overshadowing to adjoining properties. The upper levels (levels 5 and 6) are considered to be suitably stepped away from the lower

levels to diminish the impact of the overall building height while items to the communal roof top level such as the lift overrun and pergola feature are not considered to be visually prominent from any public areas noting their centralised position.

The overall built form is considered consistent with the surrounding approvals granted for residential flat buildings currently under construction as well as applications received for residential flat buildings along Hope Street.

Noting the above, a departure from the height development standard is therefore considered acceptable in this instance. The section of the applicant's written request relating to height non compliance is considered to have provided for sufficient environmental planning grounds to justify contravening the development standard and is not inconsistent with the objectives of Clause 4.3.

Clause 5.9 Preservation of trees or vegetation
The application was accompanied by an Arboricultural Impact Assessment prepared by Redgum Horticultural Consultants in relation to the proposed removal of a total of six (6) existing trees on the subject site due to the proposed development. The report recommended their replacement with super advanced specimens in 75 or 100 litre bags size stock with more appropriate positions within the development. In this regard, the application was reviewed by Council's Tree Management Officer who has raised no objection subject to a number of conditions to be included with any determination granted.

Clause 7.4 Sustainable development
Clause 7.4 of the PLEP 2010 requires the consent authority to have regard to the principles of sustainable development as they relate to the development based on a "whole of building" approach and requires the consent authority to consider each of the following:

(a) conserving energy and reducing carbon dioxide emissions,
(b) embodied energy in materials and building processes,
(c) building design and orientation,
(d) passive solar design and day lighting,
(e) natural ventilation,
(f) energy efficiency and conservation,
(g) water conservation and water reuse,
(h) waste minimisation and recycling,
(i) reduction of vehicle dependence,
(j) potential for adaptive reuse.

The application is considered to have been accompanied with information demonstrating a site responsive design with quality solar access, the opportunity for natural ventilation, adaptive reuse of a number of units as well as a Basix Certificate (to be updated to reflect modifications provided should the application be approved via a condition of consent) confirming the proposed development will meet the NSW Government's requirements for sustainability, if built in accordance with the identified commitments. In this regard, should the application be approved, the accompanying Basix Certificate will form part of the Development Consent.

Clause 7.6 Salinity
The subject site is affected by moderate salinity. While so, it is not considered necessary in this instance to include any specific condition(s) in relation to construction noting the nature of the proposed works.

Clause 7.7 Servicing
The proposed works provide connections to new and existing servicing infrastructure to facilitate adequate servicing for the proposal. It is noted that the accompanying plans have identified that a power pole will require relocation as a consequence of the proposed position of the driveway onto Hope Street. In this regard, any development consent granted will be appropriately conditioned for the applicant to receive appropriate concurrence from the respective authority prior to and after the relocation occurs.

Section 79C(1)(a)(ii) The provisions of any draft environmental planning instrument

There are no draft environmental planning instruments applicable to the subject site or to the proposed development.

Section 79C(1)(a)(iii) The provisions of any development control plan

Development Control Plan 2014

Provision	Compliance
DCP Principles	Complies
C1 Site Planning and Design Principles	Complies
C2 Vegetation Management	Complies
C3 Water Management	Complies
C4 Land Management	Complies
C5 Waste Management	Complies
C6 Landscape Design	Complies
C7 Culture and Heritage	N/A
C8 Public Domain	N/A
C9 Advertising and Signage	N/A
C10 Transport, Access and Parking	Complies - see Appendix - Development Control Plan Compliance
C11 Subdivision	N/A
C12 Noise and Vibration	Complies
C13 Infrastructure and Services	Complies
D2.1 Single Dwellings	N/A
D2.2. Dual Occupancies	N/A
D2.3 Secondary Dwellings	N/A
D2.4 Multi Dwelling Housing	N/A
D2.5 Residential Flat Buildings	Complies - see Appendix - Development Control Plan Compliance
D2.6 Non Residential Developments	N/A

Section 79C(1)(a)(iiia) The provisions of any planning agreement

There are no planning agreements applying to this proposal.

Section 79C(1)(a)(iv) The provisions of the regulations

The relevant prescribed conditions of the Regulations, such as the requirement for compliance with the Building Code of Australia and fire safety requirements, will be imposed as conditions of consent where applicable. Subject to the recommended conditions of consent, the proposed development complies with the requirements of the *Environmental Planning and Assessment Regulation 2000*.

Section 79C(1)(b)The likely impacts of the development

Context and Setting

It is noted that the subject site and its surrounds is currently in a state of transition from a previously lower density zone to its current high density zoning, with Hope Street providing for a number of land parcels which are currently subject to or have been granted approval for the construction of residential flat buildings. This is evident in the provision of a new residential flat building directly adjoining the subject site to the west and further construction works to the east and north of the subject site also providing for multi

level apartment buildings. In addition, this is also reflected in the current undetermined applications with Penrith City Council for consideration at No. 26-30 Hope Street and 16-24 Hope Street along the southern side of the street as per the current application also providing for residential flat buildings. In this regard, the proposal is considered in keeping with the desired future character of the area allowing for an upgrade in structures from existing detached dwelling houses to large compact residential flat buildings.

The application is provided with compliant setbacks to each side and the rear boundary in accordance with the Apartment Design Guide. These setbacks have also incorporated greater setbacks to the fourth and fifth storeys to provide for a reduction in the visual impact of the building when viewed from both adjoining properties and surrounding public areas. The 6m building setback to the ground floor fronting Hope Street is also considered an appropriate separation to allow for landscaping to within the front setback area. This landscaping in the form of hedges and the provision of a mature tree to each front courtyard area (Blueberry Ash) is considered to minimise the visual impact of the building and allow for an improved integration with the existing streetscape.

Solar Access

The application has been accompanied by architectural plans which are considered to identify that 37 of the proposed 45 units (a total of 82%) will achieve a minimum 2 hours solar access between 9 am and 3 pm at mid-winter and is therefore compliant with the solar and daylight access requirements as provided by the Apartment Design Guide. Of the proposed units, it is noted that almost 50% (a total of 22) are provided with a direct northern perspective, only 4 unit (9% of units) are provided with a southern perspective with the remainder of units maintaining primarily an eastern or western perspective. The positioning of the apartments is therefore considered to respond to the nature of the subject site with appropriate consideration also given to the location of habitable rooms and associated openings.

It is also noted that a number of unit layouts have been modified during the assessment process especially along the eastern elevation to improve the amount of solar access received throughout the day. This has been particularly the case for unit No's. 31 and 39 with the living area repositioned to the southern end of the apartment to allow for an improved collection of sunlight during the morning period. While providing for a repositioning of a bedroom to each unit, the amended layout is now considered to improve the availability of sunlight to this main habitable living area. In addition, it is noted that the architectural plans will provide for an opening to the roof form above the balcony for unit 31 which will allow for additional solar access to be captured within this unit during the morning period. This design feature has also been duplicated for unit 26 to the western elevation. As the communal open space is to be located also to the roof level, it is considered that ongoing solar access is maintained to this area including its items of interest for use by future occupants.

Overlooking

The application is provided with a number of fixed timber louvre screens to each elevation along in part the front of balcony areas to minimise the potential for overlooking onto adjoining properties. In this regard and noting the compliant separations provided to the side and rear boundary in accordance with the requirements of the Apartment Design Guide, it is considered that appropriate measures have been incorporated into the design to minimise direct overlooking concerns.

It is also noted that the approved residential flat building at No. 38-48 Hope Street to the west of the subject site is also provided with a stepped setback to the boundary with a 7.5m and 14.5m setbacks provided. Taking into consideration the compliant setbacks provided to the current proposal as well as the larger setbacks maintained by the adjoining residential flat building, potential overlooking concerns are considered to have been appropriately maintained for the western elevation. It is also noted that the adjoining eastern proposal (being DA18/0488 as yet to be determined) is also currently provided with a compliant building separation as per the ADG which will minimise overlooking concerns to the east of the subject site. In addition, it is noted that the southern elevation is provided with numerous window openings primarily from bedrooms areas. As the majority of openings are not provided from primary habitable living areas but rather rooms which may also be screened by curtains, the potential for overlooking to the rear of the subject site has also been appropriately considered and is acceptable in this instance.

Landscaping

The application has been accompanied with a landscape plan prepared by Andrew Murphey Design which has identified the provision of landscaping throughout the subject site in association with the proposal. In this regard, landscaping has identified bushes and trees to the front setback area which is considered to compliment the visual impact of any lightweight fencing proposed to ground floor unit courtyard areas fronting Hope Street. In addition to the provision of a mature tree to each of these courtyard areas, the nature of landscaping proposed to the northern elevation is considered to allow for an appropriate integration with the building design to minimise the impact of architectural features. The provision of planter boxes to level 1 to 5 at a depth of 600mm to the northern façade is also considered to enhance the building appearance and allow for a distinguished central design feature above the building entry of appropriate proportion and symmetry. Landscaping provided to the ground level adjoining the driveway entry onto Hope Street is also considered to assist in screening any blank wall presentation above the basement entry while also maintaining an appropriate clearance for motorist to enter or leave the site without impeding sightlines.

The proposal will provide for varied landscaping features to the eastern side setback in association with ground floor courtyard areas which will allow for mature tree planting to deep soil zones as well as elevated planter boxes associated with terrace areas. This landscaping is considered to serve as a buffer between the adjoining neighbour while also providing for an acceptable amenity for future occupants. This landscaping feature is continued for ground floor units along the southern elevation which is considered to assist in maintaining privacy to adjoining neighbours as well as providing for an appropriate green setting for these units. The south western corner of the ground floor adjoining the garbage rooms and garbage truck loading bay are maintained as deep soil areas with planter boxes adjoining the loading bay entry area and in part above the bin collection room. While not a communal landscape area, plans have identified access to this part of the site to allow for vegetation maintenance. The location of a planter box in part above the bin collection room will assist in minimising the visual impact of the architectural feature from adjoining properties as well as from units above. The southern façade is also provided with planter boxes to levels 1 to 5 adjoining the lobby area on each floor which is also considered to assist in softening the visual presentation of the proposed building to adjoining neighbours as well as providing for an item of relief for persons using the lift lobby areas.

The communal open space to the roof level is considered to have been appropriately treated with landscaping features with a total of 40% of the overall roof form provided with landscaping for the use of future occupants. These planter boxes varying in depth from between 600mm and 1m is considered to allow for an appropriate mix of plant and tree species to assist in softening the presentation of this common area.

Access, Traffic and Parking

The application was supported by a Traffic Report titled *'Traffic Impact Assessment'* prepared by Safeway dated November, 2017. This report provided an assessment of the relevant traffic and parking implications of the proposal with the report providing for in part the following conclusion;

- *The traffic generation from the proposed residential flat building will result in a net increase of 10 vehicles per hour during the peak periods. These trips will be split in both directions and can be readily accommodated with minimal impact on the surrounding road network;*
- *Based on the assessment presented in this report, it is considered that after an inspection the car park design of the proposed residential development located at 32-36 Hope Street meets/exceeds the relevant design standards presented in AS 2890.1-2004 and AS2890.2-2002.*

It is noted that Council's Traffic Engineer and Development Engineer have reviewed the application and raised no objection to the development subject to the provision of appropriate conditions. The application is considered to provide numerical compliance with the parking requirements of the Penrith Development Control Plan 2014 while also providing for a compliant number of bicycle spaces and accessible parking spaces.

Noise

The application has identified the provision of mechanical services from the basement level or either via the provision of air conditioning units which may potentially create disturbances to either future occupants of the building or to adjoining properties. In this regard, should the application be approved, it is considered

appropriate to provide for a condition regulating offensive noise in accordance with the provisions of the Protection of the Environment Operations Act 1997.

Accessibility

The application was accompanied by an Accessibility Assessment Report prepared by Vista Access Architects dated 11 December, 2017. This report confirms that the five (5) adaptable units can comply with the spatial requirements of Australia Standard 4299 for Adaptable Housing. In this regard, should the application be approved, a condition will be included requiring that the recommendations contained within this report be shown on the construction certificate plans.

In addition to the above, it is noted that a total of five (5) accessible car parking spaces have been provided, one for each accessible unit which is appropriate while appropriate access may be provided to the communal roof area via the use of lifts within the building.

Waste Management

The application was supported by a Waste Management Plan which has detailed the way in which all waste and materials resulting from the excavation, construction and on-going use of the building on the site are to be dealt with.

The application has indicated the provision of on-site collection by Council waste contractors and will incorporate waste collection/storage rooms and a bulky goods area to the ground floor plan. This waste area is services by a garbage truck loading bay area incorporating a turntable accessed by a driveway along the western boundary for the movement of service vehicles. In this regard, the application has been accompanied by swept path diagrams which have identified that a service vehicle may safely enter and exit the subject site in a forward direction with the assistance of the turntable within the loading bay. It is also noted that this area will serve as a loading bay for other trucks or vehicles (eg, removalist trucks or vans) who may be required to visit the subject site with a ramp from this area allowing for access to the ground floor lobby area and lifts.

The application is provided with a dual chute system for normal waste and recycling waste from each upper level to the ground floor with Council's Waste Services Section confirming that there is sufficient area to accommodate the required number of bins and allow for adequate manoeuvring.

In addition to the above, the proposed arrangements were reviewed by Council's Waste Officer and Traffic Engineer who have raised no objection to the proposal subject to appropriate conditions.

Environmental Sustainability

The proposed development will incorporate a number of sustainability initiatives for reduced water and energy consumption. These include passive solar design and orientation of all buildings and primary living spaces to minimise heating requirements in winter and cooling requirements in summer. The proposal incorporates rainwater retention and re-use system for stormwater collection.

The proposal will generate an increase in traffic volume, but while so, it is considered that the application has adequately demonstrated that the local road network has capacity to cater for the development. Off-street parking spaces are provided in accordance with Penrith Development Control Plan 2014 requirements and this arrangement will reduce the incidence of off-street parking. Sight distances of the proposed driveway would be clear when in view from the street and vehicles can enter and leave in a forward direction.

Social and Socio-Economic Impacts

The application is not considered likely to result in any negative social impact in the area. The proposal has been assessed against the principles and objectives contained within the Penrith DCP, specifically those related to safety and security and is compliant in this regard. The development of the site will facilitate the provision of high density residential accommodation in accordance with the aims of the Penrith LEP 2010.

Section 79C(1)(c)The suitability of the site for the development

The site is considered to be suitable for the proposed development for the following reasons:

- The development is permissible with consent and consistent with the zone objectives.
- The use is compatible with future expected and existing adjoining land uses.
- Stormwater from the site is able to drain to Council's satisfaction.
- The grade and area of the site is capable of providing for, or connecting to the infrastructure required to service and maintain the development, and
- The proposal responds to the sites constraints in terms of allotment orientation and likely future developments.

Section 79C(1)(d) Any Submissions

Community Consultation

The development application was originally advertised in the local newspaper and notified to owners and occupiers of adjoining and nearby properties pursuant to the recommendations of the Regulations and in accordance with Council's Development Control Plan. Affected property owners and occupiers were notified in the surrounding area and invited to make a submission on the proposal during the exhibition period from 4 January, 2018 to 31 January, 2018. During this period, no submissions were received.

Referrals

The application was referred to the following stakeholders and their comments have formed part of the assessment:

Referral Body	Comments Received
Building Surveyor	No objections - subject to conditions
Development Engineer	No objections - subject to conditions
Landscape Architect	No objections
Environmental - Waterways	No objections - subject to conditions
Waste Services	No objections - subject to conditions
Traffic Engineer	No objection subject to conditions
Community Safety Officer	No objections - subject to conditions
Tree Management Officer	No objections - subject to conditions

Section 79C(1)(e)The public interest

The public interest is best served by the orderly and economic use of land for purposes permissible under the relevant planning regime and in accordance with the prevailing planning controls. In this regard, the proposed works are considered to be consistent with the relevant planning provisions. Subject to compliance with conditions of any development consent and modifications to the development design as outlined within this report, the proposal is considered worthy of support.

Section 94 - Developer Contributions Plans

Section 7.11 (previously Section 94) contributions are applicable to the proposed development. In this regard, the following development contributions apply to the proposed development;

- Cultural Facilities = $16,533.00
- District Open Space = $157,688.00
- Local Open Space = $57,055.00

The total Section 7.11 contributions applicable to the proposal is $231,276.00. In this regard, appropriate conditions of consent will be provided with any Development Consent granted.

Conclusion

The proposed development has been assessed in accordance with the relevant provisions of the environmental planning instruments and Development Control Plan pertaining to the land. The provision of a residential flat building is a permissible use under the site's R4 High Density Residential zoning. As the development application is for a residential flat building under the provisions of State Environmental Planning Policy No. 65 - Design Quality of Residential Apartment Development, the application is provided for determination to the Penrith Local Planning Panel.

The proposal will provide for a built form which is considered to be consistent with the objectives of the Penrith Local Environmental Plan 2014 and the Penrith Development Control Plan 2010. While the proposal has provided for a height of building non compliance with the respective development standard under Clause 4.3 of the PLEP, it is considered that the application has been accompanied by an acceptable 'Exception to Development Standards' variation request as required under Clause 4.6 of the Penrith LEP.

The proposal is considered to be generally compliant with the Apartment Design Guide requirements and has adequately demonstrated that an acceptable level of amenity will be provided to future occupants in relation in part to building solar access, natural ventilation, deep soil zones, an appropriately sized communal open space, apartment size and layout and energy efficiency. The bulk, scale and presentation of the building is considered an appropriate inclusion to Hope Street, maintaining an acceptable relationship to adjoining properties while providing for a positive inclusion alongside the existing streetscape, surrounding buildings and public places.

The proposed development has been assessed against the relevant heads of consideration contained in Section 4.15 of the *Environmental Planning and Assessment Act, 1979* and has found to be satisfactory. The site is suitable for the proposed development and the proposal subject to compliance with conditions is in the public interest. The proposal is therefore worthy of support.

Recommendation

1. That the submitted variation to a development standard under Clause 4.6 of the standard instrument be supported.

2. That DA17/1341 providing for the demolition of existing structures and construction of a six (6) storey residential flat building containing forty five (45) apartments and two (2) levels of basement car parking be approved subject to the attached conditions.

CONDITIONS

General

1 A001

The development must be implemented substantially in accordance with the plans approved by Council, the application form and any supporting information received with the application, except as may be amended in red on the attached plans and by the following conditions.

Doc No.	Issue	Title	Prepared By	Date
Architectural Plans all Reference No. 2017-176				
G4	G	Basement 2 Floor Plan	Designcorp Architects	10 September, 2018
G5	G	Basement 1 Floor Plan	Designcorp Architects	10 September, 2018
G6	G	Ground Floor Plan	Designcorp Architects	10 September, 2018
G8	G	Level 1 Floor Plan	Designcorp Architects	10 September, 2018
G9	G	Level 2 Floor Plan	Designcorp Architects	10 September, 2018
G10	G	Level 3 Floor Plan	Designcorp Architects	10 September, 2018
G11	G	Level 4 Floor Plan	Designcorp Architects	10 September, 2018
G12	G	Level 5 Floor Plan	Designcorp Architects	10 September, 2018
G13	G	Rooftop Plan	Designcorp Architects	10 September, 2018
G14	G	North / East Elevation	Designcorp Architects	10 September, 2018
G15	G	South / West Elevation	Designcorp Architects	10 September, 2018
G15	G	Section A / North Fence Detail	Designcorp Architects	10 September, 2018
G16	G	Section B / Door Schedule / Window Schedule	Designcorp Architects	10 September, 2018
G17	G	Section C / Section F	Designcorp Architects	10 September, 2018
G18	G	Section D / Section E	Designcorp Architects	10 September, 2018
G20	G	Section D	Designcorp Architects	10 September, 2018
G21	G	Section F	Designcorp Architects	10 September, 2018
G22	G	Section C	Designcorp Architects	10 September, 2018
G38	G	Materials and Finishes	Designcorp Architects	10 September, 2018
Stormwater Plans all Job No. 171552				
D00	A	Cover Sheet, Legend & Drawing Schedule	Australian Consulting Engineers	27 November, 2017
D01	C	Basement 2 Stormwater Drainage Plan	Australian Consulting Engineers	4 September, 2018
D02	C	Basement 1 Stormwater Drainage Plan	Australian Consulting Engineers	4 September, 2018
D03	D	Ground Floor Stormwater Drainage Plan	Australian Consulting Engineers	4 September, 2018
D04	B	Stormwater Drainage Sections & Details 1	Australian Consulting Engineers	4 September, 2018
D05	B	Stormwater Drainage Sections & Details 2	Australian Consulting Engineers	4 September, 2018
D06	B	WSUD Details	Australian Consulting Engineers	4 September, 2018
D10	A	Erosion and Sediment Control Plan & Details	Australian Consulting Engineers	27 November, 2017
Landscape Plans all Reference No. 2017-090				
B01	B	Planter Box Detail / Typical Tree Planting Section / Decomposed Granite Detail / Stepping Stone Detail / Typical Garden Bed Section / Turf and Brick Garden Edging / Typical Tree Planting Plan	Andrew Murphy Design	9 September, 2018
B02	B	Landscape Plan	Andrew Murphy Design	9 September, 2018

B03	B	First Floor Planter Box Plan / Second, Third & Fourth Planter Box Plan	Andrew Murphy Design	9 September, 2018
B03	B	Fifth Floor Planter Box Plan / Rooftop Planter Box Plan	Andrew Murphy Design	9 September, 2018

- Arboricultural Impact Assessment prepared by Redgum Horticultural Consultants, Reference No. 3638, dated 2 December 2017;
- Geotechnical Investigation prepared by ADE Consulting Group, Report No. DSC-06-13286/GTI1/v1 final, Version v1, dated 15 December, 2017;
- Access Compliance Report prepared by Vista Access Architects, Project Reference No. 17231, Issue A, dated 11 December, 2017;
- Basix Certificate No. 881520M, dated 24 November, 2017 as amended by Condition 18 of this Consent; and
- Waste Management Plan dated 6 December, 2017.

2 A014 - LOT CONSOLIDATION

Lots 37, 38 and 39 in Deposit Plan 31239 are to be consolidated as one lot.

A copy of the registered plan of consolidation from Land Registry Services is to be submitted to the Principal Certifying Authority (PCA) and Penrith City Council, if Council is not the PCA, **prior to the issue of the Occupation Certificate** for the development.

3 A019 - OCCUPATION CERTIFICATE (ALWAYS APPLY)

The development shall not be used or occupied until an Occupation Certificate has been issued.

4 A038 - LIGHTING LOCATIONS

Prior to the issue of an Occupation Certificate, a lighting system shall be installed for the development to provide uniform lighting across common areas and driveways. Exterior lighting shall be located and directed in such a manner so as not to create a nuisance to surrounding land uses. The lighting shall be the minimum level of illumination necessary for safe operation. The lighting shall be in accordance with AS 4282 “Control of the obtrusive effects of outdoor lighting” (1997).

5 A046 - Obtain Construction Certificate before commencement of works

A **Construction Certificate** shall be obtained prior to commencement of any building works.

6 ACPTED Requirements

The following community safety and crime prevention through environmental design (CPTED) requirements are required to be implemented:

Lighting

- All outdoor/public spaces, including all entry/exit points, throughout the development must be lit to the minimum Australian Standard of AS 1158. Lighting must be consistent in order to reduce the contrast between shadows and illuminated areas and must be designed in accordance with AS 4282 - Control of the obtrusive effects of outdoor lighting.

Basement Car Parking

- A security system must be installed on any pedestrian and vehicle entry/exit points to the car park, including the lift and stairwell, to minimise opportunities for unauthorised access.
- All areas of the car park must be well-lit, with consistent lighting to prevent shadowing or glare.
- Car park surfaces including walls and ceilings are to be light coloured with details included with the **Construction Certificate** application.

Building Security & Access Control

- Intercom, code or card locks or similar must be installed for all entries to the buildings including the car park.
- Australian Standard 220 – door and window locks must be installed in all dwellings and to all courtyard gates and garden sheds accessible from the ground floor.
- CCTV is to be provided to cover communal public space areas. Cameras must be of sufficient standard to be useful for police in the event of criminal investigations. Lighting must be provided to support cameras at night (alternatively infra-red cameras are recommended). Signage must be displayed to indicate that CCTV cameras are in use.
- All pedestrian access points into the development from Hope Street shall have access restricted to residents only by way of security gates with intercom, code or card locks.
- A user/sensor electronic security system, including intercom/swipe card access or alternative access control measures, shall be installed to vehicular entry/exit points to the basement car park as well to lifts, stair wells and garbage and storage areas, to limit unauthorised access to these areas.
- All barriers along pathways throughout the development should be permeable including fencing, landscaping, etc to eliminate entrapment spots and blind corners.
- Entrances to the development shall be easily recognisable through design features and directional signage and be clearly visible and legible to users.
- Graffiti resistant coatings shall be used to external surfaces including blank walls, fences and outdoor furniture throughout the development.

Graffiti/Vandalism

- Graffiti resistant coatings must be used to external surfaces where possible, including signage, furniture, retaining walls etc.
- All outdoor furniture provided on the rooftop level must be well secured to minimise opportunities for theft and vandalism.
- Procedures must be in place to ensure the prompt removal and/or repair of graffiti or vandalism to the buildings, fencing, and common areas. This includes reporting incidents to police and/or relevant authorities.

Landscaping

- All vegetation throughout the complex must be regularly pruned to ensure that sight lines are maintained.

7 A Special (BLANK)

Prior to the issue of an Occupation Certificate, a security roller shutter door is to be provided to the car parking entry from Hope Street and garbage truck/loading bay.

8 A Special (BLANK)
Construction and demolition works will be restricted to the following hours in accordance with the NSW Environment Protection Authority Noise Control Guidelines:

- Mondays to Fridays, 7am to 6pm
- Saturdays, 7am to 1pm (if inaudible on neighbouring residential premises), otherwise 8am to 1pm
- No construction work is permitted on Sundays and Public Holidays.

In the event that the construction relates to works inside the building and do not involve external walls or the roof, and do not involve the use of equipment that emits noise then the construction works are not restricted to the hours stated above.

The provisions of the Protection of the Environment Operations Act, 1997 in regulating offensive noise also apply to all construction works.

9 A Special (BLANK)
Prior to the erection of any crane or any temporary construction structure at a height greater than the roof of the subject development, written notice shall be provided to Council and the Nepean Blue Mountains Local Health District at least 21 days prior to the erection, indicating at least the following:

- Name of responsible company and relevant contact details.
- Dimensions (height, length, etc.).
- Position and orientation of boom/jib and counterboom/jib.
- Length of time that such a crane or structure will be erected on site.
- The management plan and measures that will ensure that the crane or structure will be of least possible impact on flight operations for Ambulance NSW.

Any crane or any temporary construction structure erected at a height greater than the roof of the subject development shall comply with the following:

- Be equipped with medium intensity steady red lighting positioned at the highest point and both ends of the boom/jib and counterboom/jib, such that the lighting will provide an indication of the height of the crane and the radius of the crane boom/jib. Such lighting, which should be displayed at night, should be positioned so that when displayed it is visible from all directions.
- When a crane is unattended for an extended period of time ensure the crane's boom is retracted and lowered as far as possible.
- No part of the crane or structure shall extend beyond the boundaries of the subject development site unless approved by Penrith City Council in consultation with the Nepean Blue Mountains Local Health District. Any encroachment beyond the boundaries of the subject site shall be the minimum amount required to facilitate construction and access all parts of the construction site.

10 A Special (BLANK)
The external walls of the building including attachments must comply with the relevant requirements of the National Construction Code (NCC). **Prior to the issue of a Construction Certificate and Occupation Certificate** the Certifying Authority and Principal Certifying Authority must:

(a) Be satisfied that suitable evidence is provided to demonstrate that the products and systems proposed for use or used in the construction of external walls including finishes and claddings such as synthetic or aluminium composite panels comply with the relevant requirements of the NCC; an

(b) Ensure that the documentation relied upon in the approval processes include an appropriate level of detail to demonstrate compliance with the NCC as proposed and as built.

11 A Special (BLANK)
In the event that a hydrant booster is necessary to service the development, the booster shall be integrated into the design of the development. **Prior to the issue of a Construction Certificate**, Council shall be consulted regarding the proposed location of the booster, as the location of the booster may impact on other services and buildings, driveway or landscape design. Confirmation will also be required with regard to any heat shield or other such structures required.

12 A Special (BLANK)

Prior to the issue of a Construction Certificate, plans and details of all required boundary fencing, courtyard fencing and retaining walls shall be submitted to the Development Services Manager of Penrith City Council for approval. The fencing type(s) shall be consistent with the controls for fencing for residential flat buildings as outlined in Penrith Development Control Plan 2014. Timber retaining walls are not permitted.

Prior to the issue of an Occupation Certificate, all required boundary fencing, courtyard fencing and retaining walls shall be constructed at full cost to the applicant/developer.

13 A Special (BLANK)

Prior to the issue of a Construction Certificate, a design verification statement from a qualified designer shall be submitted. The design verification statement shall verify that the Construction Certificate plans and specifications achieve or improve the design quality of the development for which development consent was granted, having regard to the design quality principles set out in Schedule 1 of State Environmental Planning Policy No. 65 – Design Quality of Residential Apartment Development.

14 A Special (BLANK)

Prior to the issue of an Occupation Certificate, a design verification statement from a qualified designer shall be submitted. The design verification statement shall verify that the development achieves the design quality shown in the approved Construction Certificate plans and specifications, having regard to the design quality principles set out in Schedule 1 of State Environmental Planning Policy No. 65 – Design Quality of Residential Apartment Development.

15 A Special (BLANK)

Prior to the issue of a Construction Certificate, the design recommendations of the 'Access Compliance Report', prepared by Vista Access Architects, Project Reference No. 17231, Issue A, dated 11 December, 2017 shall be incorporated into the Construction Certificate plans.

A minimum of 5 apartments shall be constructed as adaptable apartments to meet the requirements for persons with a disability and in accordance with the stamped approved plans. The adaptable units shall each be allocated an accessible car parking space compliant with AS 2890.6. **The Construction Certificate must be accompanied by certification** from a person suitably qualified by the Association of Consultants in Access Australia confirming that the adaptable dwellings are capable of being modified, when required by the occupant, to comply with the Australian Housing Standard (AS 4299-2009). A compliance Certificate in this regard shall be provided **prior to the issue of an Occupation Certificate**.

16 A Special (BLANK)

Prior to the issue of a Construction Certificate, a written clearance is to be provided by the appropriate energy provider indicating that no objection is raised in regard to the removal of the power pole as shown on Plan No. G6, Issue G, 'Ground Floor Plan', dated 10 September, 2018 prepared by Designcorp Architects. In this regard, all services are to be maintained to the subject site and surrounding properties currently serviced by the power pole to be removed.

17 A Special (BLANK)

Prior to the issue of an Occupation Certificate, correspondence is to be provided to the nominated Certifying Authority indicating that any repositioned power pole has been conducted to the satisfaction of the appropriate energy provider.

18 A Special (BLANK)

Prior to the issue of a Construction Certificate, a revised Basix Certificate (due to changes with the amended plans) is to be submitted to the nominated Certifying Authority.

19 A Special (BLANK)

All mechanical ventilation equipment, ducts, air conditioner services and the like shall be shown on the Construction Certificate documentation as being contained within the buildings. Gutters and down pipes shall be integrated into the architecture of the buildings. Any plant or unsightly structures installed on the rooftop must be screened from view.

Demolition

20 B002 - AS FOR DEMOLITION AND DISPOSAL TO APPROVED LANDFILL SITE

All demolition works are to be conducted in accordance with the provisions of AS 2601-1991 “The Demolition of Structures”. **Prior to demolition**, all services shall be suitably disconnected and capped off or sealed to the satisfaction of the relevant service authority requirements.

All demolition and excavated material shall be disposed of at a Council approved site or waste facility. Details of the proposed disposal location(s) of all excavated material from the development site shall be provided to the Principal Certifying Authority **prior to commencement of demolition**.

You should read Council's Fact Sheet titled "Handling and Disposal of Fibrous Cement Products" **before any demolition works commence on the site**.

21 B003 - ASBESTOS

Prior to commencement of demolition works on site, a portaloo with appropriate washing facilities shall be located on the site and the Principal Certifying Authority is to be satisfied that:

- Measures are in place so as to comply with the WorkCover Authority's "Short Guide to Working with Asbestos Cement" and
- The person employed to undertake the works is a licensed asbestos removal contractor and is holder of a current WorkCover Asbestos Licence.

Any demolition works involving the removal of all asbestos shall only be carried out by a licensed asbestos removal contractor who has a current WorkCover Asbestos Licence.

All asbestos laden waste, including asbestos cement flat and corrugated sheeting must be disposed of at a tipping facility licensed by the Environmental Protection Authority to receive asbestos wastes.

22 B004 - Dust

Dust suppression techniques are to be employed during demolition to reduce any potential nuisances to surrounding properties.

23 B005 - Mud/Soil

Mud and soil from vehicular movements to and from the site must not be deposited on the road.

Environmental Matters

24 D001 - Implement approved sediment& erosion control measures

Erosion and sediment control measures shall be installed **prior to the commencement of works on site** including approved clearing of site vegetation. The erosion and sediment control measures are to be maintained in accordance with the approved erosion and sediment control plan(s) for the development and the Department of Housing's “Managing Urban Stormwater: Soils and Construction” 2004.

The approved sediment and erosion control measures are to be installed **prior to and maintained throughout the construction phase of the development until the landscaping, driveway and on-site parking areas have been completed for the development**. These measures shall ensure that mud and soil from vehicular movements to and from the site does not occur during the demolition and construction associated with the development.

25 D002 Spraygrass

All land that has been disturbed by earthworks is to be spray grassed or similarly treated to establish a grass cover.

26 D007 - Cut and fill of land requiring Validation Certificate –limited to footprint

Cut and fill operations on the property are only permitted in conjunction with the building works as detailed on the approved plans and specifications, and shall not extend more than 2 metres past the defined building footprint.

Before any fill material is imported to site, a validation certificate issued by an appropriately qualified person is to be provided to the Principal Certifying Authority. The validation certificate must demonstrate that the fill material is free from contaminants and weeds, that it is suitable for its intended purpose and land use, and that it will not pose an unacceptable risk to human health or the environment.

If Penrith City Council is not the Principal Certifying Authority, a copy of the validation certificate is to be submitted to Council for their reference.

{Note: Penrith Development Control Plan 2014 defines an appropriately qualified person as “a person who, in the opinion of Council, has a demonstrated experience, or access to experience in hydrology, environmental chemistry, soil science, eco-toxicology, sampling and analytical procedures, risk evaluation and remediation technologies. In addition, the person will be required to have appropriate professional indemnity and public risk insurance.”}

27 D009 - Covering of waste storage area

All waste materials stored on-site are to be contained within a designated area such as a waste bay or bin to ensure that no waste materials are allowed to enter the stormwater system or neighbouring properties. The designated waste storage areas shall provide at least two waste bays / bins so as to allow for the separation of wastes, and are to be fully enclosed when the site is unattended.

28 D010 – Appropriate disposal of excavated or other waste

All excavated material and other wastes generated as a result of the development are to be re-used, recycled or disposed of in accordance with the approved waste management plan.

Waste materials not specified in the approved waste management plan are to be disposed of at a lawful waste management facility. Where the disposal location or waste materials have not been identified in the waste management plan, details shall be provided to the Certifying Authority as part of the waste management documentation accompanying the Construction Certificate application.

All receipts and supporting documentation must be retained in order to verify lawful disposal of materials and are to be made available to Penrith City Council on request.

29 D014 - Plant and equipment noise

The operating noise level of plant and equipment shall not exceed 5dB(A) above the background noise level when measured at the boundaries of the premises. The provisions of the Protection of the Environment Operations Act 1997 apply to the development, in terms of regulating offensive noise.

30 D06A – Approval for bulk earthworks/major filling operations (Use for bulk earthworks/ major filling operations)

No fill material shall be imported to the site until such time as a Validation Certificate (with a copy of any report forming the basis for the validation) for the fill material has been submitted to Council. The Validation Certificate shall:

- state the legal property description of the fill material source site,
- be prepared by an appropriately qualified person (as defined in Penrith Contaminated Land Development Control Plan) with consideration of all relevant guidelines (e.g. EPA, ANZECC, NH&MRC), standards, planning instruments and legislation,
- clearly indicate the legal property description of the fill material source site,
- provide details of the volume of fill material to be used in the filling operations,
- provide a classification of the fill material to be imported to the site in accordance with the Environment Protection Authority's "Environmental Guidelines: Assessment, Classification & Management of Non-Liquid Wastes" 1997, and
- (based on the fill classification) determine whether the fill material is suitable for its intended purpose and land use and whether the fill material will or will not pose an unacceptable risk to human health or the environment.

An appropriately qualified person/s (as defined in the Penrith Development Control Plan 2014) shall:

- Supervise the filling works,
- (On completion of filling works) carry out an independent review of all documentation relating to the filling of the site, and shall submit a review findings report to Council and any Principal Certifying Authority,
- Certify by way of a Compliance Certificate or other written documentation that fill materials have been placed on the site in accordance with all conditions of this consent and that the site will not pose an unacceptable risk to human health or the environment. A copy of the Compliance Certificate or other documentation shall be submitted to Council and any Principal Certifying Authority.

The contact details of any appropriately qualified person/s engaged for the works shall be provided with the Notice of Commencement.

If the Principal Certifying Authority or Penrith City Council is not satisfied that suitable fill materials have been used on the site, further site investigations or remediation works may be requested. In these circumstances the works shall be carried out prior to any further approved works.

{Note: Penrith Development Control Plan 2014 defines an appropriately qualified person as "a person who, in the opinion of Council, has a demonstrated experience, or access to experience in hydrology, environmental chemistry, soil science, eco-toxicology, sampling and analytical procedures, risk evaluation and remediation technologies. In addition, the person will be required to have appropriate professional indemnity and public risk insurance."}

31 D Special (BLANK)

Should any "unexpected finds" occur during site excavation and earthworks including, but not limited to, the identification/finding of contaminated soils, buried building materials, asbestos, odour and/or staining, works are to cease immediately and Penrith City Council is to be notified. Any such "unexpected finds" shall be addressed by an appropriately qualified environmental consultant.

All remediation works within the Penrith Local Government Area are considered to be Category 1 works under State Environmental Planning Policy No. 55 - Remediation of Land. Should any contamination be found during development works and should remediation be required, development consent is to be sought from Penrith City Council prior to remediation works commencing.

32 D Special BLANK

Prior to the issue of an Occupation Certificate the following is to be submitted to and approved by Penrith City Council:

• For the internal movement of 1100L bins a bin tug device is required to be provided and stored within the development in accordance with section 3.6 of the 'Residential Flat Building Guideline' document. Device specifications, use and operational requirements are required to be submitted to Council for approval **prior to the issue of an Occupation Certificate**.
• The turn table for the 10.5m heavy rigid waste collection vehicle is to incorporate a hydraulic override system or similar assisted override system to ensure the turn table can be rotated in the event of a systems malfunction.
• The developer is to enter into a formal agreement with Penrith City Council for the utilisation of Councils Waste Collection Service. This is to include Council being provided with indemnity against claims for loss and damage.
- Note: By entering into an agreement with Council for Waste Collection, the development will be required to operate in full compliance with Penrith City Councils Waste Collection and Processing Contracts for Standard Waste Collection. The provision of Councils waste collection service will not commence until formalisation of the agreement.

33 D Special BLANK

Councils bin infrastructure and collection service will be provided for the development upon the completion of all on-site waste collection infrastructure and the attainment of an Occupation Certificate.

34 D Special BLANK

The on-site waste infrastructure provided within the development is to be built in accordance with configurations specified in the architectural plan, prepared by Design Corp, Reference No. 2017-176, Drawing No. G6, Issue G, dated 10 September 2018. On-site waste infrastructure is permissible to change only in accordance with conditions stipulated by Councils Waste Services department.

35 D Special BLANK

The following waste management requirements must be complied with and details of compliance demonstrated to Council **prior to the issue of a Construction Certificate**:

• All on-site waste collection infrastructure, doors and access points (Waste Chute Room, Waste Collection Room, Bulky Household Waste Collection Room and Loading bay) are to be locked through Councils Abloy Key System. System specifications are outlined in section 3.5.5 of the 'Residential Flat Building Guideline' document.
• All on-site waste collection infrastructure (Waste Chute Room, Waste Collection Room, Bulky Household Waste Collection Room and Loading bay) are to provide wash facilities through the use of a centralised mixing valve and hose cock. Respective drainage and water proofing to be installed to support the use of hose facilities.
• Amended swept path models are to be submitted showing Councils 10.5m HRV's ingress/egress movements with 0.5m unobstructed clearances during all maneouvres in accordance with section 2.2.3 of the 'Residential Flat Building Waste Management Guideline Document'. On-street parking to be provided within the modelling.
• The kerbside crossover to be of sufficient width to permit Councils 10.5m HRV movements into the site to permit unobstructed access.

BCA Issues

36 E001 - BCA compliance

All aspects of the building design shall comply with the applicable performance requirements of the Building Code of Australia so as to achieve and maintain acceptable standards of structural sufficiency, safety (including fire safety), health and amenity for the on-going benefit of the community. Compliance with the performance requirements can only be achieved by:

(a) complying with the deemed to satisfy provisions, or

(b) formulating an alternative solution which:

- complies with the performance requirements, or
- is shown to be at least equivalent to the deemed to satisfy provision, or

(c) a combination of (a) and (b).

37 E009 - Annual fire safety-essential fire safety (Class 2-9 buildings)

The owner of a building, to which an essential fire safety measure is applicable, shall provide Penrith City Council with an annual fire safety statement for the building. The annual fire safety statement for a building must:

(a) deal with each essential fire safety measure in the building premises, and

(b) be given:

- within 12 months after the last such statement was given, or
- if no such statement has previously been given, within 12 months after a final fire safety certificate was first issued for the building.

As soon as practicable after the annual fire safety statement is issued, the owner of the building to which the statement relates:

- must also provide a copy of the statement (together with a copy of the current fire safety schedule) to the Commissioner of New South Wales Fire Brigades, and
- prominently display a copy of the statement (together with a copy of the current fire safety schedule) in the building.

38 E01A - BCA compliance for Class 2-9

All aspects of the building design shall comply with the applicable performance requirements of the Building Code of Australia so as to achieve and maintain acceptable standards of structural sufficiency, safety (including fire safety), health and amenity for the on-going benefit of the community. Compliance with the performance requirements can only be achieved by:

(a) complying with the deemed to satisfy provisions, or

(b) formulating an alternative solution which:

- complies with the performance requirements, or
- is shown to be at least equivalent to the deemed to satisfy provision, or

(c) a combination of (a) and (b).

It is the owner's responsibility to place on display, in a prominent position within the building at all times, a copy of the latest fire safety schedule and fire safety certificate/ statement for the building.

Utility Services

39 G002 - Section 73 (not for

A Section 73 Compliance Certificate under the Sydney Water Act 1994 shall be obtained from Sydney Water. The application must be made through an authorised Water Servicing Coordinator. Please refer to “Your Business” section of Sydney Water’s website at www.sydneywater.com.au then the “e-developer” icon, or telephone 13 20 92.

The Section 73 Compliance Certificate must be submitted to the Principal Certifying Authority prior to the issue of an Occupation Certificate.

40 G004 - Integral Energy

Prior to the issue of a Construction Certificate, a written clearance is to be obtained from Endeavour Energy stating that electrical services have been made available to the development or that arrangements have been entered into for the provision of services to the development.

In the event that a pad mounted substation is necessary to service the development (as identified on the provided architectural and landscaping plans), Penrith City Council shall be consulted over the proposed location of the substation before the Construction Certificate for the development is issued as the location of the substation may impact on other services and building, driveway or landscape design already approved by Council. Confirmation is to be provided that a blast wall or other protective structure is or is not required.

41 G006 -

Prior to the issue of a Construction Certificate, the Principal Certifying Authority shall be satisfied that telecommunications infrastructure may be installed to service the premises which complies with the following:

- The requirements of the Telecommunications Act 1997:
- For a fibre ready facility, the NBN Co's standard specifications current at the time of installation; and
- For a line that is to connect a lot to telecommunications infrastructure external to the premises, the line shall be located underground.

Unless otherwise stipulated by telecommunications legislation at the time of construction, the development must be provided with all necessary pits and pipes, and conduits to accommodate the future connection of optic fibre technology telecommunications.

Prior to the issue of an Occupation Certificate, written certification from all relevant service providers that the telecommunications infrastructure is installed in accordance with the requirements above and the applicable legislation at the time of construction, must be submitted to the Principal Certifying Authority.

Construction

42 H001 - Stamped plans and erection of site notice

Stamped plans, specifications, a copy of the development consent, the Construction Certificate and any other Certificates to be relied upon shall be available on site at all times during construction.

The following details are to be displayed in a maximum of 2 signs to be erected on the site:

- the name of the Principal Certifying Authority, their address and telephone number,
- the name of the person in charge of the work site and telephone number at which that person may be contacted during work hours,
- that unauthorised entry to the work site is prohibited,
- the designated waste storage area must be covered when the site is unattended, and
- all sediment and erosion control measures shall be fully maintained until completion of the construction phase.

Signage but no more than 2 signs stating the above details are to be erected:

- at the commencement of, and for the full length of the, construction works onsite, and
- in a prominent position on the work site and in a manner that can be easily read by pedestrian traffic.

All construction signage is to be removed when the Occupation Certificate has been issued for the development.

43 H002 - All forms of construction

Prior to the commencement of construction works:

(a) Toilet facilities at or in the vicinity of the work site shall be provided at the rate of one toilet for every 20 persons or part of 20 persons employed at the site. Each toilet provided must be:

- a standard flushing toilet connected to a public sewer, or
- if that is not practicable, an accredited sewage management facility approved by the council, or
- alternatively, any other sewage management facility approved by council.

(b) All excavations and backfilling associated with the erection or demolition of a building must be executed safely and in accordance with the appropriate professional standards. All excavations associated with the erection or demolition of a building must be properly guarded and protected to prevent them from being dangerous to life or property.

(c) If an excavation associated with the erection or demolition of a building extends below the level of the base of the footings of a building on an adjoining allotment of land, the person causing the excavation to be made:

- must preserve and protect the building from damage, and
- if necessary, must underpin and support the building in an approved manner, and
- must, at least 7 days before excavating below the level of the base of the footings of a building on an adjoining allotment of land, give notice of intention to do so to the owner of the adjoining allotment of land and furnish particulars of the excavation to the owner of the building being erected or demolished. The owner of the adjoining allotment of land is not liable for any part of the cost of work carried out for the purposes of this condition, whether carried out on the allotment of land being excavated or on the adjoining allotment of land, (includes a public road and any other public place).

(d) If the work involved in the erection or demolition of a building is likely tocause pedestrian or vehicular traffic in a public place to be obstructed orrendered inconvenient, or involves the enclosure of a public place, ahoarding or fence must be erected between the work site and the public place:

- if necessary, an awning is to be erected, sufficient to prevent any substance from, or in connection with, the work falling into the publicplace,
- the work site must be kept lit between sunset and sunrise if it is likely to be hazardous to persons in the public place, and
- any such hoarding, fence or awning is to be removed when the work has been completed.

44 H033 – Clothes line

Clothes drying facilities are to be positioned and screened from public view.

Engineering

45 K101 - Works at no cost to Council

All roadworks, stormwater drainage works, associated civil works and dedications, required to effect the consented development shall be undertaken at no cost to Penrith City Council.

46 K201 - Infrastructure Bond

An Infrastructure Restoration Bond is to be lodged with Penrith City Council for development involving works around Penrith City Council's Public Infrastructure Assets. The bond is to be lodged with Penrith City Council **prior to the issue of any Construction Certificate**. The bond and applicable fees are in accordance with Council's adopted Fees and Charges.

An application form together with an information sheet and conditions are available on Council's website.

Contact Penrith City Council's City Works Department on (02) 4732 7777 or visit Penrith City Council's website for more information.

47 K202 - S138 Roads Act – Works and Structures - Minor Works in the public road DRIVEWAYS ROAD OPENINGS

Prior to the issue of any Construction Certificate, a Section138 Roads Act applications, including payment of application and inspection fees, shall be lodged and approved by Penrith City Council (being the Roads Authority for any works required in a public road). These works may include but are not limited to the following:

a) Vehicular crossings (including kerb reinstatement of redundant vehicular crossings)
b) Concrete footpaths and or cycleways
c) Road opening for utilities and stormwater (including stormwater connection to Penrith City Council roads and other Penrith City Council owned drainage)
d) Road occupancy or road closures
e) The placement of hoardings, structures, containers, waster skips, signs etc. in the road reserve
f) Temporary construction access

All works shall be carried out in accordance with the Roads Act approval, the development consent, including the stamped approved plans, and Penrith City Council's specifications, guidelines and best engineering practice.

Contact Penrith City Council's City Works Department on (02) 4732 7777 or visit Penrith City Council's website for more information.

Note:

a) Where Penrith City Council is the Certifying Authority for the development, the Roads Act approval for the above works may be issued concurrently with the Construction Certificate.

b) All works associated with the Roads Act approval must be completed prior to the issue of any Occupation Certificate or Subdivision Certificate as applicable.

48 K209 - Stormwater Concept Plan

The stormwater management system shall be provided generally in accordance with the MUSIC modeling and concept plans lodged for development approval, prepared by Australian Consulting Engineers, Job Reference No. 171552, Drawing D00, Revision A, dated 27 November, 2017, Drawing No's. D01 and D02, both Revision C, both dated 4 September, 2018, Drawing D03, Revision D, dated 4 September, 2018, Drawing No's. D04, D05 and D06, all Revision B, all dated 4 September, 2018 and Drawing D10, Revision A, dated 27 November, 2017.

Engineering plans and supporting calculations for the stormwater management systems are to be prepared by a suitably qualified person and shall accompany the application for a Construction Certificate.

Prior to the issue of a Construction Certificate, the Certifying Authority shall ensure that the stormwater management system has been designed in accordance with Council's Stormwater Drainage for Building Developments and Water Sensitive Urban Design Policy.

49 K211 - Stormwater Discharge – Basement Car parks

Prior to the issue of any Construction Certificate, the Certifying Authority shall ensure that the stormwater drainage system for the basement car park has been designed in accordance with the requirements for pumped systems in AS3500.3 (or as amended) (Plumbing and Drainage – Stormwater Drainage).

50 K222 - Access, Car Parking and Manoeuvring – General

Prior to the issue of any Construction Certificate, the Certifying Authority shall ensure that vehicular access, circulation, manoeuvring, pedestrian and parking areas associated with the subject development are in accordance with AS 2890.1, AS2890.2, AS2890.6 and Penrith City Council's Development Control Plan 2014.

51 K224 - Construction Traffic Management Plan

Prior to the issue of a Construction Certificate, the Certifying Authority shall ensure that a Construction Traffic Management Plan (CTMP) has been submitted to and approved by Penrith City Council. Approval of the CTMP may require endorsement from the Local Traffic Committee. The CTMP shall include, but not limited to the following: vehicle routes, number of construction vehicles, hours of operation, access arrangements, pedestrian management, turning templates for narrow streets and intersections and parking management for workers. The CTMP shall be certified by an appropriately accredited person and/or Roads and Traffic Authority Traffic Controller.for patrons. The CTMP shall be certified by an appropriately accredited person and/or Roads and Traffic Authority Traffic Controller. The CTMP shall ensure that adequate parking is provided for the development and not severely impacted by the construction of this development.

The TMP shall be supported by a traffic control plan, designed in accordance with the requirements of the Roads and Traffic Authority's Manual, Traffic Control at Work Sites Version 2, and the current Australian Standards, Manual of Uniform Traffic Control Devices Part 3, 'Traffic Control Devices for Works on Roads'.

The traffic control plan must be prepared by a suitably qualified and RTA accredited Work Site Traffic Controller.

52 K226 - Basement Geotechnical Testing/ Dilapidation Report

Prior to the issue of a Construction Certificate, the Certifying Authority shall ensure that a Geotechnical investigation, report and strategy has been conducted to ensure stability of the Council infrastructure and surrounding developments. The geotechnical investigation, report and strategy shall comply with the recommendations contained in the technical direction GTD 2012/001 prepared by the Road and Maritime Services as amended. The development shall undertake a dilapidation report for all surrounding buildings and Council owned infrastructure that confirms that no damage occurs due to the excavations associated with the development. If Council is not the Certifying Authority the dilapidation report shall be submitted to Council prior to Construction Certificate and then updated and submitted prior to any Occupation Certificate confirming no damage has occurred.

53 K301 - Sediment & Erosion Control

Prior to commencement of any works associated with the development, sediment and erosion control measures shall be installed in accordance with the approved Construction Certificate and to ensure compliance with the Protection of the Environment Operations Act 1997 and Managing Urban Stormwater series from the Office of Environment and Heritage.

The erosion and sediment control measures shall remain in place and be maintained until all disturbed areas have been rehabilitated and stabilised.

54 K302 - Traffic Control Plan

Prior to commencement of any works associated with the development, a Traffic Control Plan, including details for pedestrian management, shall be prepared in accordance with AS1742.3 "Traffic Control Devices for Works on Roads" and the Roads and Maritime Services' publication "Traffic Control at Worksites" and certified by an appropriately accredited Roads and Maritime Services Traffic Controller.

Traffic control measures shall be implemented during the construction phase of the development in accordance with the certified plan. A copy of the plan shall be available on site at all times.

Note:

a) A copy of the Traffic Control Plan shall accompany the Notice of Commencement to Penrith City Council.

b) Traffic control measures may require road occupancy / road closure approvals issued under Section 138 of the Roads Act by Penrith City Council prior to the issue of a Construction Certificate.

55 K405 - Turf to Verge

Upon completion of all works in the road reserve, all verge areas fronting and within the development are to be turfed. The turf shall extend from the back of kerb to the property boundary, with the exception of concrete footpaths, service lids or other infrastructure which is not to be turfed over. Turf laid up to concrete footpaths, service lids or other infrastructure shall finish flush with the edge.

56 K406 - Underground Services

All existing (aerial) and proposed services for the development, including those across the frontage of the development are to be located or relocated underground in accordance with the relevant authorities regulations and standards.

57 K501 - Penrith City Council clearance – Roads Act/ Local Government Act

Prior to the issue of any Occupation Certificate, the Principal Certifying Authority shall ensure that all works associated with a S138 Roads Act approval or S68 Local Government Act approval have been inspected and signed off by Penrith City Council.

58 K502 - Works as executed – General and Compliance Documenation

Prior to the issue of an Occupation Certificate, works-as-executed drawings, final operation and maintenance management plans and any other compliance documentation shall be submitted to the Principal Certifying Authority in accordance with Penrith City Council's Engineering Construction Specification for Civil Works, STET Technical Guidelines and Stormwater Drainage for Building Developments.

An original set of works-as-executed drawings and copies of the final operation and maintenance management plans and compliance documentation shall also be submitted to Penrith City Council with notification of the issue of the Occupation Certificate where Council is not the Principal Certifying Authority.

59 K503 - Stormwater Compliance

Prior to the issue of an Occupation Certificate, the Principal Certifying Authority shall ensure that the stormwater management systems (including on-site detention and water sensitive urban design)

- Have been satisfactorily completed in accordance with the approved Construction Certificate and the requirements of this consent.
- Have met the design intent with regard to any construction variations to the approved design.
- Any remedial works required to been undertaken have been satisfactorily completed.

Details of the approved and constructed system/s shall be provided as part of the works-as-executed drawings.

60 K504 - Restriction as to User and Positive Covenant

Prior to the issue of an Occupation Certificate, a restriction as to user and positive covenant relating to the:

a) Stormwater management systems (including on-site detention and water sensitive urban design)

Shall be registered on the title of the property. The restriction as to user and positive covenant shall be in Penrith City Council's standard wording as detailed in Penrith City Council's Stormwater Drainage for Building Development.

61 K601 - Stormwater Management system operation and maintenance

The stormwater management systems shall continue to be operated and maintained in perpetuity for the life of the development in accordance with the final operation and maintenance management plan. Regular inspection records are required to be maintained and made available to Penrith City Council on request. All necessary improvements are required to be made immediately upon awareness of any deficiencies in the stormwater management systems.

62 K Special (BLANK)

All vehicles are to enter/exit the site in a forward direction.

63 K Special (BLANK)

Prior to the issue of any Construction Certificate, the Certifying Authority shall ensure that the plans include provision of complying number and dimensions for resident and visitor secure bicycle parking at convenient locations in accordance with Council Development Control Plan 2014, Section C10, *'Planning Guidelines for Walking and Cycling'* and AS 2890.3 Bicycle Parking Facilities.

64 K Special (BLANK)

Prior to the issue of any Construction Certificate, the Certifying Authority shall ensure that the plans include dimensions of driveways, ramps, aisles, parking spaces, columns and obstructions, car park headroom, accessible parking, bicycle parking, footpaths, waste services vehicle manoeuvring and loading areas complying with AS 2890, AS 1428, Penrith Development Control Plan 2014 Section C5 and C10 and Council's Residential Flat Building Waste Management Guidelines. These details shall include minimum headroom for waste service vehicles of 4.5 metres, minimum turning swept path clearances for waste service vehicles of 0.5 metres, minimum turn table clearances of 1.0 metre, minimum headroom of 2.3 metres to accessible parking and minimum headroom of 2.5 metres above accessible parking spaces, swept turn path clearances at driveways (including accordance with AS 2890.1 Table 2.2 and Figure 2.9), curved car park ramp dimensions (including accordance with AS 2890.1 Table 2.2 and Figure 2.9), car park ramp headroom clearances including at grade transitions, car park aisle widths, service vehicle loading areas, car park column locations and clearances (including accordance with AS 2890.1 Figure 5.1 and 5.2) and additional car space clearances from obstructions (including accordance with AS 2890.1 B4.1 minimum additional clearance of 0.3 metres).

65 K Special (BLANK)

Prior to Occupation Certificate, appropriate signage, visible from the public road and on-site shall to be installed to reinforce designated vehicle circulation and to direct delivery vehicle drivers / service vehicle drivers / visitors to on-site parking, delivery and service areas to the satisfaction of the Principal Certifying Authority.

66 K Special (BLANK)

All car spaces and loading areas are to be sealed / line marked and dedicated for the parking of vehicles only and not to be used for storage of materials / products / waste materials etc.

67 K Special (BLANK)

Subleasing of car parking spaces is not permitted by this Consent.

68 K Special (BLANK)

All car spaces are to be dedicated for the parking of vehicles only and not be used for storage of materials/waste materials etc

Landscaping

69 L001 - General

All landscape works are to be constructed in accordance with the stamped approved plans as amended by the applicable conditions of this Development Consent and Sections C2 'Vegetation Management' and C6 'Landscape Design' of Penrith Development Control Plan 2014.

Landscaping shall be maintained:

- in accordance with the approved plans, and
- in a healthy state, and
- in perpetuity by the existing or future owners and occupiers of the property.

If any of the vegetation comprising that landscaping dies or is removed, it is to be replaced with vegetation of the same species and, to the greatest extent practicable, the same maturity as the vegetation which died or was removed.

70 L002 - Landscape construction

The approved landscaping for the site must be constructed by a suitably qualified and experienced landscape professional.This includes the following requirements:-

- All plant material associated with the construction of approved landscaping is to be planted in accordance with the Tree Planting Specification prescribed in Penrith Development Control Plan 2014.

71 L003 - Report requirement

The following series of reports relating to landscaping are to be submitted to the nominated consent authority at the appropriate time periods as listed below. These reports shall be prepared by a suitably qualified and experienced landscape professional.

i. Implementation Report

Upon completion of the landscape works associated with the development and **prior to the issue of an Occupation Certificate** for the development, an Implementation Report must be submitted to the Principal Certifying Authority attesting to the satisfactory completion of the landscaping works for the development.

An Occupation Certificate should not be issued until such time as a satisfactory Implementation Report has been received. If Penrith City Council is not the Principal Certifying Authority, a copy of the satisfactory Implementation Report is to be submitted to Council together with the Occupation Certificate for the development.

72 L005 - Planting of plant

All plant material associated with the construction of approved landscaping is to be planted in accordance with the Tree Planting Specifications prescribed in Penrith Development Control Plan 2014.

73 L006 - Aust Standard

All landscape works are to meet industry best practice and the following relevant Australian Standards:

- AS 4419 Soils for Landscaping and Garden Use,
- AS 4454 Composts, Soil Conditioners and Mulches, and
- AS 4373 Pruning of Amenity Trees.

74 L007 - Tree protectionmeasures–no TMPwith DA

All trees that are required to be retained as part of the development are to be protected in accordance with the minimum tree protection standards prescribed in Section C6 'Landscape Design' of Penrith Development Control Plan 2014.

75 L008 - Tree PreservationOrder

No trees are to be removed, ringbarked, cut, topped or lopped or wilfully destroyed (other than those within the proposed building footprint or as shown on the approved plans) without the prior consent of Penrith City Council and in accordance with Council's Tree Preservation Order and Policy.

76 L Special (BLANK)

All trees and landscaping must be maintained in perpetuity to enable maturity to their full potential in healthy growing conditions. This includes mature height, spread and form, consistent with the tree species. Pruning must not alter the natural form and height of trees.

Development Contributions

77 N001 - Section 94 contribution (apply separate condition for each Contribution Plan)

This condition is imposed in accordance with Penrith City Council's Section 94 Contributions Plan(s) for Cultural Facilities. Based on the current rates detailed in the accompanying schedule attached to this Notice, $16,533.00 is to be paid to Council prior to a Construction Certificate being issued for this development (the rates are subject to quarterly reviews). If not paid within the current quarterly period, this contribution will be reviewed at the time of payment in accordance with the adopted Section 94 plan. The projected rates of this contribution amount are listed in Council's Fees and Charges Schedule.

Council should be contacted prior to payment to ascertain the rate for the current quarterly period. The S94 invoice accompanying this consent should accompany the contribution payment. The Section 94 Contributions Plan for Cultural Facilities may be inspected at Council's Civic Centre, 601 High Street, Penrith.

78 N001 - Section 94 contribution (apply separate condition for each Contribution Plan)

This condition is imposed in accordance with Penrith City Council's Section 94 Contributions Plan(s) for District Local Space. Based on the current rates detailed in the accompanying schedule attached to this Notice, $157,688.00 is to be paid to Council prior to a Construction Certificate being issued for this development (the rates are subject to quarterly reviews). If not paid within the current quarterly period, this contribution will be reviewed at the time of payment in accordance with the adopted Section 94 plan. The projected rates of this contribution amount are listed in Council's Fees and Charges Schedule.

Council should be contacted prior to payment to ascertain the rate for the current quarterly period. The S94 invoice accompanying this consent should accompany the contribution payment. The Section 94 Contributions Plan for District Local Space may be inspected at Council's Civic Centre, 601 High Street, Penrith.

79 N001 - Section 94 contribution (apply separate condition for each Contribution Plan)
This condition is imposed in accordance with Penrith City Council's Section 94 Contributions Plan(s) for Local Open Space. Based on the current rates detailed in the accompanying schedule attached to this Notice, $57,055.00 is to be paid to Council prior to a Construction Certificate being issued for this development (the rates are subject to quarterly reviews). If not paid within the current quarterly period, this contribution will be reviewed at the time of payment in accordance with the adopted Section 94 plan. The projected rates of this contribution amount are listed in Council's Fees and Charges Schedule.

Council should be contacted prior to payment to ascertain the rate for the current quarterly period. The S94 invoice accompanying this consent should accompany the contribution payment. The Section 94 Contributions Plan for Local Open Space may be inspected at Council's Civic Centre, 601 High Street, Penrith.

Payment of Fees

80 P001 - Costs
All roadworks, dedications and drainage works are to be carried out at the applicant's cost.
81 P002 - Fees associatedwith Council land (Applies to all works & add K019)
Prior to the commencement of any works on site, all fees associated with Penrith City Council-owned land and infrastructure shall be paid to Council. These fees include Road Opening fees and Infrastructure Restoration fees.

Certification

82 Q006 - Occupation Certicate (Class 2 - 9)
An Occupation Certificate is to be obtained from the Principal Certifying Authority on completion of all works and prior to the occupation of the building and commencement of the approved use. The Occupation Certificate shall not be issued if any conditions of this consent, but not the conditions relating to the operation of the development, are outstanding, and the development does not comply with the provisions of the Environmental Planning and Assessment Act and Regulation.

Before the Occupation Certificate can be issued for the development, Fire Safety Certificates issued for the building are to be submitted to Penrith City Council and the New South Wales Fire Brigades.

A copy of the Occupation Certificate and all necessary documentation supporting the issue of that Certificate including the above mentioned documents shall be submitted to Penrith City Council, if Council is not the Principal Certifying Authority.
83 Q01F - Notice of Commencement & Appointment of PCA2 (use for Fast Light only)
Prior to the commencement of any earthworks or construction works on site, the proponent is to:
(a) employ a Principal Certifying Authority to oversee that the said works carried out on the site are in accordance with the development consent and related Construction Certificate issued for the approved development, and with the relevant provisions of the Environmental Planning and Assessment Act and accompanying Regulation, and
(b) submit a Notice of Commencement to Penrith City Council.

The Principal Certifying Authority shall submit to Council an "Appointment of Principal Certifying Authority" in accordance with Section 81A of the Environmental Planning and Assessment Act 1979.

Information to accompany the Notice of Commencement
Two (2) days before any earthworks or construction/demolition works are to commence on site (including the clearing site vegetation), the proponent shall submit a "Notice of Commencement" to Council in accordance with Section 81A of the Environmental Planning and Assessment Act 1979.

Appendix - Development Control Plan Compliance

Development Control Plan 2014

Part C - City-wide Controls

C10 Transport, Access and Parking

The following on-site car parking rate is required to be provided in relation to the proposed residential flat building development;

Land Use Element	***Parking Rate***	***Required***
Residential Flat Buildings	1 space per 1 or 2 bedrooms	41
	2 spaces per 3 or more bedrooms	8
	1 space per 40 units for service vehicles	1
	Visitor parking: 1 space per 5 dwellings	9
	1 space for car washing for every 50 units	1
Total Required		***60 spaces***

It is noted that the application is compliant with the required car parking rate, via the provision of a total of 61 parking spaces over two (2) basement levels. These parking spaces have also included a designated car wash bay, service vehicle bay and five (5) accessible car parking spaces associated with the provision of adaptable apartments. In this regard, it is considered that adequate parking facilities are provided to cater for future occupants and visitors of the proposed apartments. It is also noted that the application was referred to Council's Traffic Engineering Section who raised no objection to the application subject to the provision of appropriate conditions with any development consent granted.

D2 Residential Development

The proposal has been assessed against the applicable provisions of this section and is found to be generally acceptable. Particular clauses which have provided for non compliances or relevant discussion points are identified below:

Clause 2.5.5 Landscaped Area

Clause 2..5.5 'Landscaped Area' within D2 Residential Development of the Penrith Development Control Plan 2014 provides the following development control in relation to landscaped area for a R4 High Density Residential in which the subject site is located;

Zone: R4 High Density Residential
Minimum Landscaped area % of the site: 35%

In addition to the above, landscaped areas are to have a minimum width of 2m, with no basement encroachment, may include terraces and patios located no higher than 0.5m above ground and pedestrian pathways to building and dwelling entrances but does not include substantially-paved areas such as buildings, driveways and covered garages. Noting these controls, an assessment of the provided plans has identified that with a site area of 1,867.49m^2, a total of 653m^2 landscaping area is required. While so, only 531m^2 (28% of the total site area) landscaping area is considered to have been provided with the proposal and is therefore non compliant by 122m^2.

While it is acknowledged that the proposal is non compliant, it is noted that the proposal has provided for a compliant deep soil zone as well as a compliant communal open space to the rooftop level. In this regard, it is considered that the proposal has provided for a good use of

landscaping opportunities and noting that the deep soil and communal open space areas are in accordance with the Apartment Design Guide, the variation of this control in this instance is considered acceptable.

Clause 2.5.6 Front Setback

Clause 2.5.6 'Front and Rear Setback' within D2 Residential Development of the Penrith Development Control Plan 2014 provides the following development control in relation to front setbacks;

Determine an appropriate front setback:

a) either average the setbacks of the immediate neighbours; or
b) 5.5m minimum whichever is the greater dimension.

It is noted that the adjoining residential flat building at No. 38-40 Hope Street has been provided with a 5.5m setback for the portion of the approved built form which directly adjoins the subject site with a wall associated with the main entry set back only 3.7m from the northern boundary. In addition, it is also noted that the adjoining development application currently under assessment by Penrith Council (DA18/0488 at 26-30 Hope Street) is provided with a 6m front setback. In this regard, the proposed front setback of 6m to the ground level and 5.5m to levels 1 to 3 is considered compliant and consistent with the adjoining and proposed residential flat building to either side of the subject site.

Clause 2.5.18 Fences and Retaining Walls

Clause 2.5.18 'Fences and Retaining Walls' within D2 Residential Development of the Penrith Development Control Plan 2014 requires that fences shall be no taller than 1.8m generally and walls of solid construction and taller than 1.2m shall be of see through construction. Retaining walls are identified as being no taller than 500mm. An assessment of the provided plans has identified the provision of a front fence also serving as the boundary to private open space for ground floor Hope Street facing apartments. This fencing is to be provided as a vertical timber fence ranging in height from 1.3m to 1.68m in line with the contours of the subject sites frontage. Noting the open nature of this fencing and spacing provided between the timber pickets, the design is therefore compliant

In addition, retaining walls are proposed to the courtyard areas of units 05 and 06 to the south eastern corner of the subject site. With a height of 300mm from the natural ground level no concern is raised in their provision.

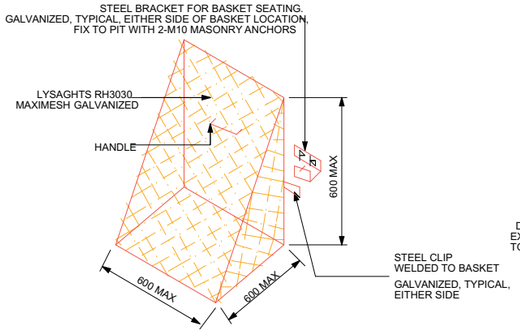
Clause 2.5.20 Accessibility and Adaptability

The following development control is provided for adaptable units within the Penrith Development Control Plan 2014;

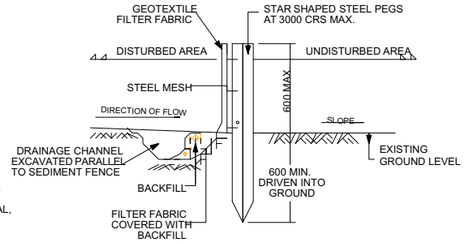
10% of all dwellings, or a minimum one dwelling, whichever is greater, must be designed in accordance with the Australian Adaptable Housing Standard (AS4299-1995), to be capable of adaption for people with a disability or elderly residents.

As the application has provided for 5 of the 45 apartments (11%) to be provided as adaptable, the proposal is therefore compliant with this control. In addition, it is noted that the application was accompanied by an Access Compliance Report which would be incorporated as part of conditions with any Development Consent granted.

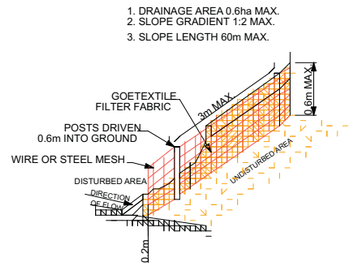
PROPOSED RESIDENTIAL FLAT BUILDING DEVELOPMENT @ 32-36 HOPE ST, PENRITH FOR MARANT DESIGN DEVELOPMENT APPROVAL



TRASH SCREEN DETAIL
N.T.S.



TYPICAL SEDIMENT FENCE SECTION
N.T.S.



SEDIMENT FENCE
N.T.S.

LOCATION MAP

SHEET SCHEDULE	
SHEET	**TITLE**
000	COVER PAGE
1	LEP CONTROLS
2	SITE CONTEXT ANALYSIS
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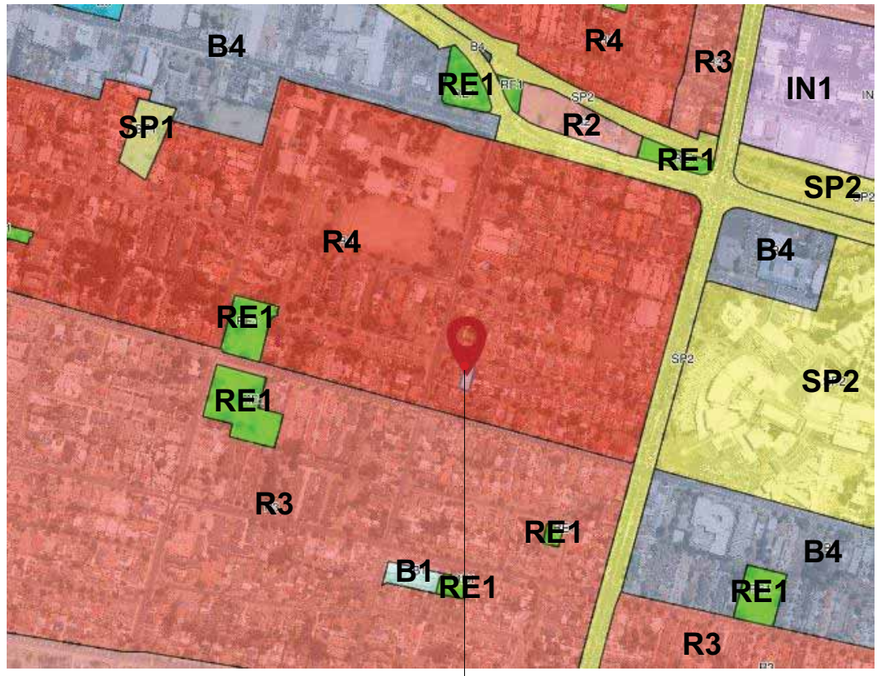
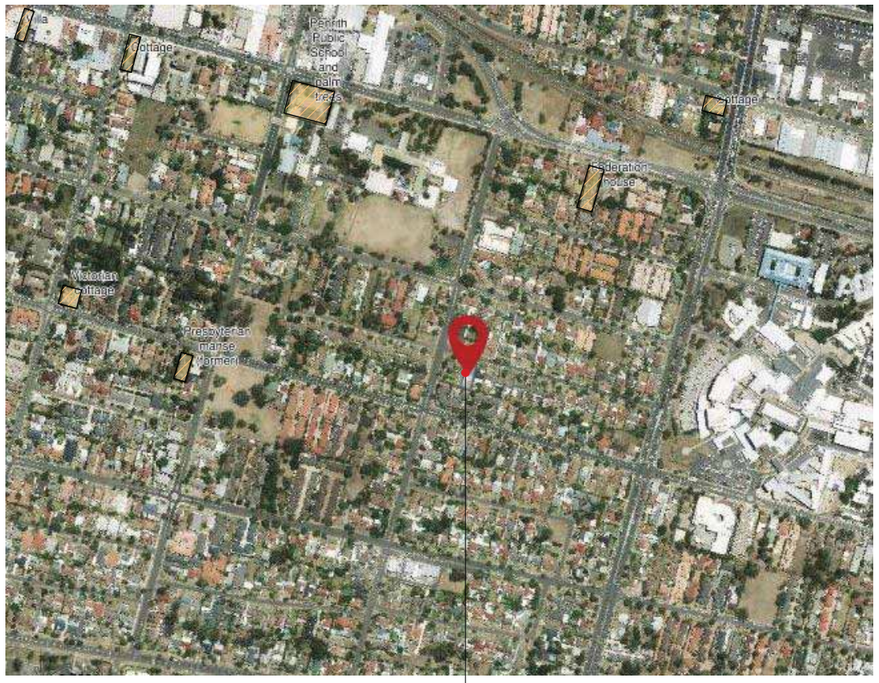
LEP CONTROLS

ZONING - R4



HERITAGE - N/A



FLOOR SPACE RATIO - N/A

HEIGHT OF BUILDING - 18m

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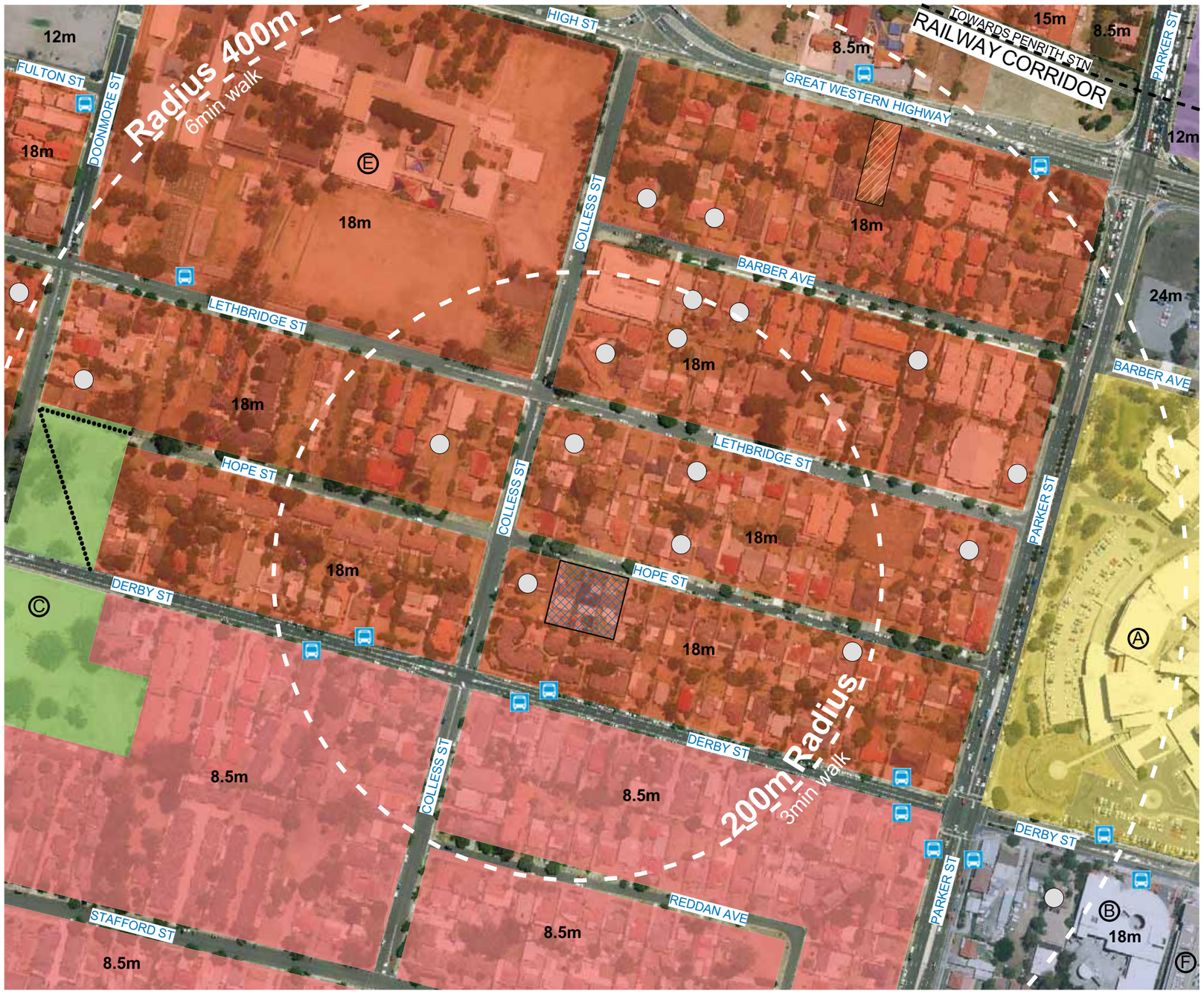
SITE CONTEXT ANALYSIS

1:3000



LANDMARKS

- Ⓐ Nepean Hospital
- Ⓑ Nepean Physiotherapy Hydrotherapy Centre
- Ⓒ Spence Park
- Ⓓ Day Care Centre
- Ⓔ Penrith High School
- Ⓕ Sydney Medical School Nepean
- Bus Stop
- Penrith Train Station - 2km 24 min walk

  Penrith CBD - 1.5km 18 min walk
- ••••••••• Pedestrian links

Proposed development

- DA for apartment buildings

ZONING

- RE1 Public Recreation
- RE2 Private Recreation
- IN1 General Industrial
- B4 Mixed Use
- SP2 INFRASTRUCTURE
- R2 Low Density Residential
- R3 Medium Density Residential
- R4 High Density Residential
- Heritage
- 18m Max Height of Building

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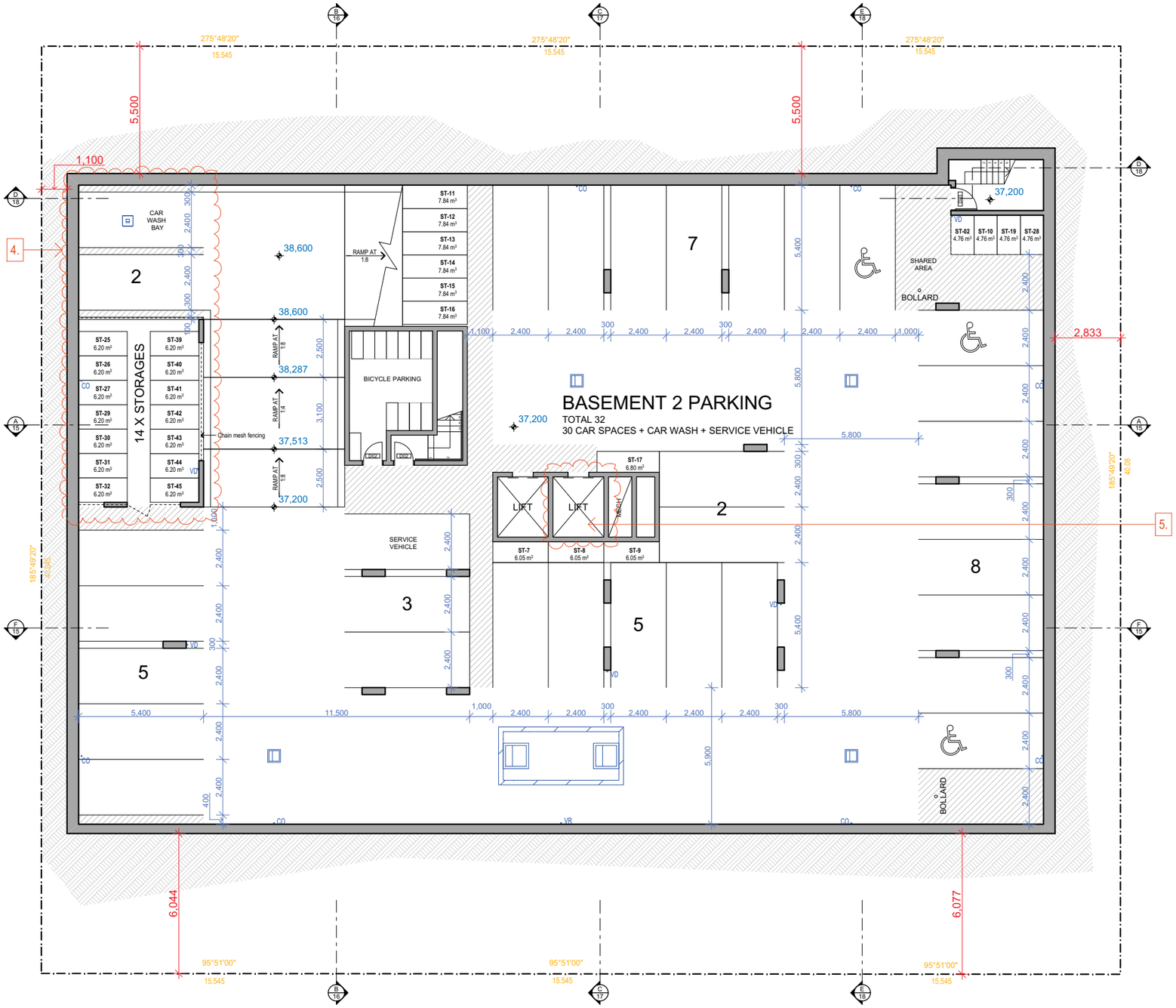

Bicycle	rate	visitor	req
UNITS = 45	20-30% * Unit	5-10% 8 Unit	11.25
TOTAL			12

DCP - RESIDENTIAL PARKING REQUIREMENTS			
	No. of Units	Parking Rate	Req Parking
1 bedroom	5	1	5
2 bedroom	36	1	36
3 bedroom	4	2	8
Service Vehicle	45	1 per 40	1
Visitor (1 per 5units)	45	0.2	9
Car Wash Bay	45	1 per 50	1
		Min. Resi Parking	60
		Provided	61

COMPLIANCE TABLE

CONTROL	REQUIRED	PROPOSED
Site Area (m^2)R4	400	✓ 1868.22
Floor Space Ratio	n/a	✓ 3828.35
Street Frontage Setback	min 5.5m	✓ 6
Side Setback	3m	✓ 6
Rear Setback	6	✓ 6
Building Height	max 18m	✗ 19.8
Communal Open Space (10%) of Landscaped area	65.4	✓ 778.85
Fences	1.8	✓ 1.8
Solar Access	3 hours	✓ 3
Min. Landscape (min 35%)(min 2*2m)	653.877	✓ 666.5
Private Open Space - Ground Floor	$20m^2$; min dimension 2.5m	✓ 20
Private Open Space - Balcony	$10m^2$; min dimension 2.5m	✓ 10
Parking	1br 1, 2br 1, 3br+ 2, V 0.2	✓ 61
Parking (Bicycle)	0.2 per unit + 0.05 visitor	✓ 12

ADG COMPLIANCE TABLE

CONTROL	REQUIRED	PROPOSED
Building Separation	*6-12m*	✓ 12
Living room width	*min dim. 3.6m 1BR; 4m 2+ BR*	✓ 4
Bedroom size	*min 9-10m2, min dimension 3m*	✓ 10
Communal Open Space (25%, 3x3m)	*467.1*	✓ 778.85
Front Fence (solid fence up to 1m)	*1m*	✓ 1
Solar Access (2h from 9am-3pm)	min 70%	✓ 91%
Landscaping	*1 large/2 medium trees per 90m2*	✓ 6
Deep Soil Zone (min 7%) (6m * 6m)	*130.78*	✓ 221.17
Private Open Space - Ground Floor	*$15m^2$; min dimension 3m*	✓ 31
Private Open Space - Balcony	*$8\text{-}12m^2$; min dimension 2-2.4m*	✓ 12
Universal Design (20% Livable Housing Guidline)	*9.0*	✓ 10
Natural cross ventilation	*60%*	✓ **64**

BASEMENT 2 FLOOR PLAN

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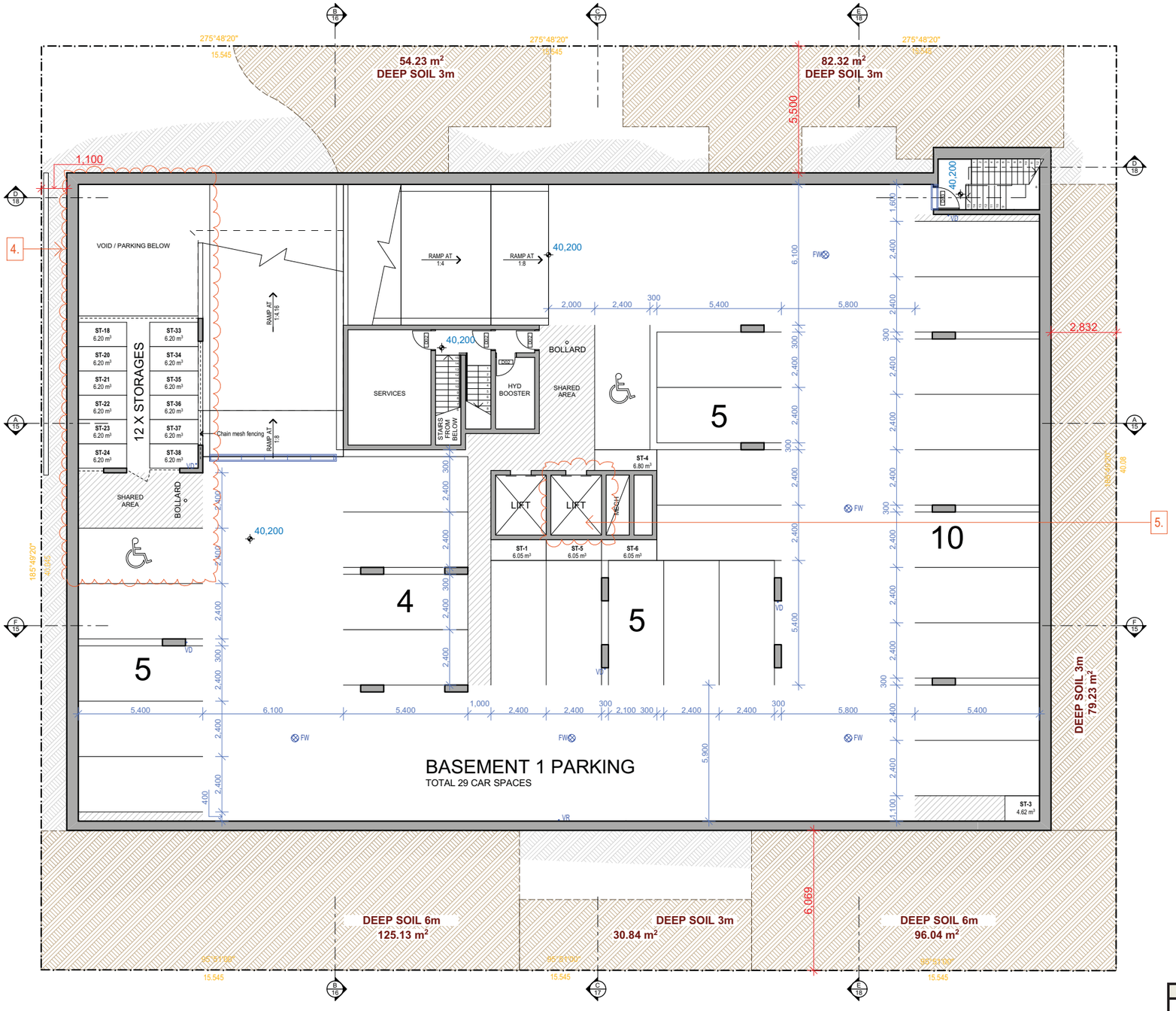

BASEMENT 1 FLOOR PLAN

1:200

STORAGE CALCS (m3)				
	in-unit	basement	req	TOTAL
Unit 1	5.02	6.05	10	11.07
Unit 2	4.07	4.76	6	8.83
Unit 3	4.05	4.62	8	8.67
Unit 4	9.89	6.8	8	16.69
Unit 5	4.06	6.05	8	10.11
Unit 6	4.62	6.05	8	10.67
Unit 7	4.13	6.05	8	10.18
Unit 8	4.73	6.05	8	10.78
Unit 9	4.18	6.05	8	10.23
Unit 10	6.11	4.76	8	10.87
Unit 11	4.88	7.84	8	12.72
Unit 12	5.39	7.84	8	13.23
Unit 13	4.01	7.84	8	11.85
Unit 14	5.17	7.84	8	13.01
Unit 15	4.81	7.84	8	12.65
Unit 16	4.13	7.84	8	11.97
Unit 17	4.73	6.8	8	11.53
Unit 18	4.18	6.2	8	10.38
Unit 19	6.11	4.76	8	10.87
Unit 20	4.88	6.2	8	11.08
Unit 21	5.39	6.2	8	11.59
Unit 22	4.01	6.2	8	10.21
Unit 23	5.17	6.2	8	11.37
Unit 24	4.81	6.2	8	11.01
Unit 25	4.13	6.2	8	10.33
Unit 26	4.73	6.2	8	10.93
Unit 27	4.18	6.2	8	10.38
Unit 28	6.11	4.76	8	10.87
Unit 29	4.88	6.2	8	11.08
Unit 30	5.39	6.2	8	11.59
Unit 31	4.01	6.2	8	10.21
Unit 32	5.17	6.2	8	11.37
Unit 33	4.81	6.2	8	11.01
Unit 34	5.72	6.2	8	11.92
Unit 35	5.13	6.2	6	11.33
Unit 36	6.11	6.2	8	12.31
Unit 37	4.88	6.2	8	11.08
Unit 38	6.97	6.2	6	13.17
Unit 39	3.17	6.2	6	9.37
Unit 40	7.03	6.2	10	13.23
Unit 41	7.25	6.2	10	13.45
Unit 42	5.48	6.2	10	11.68
Unit 43	4.71	6.2	6	10.91
Unit 44	5.54	6.2	6	11.74
Unit 45	5.85	6.2	10	12.05

Bicycle	rate	visitor	req
UNITS = 45	20-30% * Unit	5-10% 8 Unit	11.25
TOTAL			12

DCP - RESIDENTIAL PARKING REQUIREMENTS			
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Car Wash Bay	45	1 per 50	1
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		Provided	61

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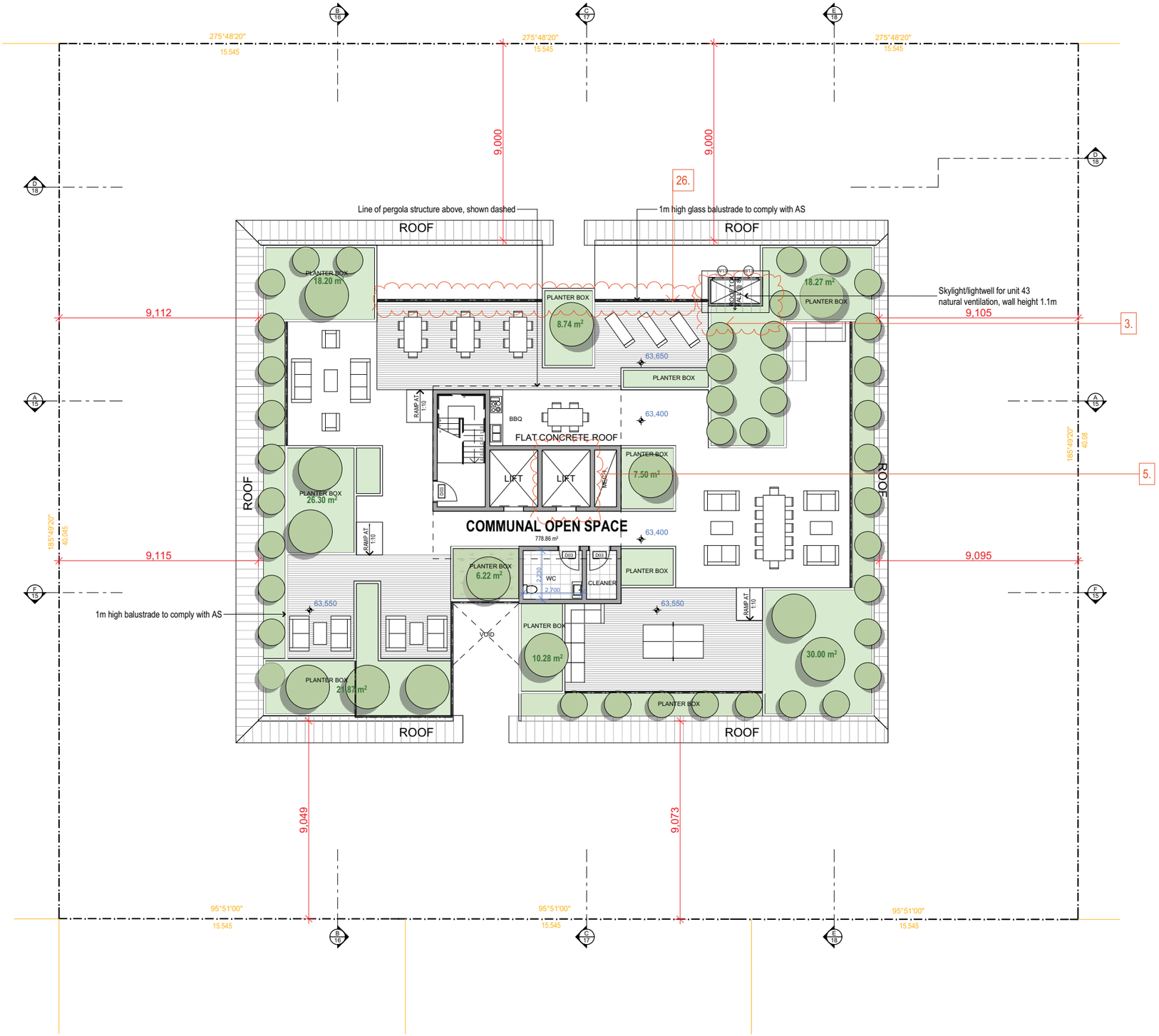

ROOFTOP PLAN

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NORTH ELEVATION

1:200

EAST ELEVATION

1:200

NOTE

1. ALL DIMENSIONS AND FLOOR AREAS ARE TO BE VERIFIED BY BUILDER PRIOR TO THE COMMENCEMENT OF ANY BUILDING WORK. ANY DISREPANCIES ARE TO BE CONFIRMED BY THE DESIGNER.
2. LEVELS SHOWN ARE APPROXIMATE UNLESS ACCOMPANIED BY REDUCED LEVELS BY A REGISTERED SURVEYOR.
3. FIGURED DIMENSIONS ARE TO BE TAKEN IN PREFERENCE TO SCALING.
4. ALL BOUNDARY CLEARANCES MUST BE VERIFIED BY THE SURVEYOR PRIOR TO THE COMMENCEMENT OF ANY BUILDING WORK.
5. WHERE ENGINEERING OR HYDRAULIC DRAWINGS ARE REQUIRED, SUCH MUST TAKE PREFERENCE TO THIS DRAWING.
6. STORMWATER TO BE CONNECTED AND DISCHARGED TO COUNCIL'S REQUIREMENTS AND TO AS 3500.3-1990.
7. ALL SERVICES TO BE LOCATED AND VERIFIED BY THE BUILDER WITH THE RELEVANT AUTHORITIES PRIOR TO THE COMMENCEMENT OF ANY BUILDING WORK.
8. ALL DIMENSIONS TO BE VERIFIED BY BUILDER/ REGISTERED SURVEYOR ON SITE PRIOR TO CONSTRUCTION COMMENCING
9. ALL DEMOLITION AND REMOVAL WORK TO BE CARRIED OUT WITH APPROVED WASTE MANAGEMENT PLAN AND IN ACCORDANCE WITH COUNCIL'S REQUIREMENTS & D.A. CONDITIONS

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SOUTH ELEVATION

1:200

WEST ELEVATION

1:200

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SHADOW ANALYSIS

21st June

Living room windows receiving direct solar access on nominated hour

8 AM - VIEW FROM THE SUN 21.

*Every surface seen receives sun on nominated hour.

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SHADOW ANALYSIS
21st June

Living room windows receiving direct solar access on nominated hour

9 AM - VIEW FROM THE SUN 21.

*Every surface seen receives sun on nominated hour.

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SHADOW ANALYSIS

21st June

Living room windows receiving direct solar access on nominated hour

10 AM - VIEW FROM THE SUN 21.

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SHADOW ANALYSIS

21st June

Living room windows receiving direct solar access on nominated hour

11 AM - VIEW FROM THE SUN 21.

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SHADOW ANALYSIS

21st June

Living room windows receiving direct solar access on nominated hour

12 PM - VIEW FROM THE SUN 21.

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checked: J.E. date: AUG 18

scale: as shown Council
ref: 2017-176 PCC

G29

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nominated architect - joe el-sabbagh 8707

N

SHADOW ANALYSIS
21st June

Living room windows receiving direct solar access on nominated hour

1 PM - VIEW FROM THE SUN 21.

*Every surface seen receives sun on nominated hour.

Member Australian Institute of Architects

issue k:
issue j:
issue i:
issue h:
issue g: Unit 13,22,31,39 layouts+ garbage rm 10/09/2018
issue f: Additional information 03/07/2018
issue e: Additional information 18/05/2018
issue d: DA 07/12/2017
issue c: client sketch 20/10/2017
issue b: client sketch / design review 25/09/2017
issue a: client sketch / pre-da 28/07/2017

project PROPOSED RESIDENTIAL FLAT BUILDING DEVELOPMENT @ 32-36 HOPE ST, PENRITH
client MARANT DESIGN
drawn: E.K. scale: as shown Council
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2 PM - VIEW FROM THE SUN 21.

*Every surface seen receives sun on nominated hour.

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SHADOW ANALYSIS
21st June

Living room windows receiving direct solar access on nominated hour

3 PM - VIEW FROM THE SUN

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BASIX® Certificate

Building Sustainability Index www.basix.nsw.gov.au

Multi Dwelling

Certificate number: 881520M

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 06/10/2017 published by the Department. This document is available at www.basix.nsw.gov.au

Secretary
Date of issue: Friday, 24 November 2017
To be valid, this certificate must be lodged within 3 months of the date of issue.

Project address	
Project name	00048441
Street address	32-36 Hope Street Penrith 2750
Local Government Area	Penrith City Council
Plan type and plan number	deposited 31239
Lot no.	37-39
Section no.	-

Project type	
No. of residential flat buildings	1
No. of units in residential flat buildings	45
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Site details	
Site area (m²)	1864.74
Roof area (m²)	121.2
Non-residential floor area (m²)	0.0
Residential car spaces	52
Non-residential car spaces	10

Project summary	
Project name	00048441
Street address	32-36 Hope Street Penrith 2750
Local Government Area	Penrith City Council
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Section no.	-
No. of residential flat buildings	1
No. of units in residential flat buildings	45
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Project score		
Water	✔ 41	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 35	Target 35

Common area landscape	
Common area lawn (m²)	230.5
Common area garden (m²)	288.0
Area of indigenous or low water use species (m²)	0.0

Assessor details	
Assessor number	90121
Certificate number	1011669015
Climate zone	28

Project score		
Water	✔ 41	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 35	Target 35

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1	3	99.7	4.7	26.3	0.0
5	2	78.5	4.3	104.1	0.0
9	2	73.2	5.4	0.0	0.0
13	2	78.3	2.4	0.0	0.0
17	2	75.0	2.3	0.0	0.0
21	2	72.9	4.4	0.0	0.0
25	2	71.6	3.7	0.0	0.0
29	2	68.7	6.1	0.0	0.0
33	2	76.1	3.7	0.0	0.0
37	2	68.7	6.1	0.0	0.0
41	3	90.1	5.1	0.0	0.0
45	3	92.7	5.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
2	1	51.1	4.7	20.6	0.0
6	2	70.5	5.4	70.0	0.0
10	2	76.9	7.0	0.0	0.0
14	2	77.1	2.5	0.0	0.0
18	2	73.2	5.4	0.0	0.0
22	2	78.3	2.4	0.0	0.0
26	2	75.0	2.3	0.0	0.0
30	2	72.9	4.4	0.0	0.0
34	2	80.1	5.0	0.0	0.0
38	1	52.9	3.6	0.0	0.0
42	3	95.2	3.8	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
3	2	71.0	5.1	67.7	0.0
7	2	71.6	3.7	0.0	0.0
11	2	68.7	6.1	0.0	0.0
15	2	76.1	3.7	0.0	0.0
19	2	76.9	7.0	0.0	0.0
23	2	77.1	2.5	0.0	0.0
27	2	73.2	5.4	0.0	0.0
31	2	78.3	2.4	0.0	0.0
35	1	48.0	5.4	0.0	0.0
39	1	53.5	2.0	0.0	0.0
43	2	71.7	4.9	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
4	2	94.3	2.4	35.2	0.0
8	2	75.0	2.3	0.0	0.0
12	2	72.9	4.4	0.0	0.0
16	2	71.6	3.7	0.0	0.0
20	2	68.7	6.1	0.0	0.0
24	2	76.1	3.7	0.0	0.0
28	2	76.9	7.0	0.0	0.0
32	2	77.1	2.5	0.0	0.0
36	2	76.9	7.0	0.0	0.0
40	3	92.7	5.0	0.0	0.0
44	2	82.6	5.2	0.0	0.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
1	36.7	38.9
2	12.2	47.9
3	17.5	29.1
4	31.9	38.6
5	45.9	43.0
6	58.3	37.9
7	56.6	41.0
8	25.8	40.9
9	18.5	39.9
10	7.5	17.7
11	7.7	21.7
12	20.1	36.1
13	24.9	23.8
14	30.0	35.9
15	44.0	26.6
16	57.6	40.2
17	26.6	39.6
18	19.2	38.4
19	7.6	21.1
20	8.1	21.4
21	20.7	35.6
22	25.6	23.2
23	31.1	35.5
24	44.9	25.8
25	62.3	38.8
26	27.1	48.5
27	20.6	36.2
28	8.1	17.2
29	8.2	21.5
30	23.1	34.4
31	26.6	22.9
32	37.3	30.9
33	48.7	25.0
34	53.4	60.2
35	24.4	60.3
36	9.9	15.5
37	9.8	19.5
38	31.9	55.4
39	36.3	17.7
40	52.8	36.8
41	57.3	47.7
42	33.5	52.4
43	13.5	37.6
44	49.9	38.7
All other dwellings	62.9	30.6

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	4 star	no	4 star	4 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✔	✔
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	gas instantaneous 5 star	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

	Cooling		Heating		Artificial lighting				Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
1	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	3 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
4	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	2 (dedicated)	3 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
35	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	1 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	1	yes
38	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	1 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes
41	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	3 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	1	no
44	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes
3, 6	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	1	no
2, 39	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	1 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
40, 42, 45	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	3 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes
All other dwellings	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	4 star	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	4 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 1)	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Car park (Basement 1)	ventilation (supply + exhaust)	carbon monoxide monitor + 2-speed fan	fluorescent	none	Yes
Car park (Basement 2)	ventilation (supply + exhaust)	carbon monoxide monitor + 2-speed fan	fluorescent	none	Yes
Truck loading area	ventilation (supply + exhaust)	carbon monoxide monitor + 2-speed fan	fluorescent	none	Yes
Lift car (No.1)	-	-	fluorescent	connected to lift call button	No
Garbage room (Ground)	ventilation (supply + exhaust)	-	fluorescent	manual on / manual off	No
Bulky waste room (Ground2)	ventilation (supply + exhaust)	-	fluorescent	manual on / manual off	No
Garbage room (Lvl 1)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Garbage room (Lvl 2)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Garbage room (Lvl 3)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Garbage room (Lvl 4)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Cleaner room (Rooftop)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
WC (Rooftop)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Service room 1 (Basement 1)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Service room 2 (Basement 1)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Service room 1 (Basement 2)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Service room 2 (Basement 2)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Service room (Rooftop)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Hyd booster room	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Ground floor lobby	no mechanical ventilation	-	fluorescent	time clock and motion sensors	Yes
Hallway/lobby (Lvl 1)	no mechanical ventilation	-	fluorescent	time clock and motion sensors	Yes
Hallway/lobby (Lvl 2)	no mechanical ventilation	-	fluorescent	time clock and motion sensors	Yes
Hallway/lobby (Lvl 3)	no mechanical ventilation	-	fluorescent	time clock and motion sensors	Yes
Hallway/lobby (Lvl 4)	no mechanical ventilation	-	fluorescent	time clock and motion sensors	Yes
Hallway/lobby (Lvl 5)	no mechanical ventilation	-	fluorescent	time clock and motion sensors	Yes

Central energy systems	Type	Specification
Lift (No. 1)	geared traction with V V A C motor	Number of levels (including basement): 9

Common area	Floor area (m²)
Car park (Basement 1)	1004.0
Lift car (No.1)	-
Garbage room (Lvl 1)	5.5
Garbage room (Lvl 4)	5.5
Service room 1 (Basement 1)	19.0
Service room 2 (Basement 2)	11.0
Ground floor lobby	57.5
Hallway/lobby (Lvl 3)	50.0

Common area	Floor area (m²)
Car park (Basement 2)	1090.0
Garbage room (Ground)	38.0
Garbage room (Lvl 2)	5.5
Cleaner room (Rooftop)	3.5
Service room 2 (Basement 1)	11.0
Service room (Rooftop)	5.5
Hallway/lobby (Lvl 1)	50.0
Hallway/lobby (Lvl 4)	47.5

Common area	Floor area (m²)
Truck loading area	166.0
Bulky waste room (Ground2)	15.0
Garbage room (Lvl 3)	5.5
WC (Rooftop)	3.5
Service room 1 (Basement 2)	18.0
Hyd booster room	5.5
Hallway/lobby (Lvl 2)	50.0
Hallway/lobby (Lvl 5)	42.5

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✔	✔
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔	✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

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issue h:
issue g: Unit 13,22,31,39 layouts+ garbage rm 10/09/2018
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project PROPOSED RESIDENTIAL FLAT BUILDING DEVELOPMENT @ 32-36 HOPE ST, PENRITH

client MARANT DESIGN

drawn: E.K. | scale: as shown | Council
checked: J.E. | date: AUG 18 | ref: 2017-176 | PCC

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RENDER AND PAINT 2

TIMBER PRIVACY SCREEN

VIEW FROM WEST

POTENTIAL SUB STATION SHARED WITH NEIGHBOUR

FACE BRICK 2 STACKED BOND

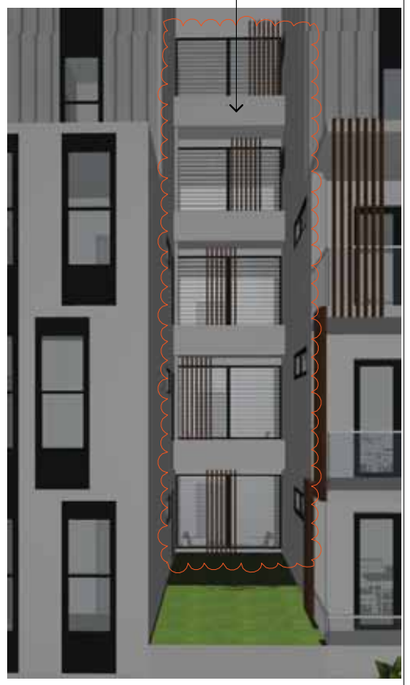
EXTRUDING SLAB FOR SHADE

VIEW FROM EAST

FACE BRICK 2 STRETCHER BOND

INDIVIDUAL FRONT ENTRIES

LIGHT AND VENTILATION TO LIFT LOBBY



3D DETAIL LIGHT WELL

RENDER AND PAINT 1

CLADDING

BUTTERFLY ROOF LINE

VIEW FROM SOUTH

TIMBER FENCE

GARDEN SHED

ALUMINIUM SOLAR SHADES

GLASS BALUSTRADE

COLORBOND FINISH BETWEEN WINDOWS

VIEW FROM REAR

4.5M HIGH GARBAGE RM/ TRUCKLOADING BAY

PORTICO OVER MAIN ENTRY

3D DETAIL MAIN ENTRY

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GATE TO PRIVATE FRONT YARD

PLANTERBOX

MAILBOXES

BENCH

PORTICO OVER MAIN ENTRY

ENTRY DETAIL

BUTTERFLY ROOF LINE

ARCHITECTURAL ROOF FEATURE TO COVER LIFT CORE

SERIES OF OUTDOOR ROOMS

SERIES OF OUTDOOR ROOMS

BIRDEYE VIEW TO ROOFTOP

ARCHITECTURAL ROOF FEATURE TO COVER LIFT CORE

BUTTERFLY ROOF LINE

SERIES OF OUTDOOR ROOMS

ROOFTOP

ARCHITECTURAL ROOF FEATURE TO COVER BBQ AREA

TIMBER DECK

PLANTER BOX

ROOFTOP DETAIL

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PHOTOMONTAGE

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PROPOSED RESIDENTIAL FLAT BUILDING DEVELOPMENT AT 32-36 HOPE ST, PENRITH - MATERIAL AND FINISHES

EXTERNAL BRICK WALLS
FACE BRICK - PGH METALLIC PEWTER OR SIMILAR

01

EXTERNAL RENDER 01
CEMENT RENDER - DULUX SILKWORT OR SIMILAR

03

EXTERNAL CLADDING
WEATHERBOARD OR SIMILAR - DULUX SILKWORK

05

ROOF MATERIAL
METAL SHEETING - COLORBOND SURFMIST

07

EXTERNAL FRONT FENCE
PGH METALLIC PEWTER & TIMBER PAILING

09

DRIVEWAY
CHARCOAL CONCRETE

11

EXTERNAL BRICK WALLS
FACE BRICK - BORAL FUSION DOMINO OR SIMILAR

02

EXTERNAL RENDER 02
CEMENT RENDER - DULUX WHITE ON WHITE

04

FASCIA & SOFFIT
PAINTED - DULUX WHITE ON WHITE

06

DOORS & WINDOWS
ALUMINIUM - COLORBOND MONUMENT

08

TIMBER SCREENS
TIMBER LOOK FINISH

10

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Tree No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed	Description of work to be done
1	*Acer negundo*	Box Elder Maple	F	Remove and replace with new plantings as per Landscape Plan
2	*Plumeria rubra*	Frangipani	F	Remove and replace with new plantings as per Landscape Plan
3	*Plumeria rubra*	Frangipani	F	Remove and replace with new plantings as per Landscape Plan
4	*Plumeria rubra*	Frangipani	F	Remove and replace with new plantings as per Landscape Plan
5	*Plumeria rubra*	Frangipani	F	Remove and replace with new plantings as per Landscape Plan
6	*Plumeria rubra*	Frangipani	F	Remove and replace with new plantings as per Landscape Plan
7	*DEAD*		D	Remove and replace with new plantings as per Landscape Plan

Table 4 Recommended tree planting in deep soil zones

Site area	Recommended tree planting
Up to 850m²	1 medium tree per 50m² of deep soil zone
Between 850 - 1,500m²	1 large tree or 2 medium trees per 90m² of deep soil zone
Greater than 1,500m²	1 large tree or 2 medium trees per 80m² of deep soil zone

Table 5 Minimum soil standards for plant types and sizes

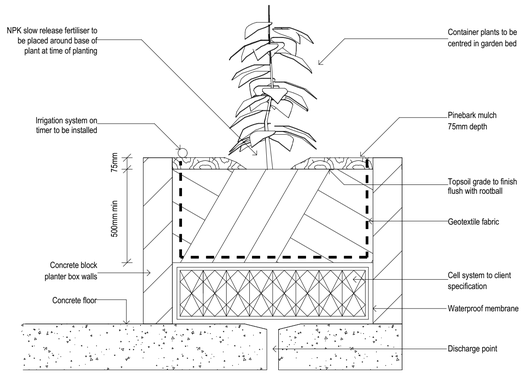
Plant type	Definition	Soil volume	Soil depth	Soil area
Large trees	12-18m high, up to 16m crown spread at maturity	150m³	1,200mm	10m x 10m or equivalent
Medium trees	8-12m high, up to 8m crown spread at maturity	35m³	1,000mm	6m x 6m or equivalent
Small trees	6-8m high, up to 4m crown spread at maturity	9m³	800mm	3.5m x 3.5m or equivalent
Shrubs			500-600mm	
Ground cover			300-450mm	
Turf			200mm	

Note: The above has been calculated assuming fortnightly irrigation. Any sub-surface drainage requirements are in addition to the above minimum soil depths

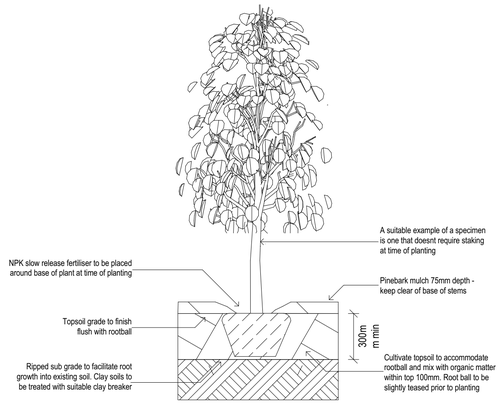
PLANTING SCHEDULE Note: Plant symbols on plan refers directly to table below. Plants to be mass planted have number allocated accordingly
* depicts native species

Symbol	Code	Botanical Name	Common Name	Mature Height	Pot size	Quantity
	TJ	Trachelospermum jasminoides	Star Jasmine	NA	140mm	130
	MP	Myoporum parvifolium	Creeping Boobiala	NA	140mm	31
	LM	Liriope muscari	Lilyturf	400mm	50mm	20
	TLT	Lomandra longifolia 'Tanika' *	Tanika Lomandra	700mm	150mm	103
	AE	Aspidistra elatior	Cast Iron Plant	800mm	150mm	38
	PX	Philodendron Xanadu	Xanadu	900mm	150mm	33
	WF	Westringia fruticosa	Coastal Rosemary	900mm	150mm	27
	PAR	Pennisetum advena 'Rubrem'	Purple Fountain Grass	1,200mm	200mm	87
	PMP	Philotheca myoporoides 'Profusion' *	Long Leaf Wax Flower	1,500mm	200mm	70
	LH	Lomandra hysterix *	Katies Belles Lomandra	1,500mm	150mm	62
	DE	Doryanthes excelsa *	Gymea Lily	1,500mm	25L	15
	SL	Syzygium leuhmannii *	Lilly Pilly 'Royal Flame'	2,000mm	200mm	53
	CVS	Callistemon viminalis 'Slim' *	'Slim' Callistemon	3,000mm	200mm	47
	MGT	Magnolia grandiflora 'Teddy Bear'	'Teddy Bear' Magnolia	4,000mm	200mm	10
	LI	Lagerstoemia indica	Crepe Myrtle	5,000mm	45L	10
	CKPS	Callistemon 'Kings Park Special'	Kings Park Special Bottlebrush	6,000mm	45L	3
	ER	Elaeocarpus reticulatus *	Blueberry Ash	10,000mm	45L	4
	TL	Tristaniopsis laurina *	Water Gum	12,000mm	45L	7

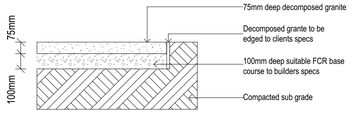
PROPOSED LANDSCAPE DESIGN @ 32-36 HOPE STREET, PENRITH FOR MARANT DESIGN DEVELOPMENT APPROVAL



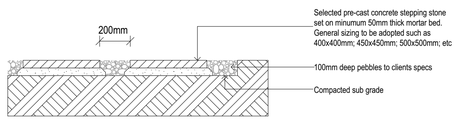
PLANTER BOX DETAIL 1:20



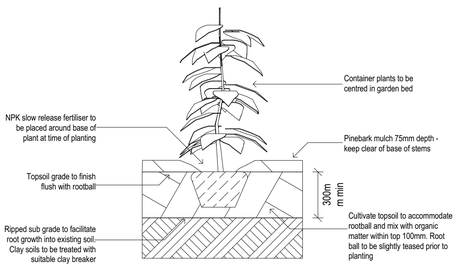
TYPICAL TREE PLANTING SECTION 1:20



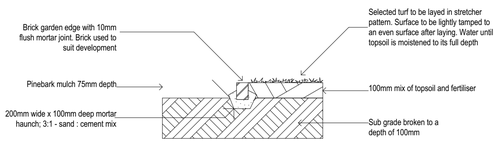
DECOMPOSED GRANITE DETAIL 1:20



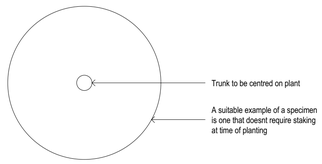
STEPPING STONE DETAIL 1:20



TYPICAL GARDEN BED SECTION 1:20



TURF AND BRICK GARDEN EDGING 1:20



TYPICAL TREE PLANTING PLAN 1:20

0 1 2 3 4 5 7.5 10m

issue b: DA Deferral	09/09/2018
issue a: Development Application	05/12/2017

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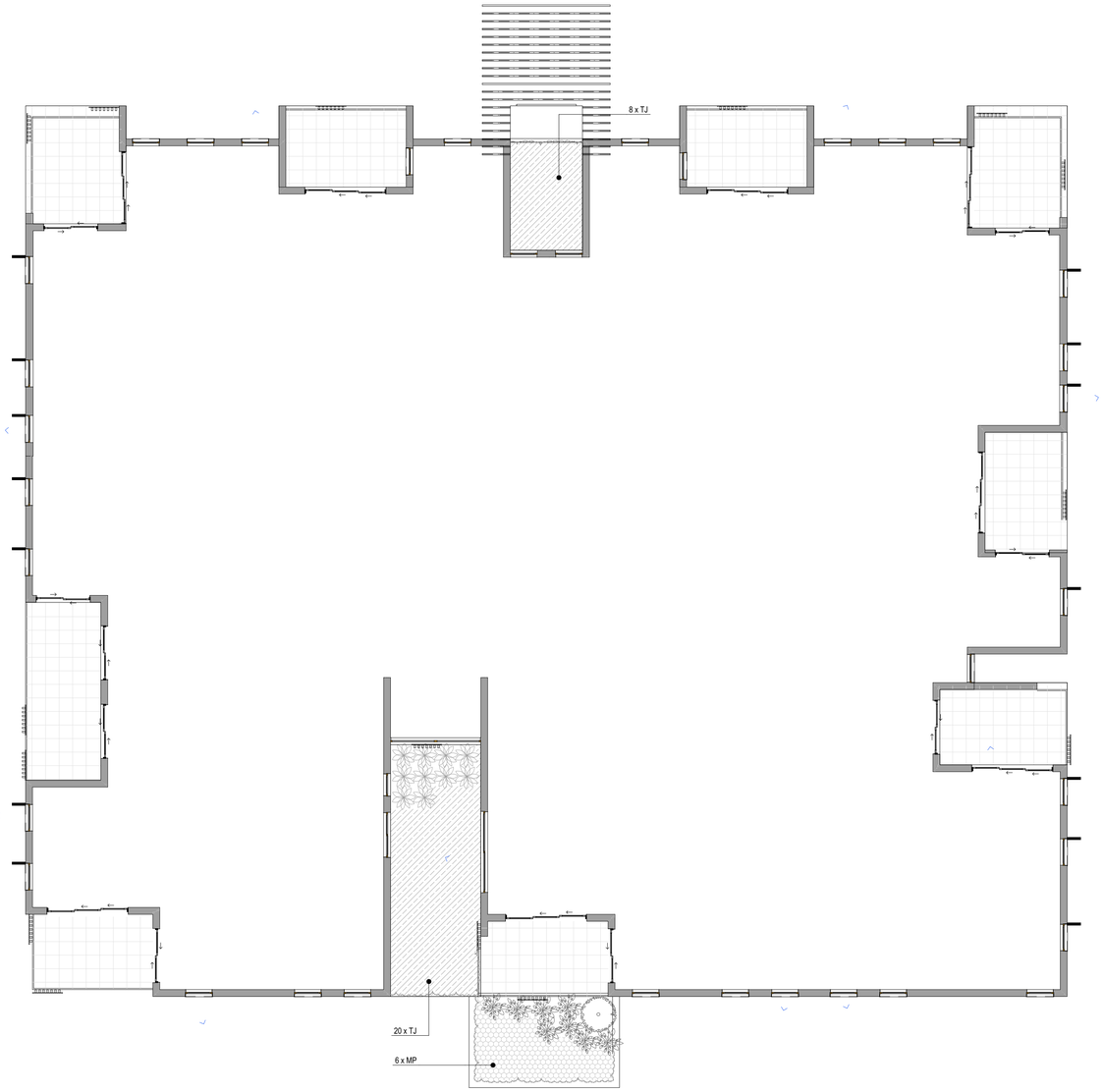
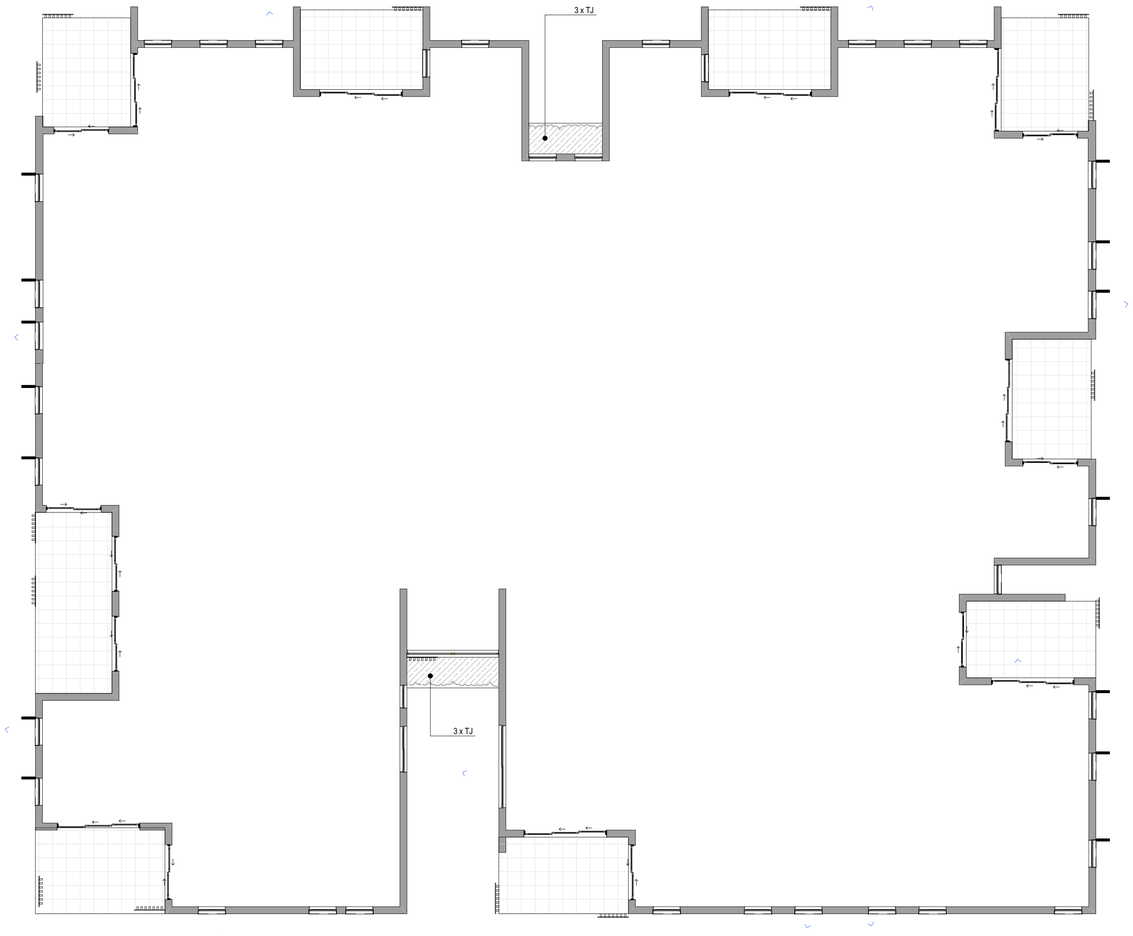
client MARANT DESIGN

B01

drawn: A.M. | date: SEP18 | ref: 2017-090 | Council PCC



FIRST FLOOR PLANTER BOX PLAN 1:100



SECOND, THIRD & FOURTH FLOOR PLANTER BOX PLAN 1:100

0 1 2 3 4 5 7.5 10m

issue b: DA Deferral	09/09/2018
issue a: Development Application	05/12/2017

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client
MARANT DESIGN

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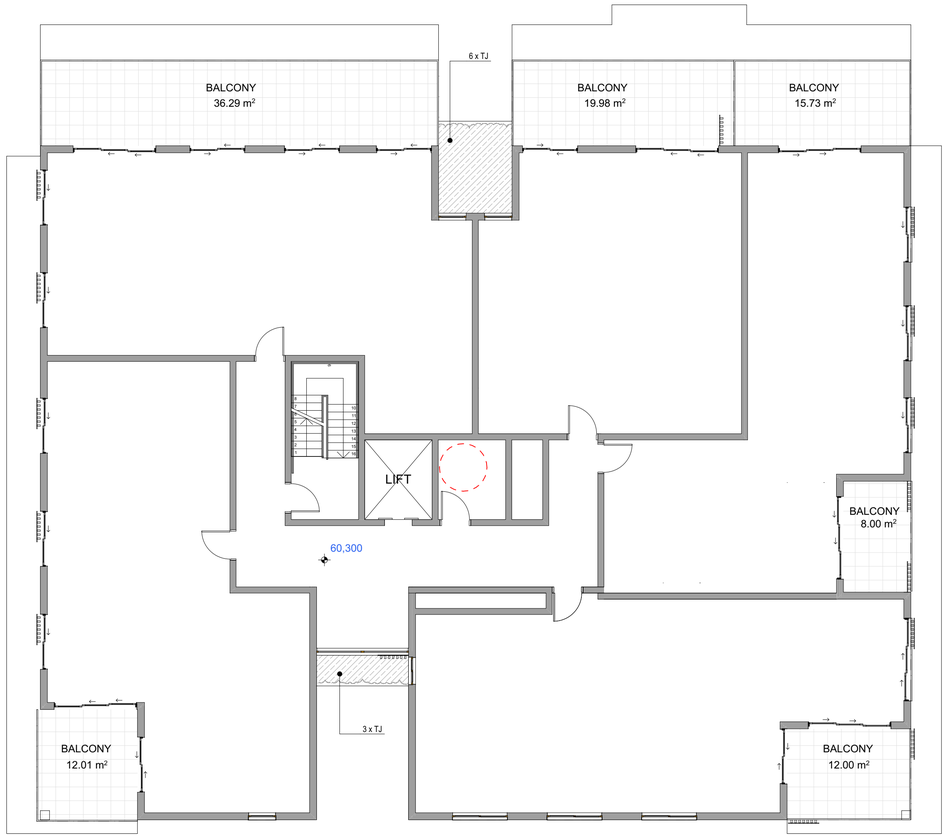
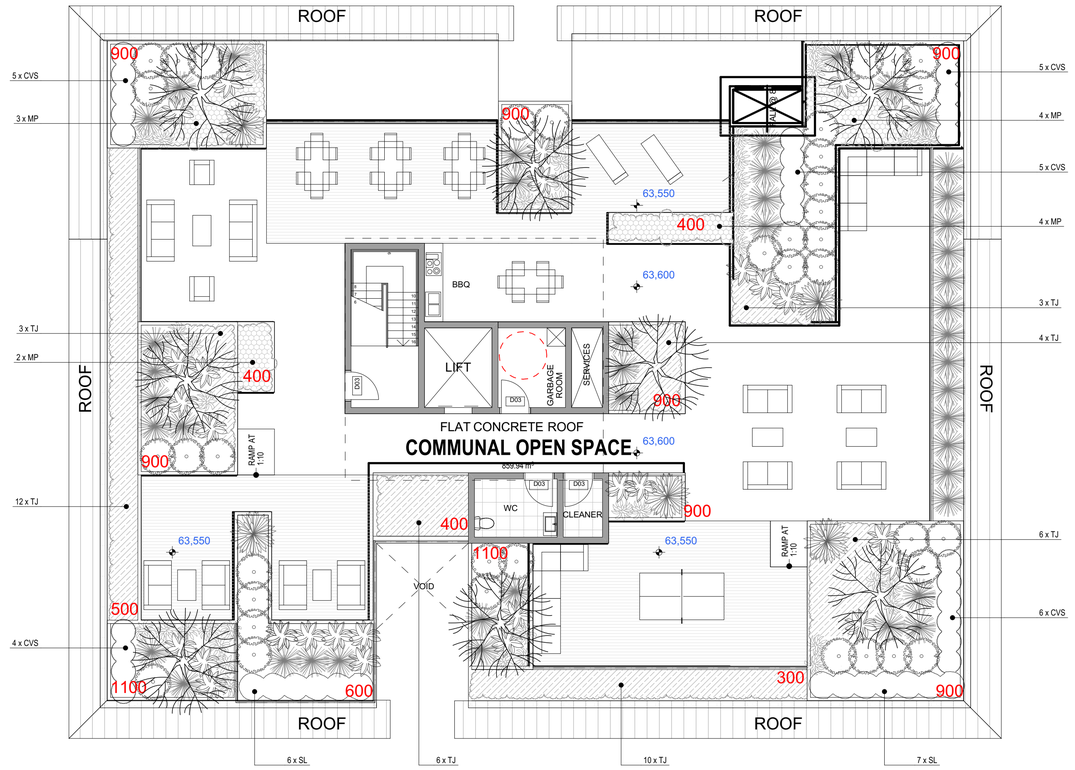


FIFTH FLOOR PLANTER BOX PLAN 1:100



ROOFTOP PLANTER BOX PLAN 1:100

0 1 2 3 4 5 7.5 10m

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issue a: Development Application	05/12/2017

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B03

STORMWATER DRAWINGS
FOR
32-36 HOPE STREET, PENRITH

SYMBOLS

RL	PIT SURFACE LEVEL
IL	INVERT LEVEL
TK	TOP OF KERB
SV SV	STORMWATER DRAINAGE PIPE
RWT	DOWNPIPE TO RAINWATER TANK
SV	OVERFLOW PIPE FROM RAINWATER TANK
	ø100 SUBSOIL PIPE
FW	FLOOR WASTE 150X150
FW	FLOOR WASTE 150ø
RWO	RAINWATER OUTLET 300ø
DP	DOWN PIPE
CO	CLEAN OUT
IO	INSPECTION OPENING
VD	VERTICAL DROP
VR	VERTICAL RISER
	CONCRETE COVER JUNCTION PIT
	GRATED INLET PIT
	WIDE GRATED DRAIN
	OVERLAND FLOW PATH

NOTES

1. ALL LINES ARE TO BE MIN. 100ø UPVC @ MIN 1.0% GRADE UNLESS NOTED OTHERWISE.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE & LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS. ALL DESIGN LEVELS SHOWN ON PLAN SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.
3. ALL PIPES TO HAVE MIN 200mm COVER IF LOCATED WITHIN PROPERTY.
4. ALL PITS IN DRIVEWAYS BE HEAVY DUTY GRATES. DIRECT SURFACE FLOW TO ALL GRATED SURFACE INLET PITS.
5. ALL WORK TO BE DONE IN ACCORDANCE WITH AS/NZ 3500.3.2:2015 AND COUNCIL SPECIFICATIONS.
6. LOCATION OF DOWNPIPES & FLOOR WASTES ARE INDICATIVE ONLY. DOWNPIPE & FLOOR WASTE SIZE, LOCATION & QUANTITY TO BE DETERMINED BY BUILDER & IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
7. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, LANDSCAPE AND STRUCTURAL PLANS.
8. ANY DISCREPANCIES OR OMISSIONS SHALL BE REFERRED TO THE DESIGN ENGINEER FOR RESOLUTION.
9. ALL PITS OR GRATES IN TRAFFICABLE AREAS TO BE HEAVY DUTY.
10. ALL GUTTERS WILL BE FITTED WITH LEAF GUARDS AND SHOULD BE INSPECTED AND CLEANED TO ENSURE LEAF LITTER CANNOT ENTER THE DOWNPIPES
11. PROVIDE EMERGENCY OVERFLOW TO ALL PLANTER BOX AND BALCONIES.
12. ALL PITS WITH DEPTH MORE THAN 1M MUST HAVE IRON STEPS.
13. PROVIDE STORMWATER GRATE 200Wx200D AT THE BASE OF ALL MECHANICAL SHAFTS AND UNCOVERED STAIRS OR OPENINGS.
14. ENSURE ALL DRAINAGE WORKS ARE AWAY FROM TREE ROOTS

LEGEND

REFER TO AS.3500 PART 3 TABLE 7.2
P1 : 100ø UPVC PIPE AT 1.0% MIN. GRADE
P2 : 150ø UPVC PIPE AT 1.0% MIN. GRADE
P3 : 225ø UPVC PIPE AT 0.5% MIN. GRADE
P4 : 300ø UPVC PIPE AT 0.4% MIN. GRADE
P5 : 375ø UPVC PIPE AT 0.4% MIN. GRADE

DIAL 1100 BEFORE YOU DIG

AS 3500.3– TABLE 8.2
SIZE OF MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS

DEPTH OF INVERT OF OUTLET	MINIMUM INTERNAL DIMENSIONS (mm)		
	RECTANGULAR		CIRCULAR
	WIDTH	LENGTH	DIAMETER
≤600	450	450	600
>600 ≤900	600	600	900
>900 ≤1200	600	900	1000
>1200	900	900	1000

DRAWING SCHEDULE

DRAWING No.	DRAWING TITLE
D00	COVER SHEET, LEGEND & DRAWING SCHEDULE
D01	BASEMENT 2 STORMWATER DRAINAGE PLAN
D02	BASEMENT 1 STORMWATER DRAINAGE PLAN
D03	GROUND FLOOR STORMWATER DRAINAGE PLAN
D04	STORMWATER DRAINAGE SECTIONS & DETAILS 1
D05	STORMWATER DRAINAGE SECTIONS & DETAILS 2
D06	WSUD DETAILS
D10	EROSION AND SEDIMENT CONTROL PLAN & DETAILS

A1 0 1 2 3 4 5 6 7 8 9 10

No	AMENDMENT	ENG	DRAFT	DATE
A	FOR D.A. APPROVAL	E.H.	S.S.N.	27.11.17

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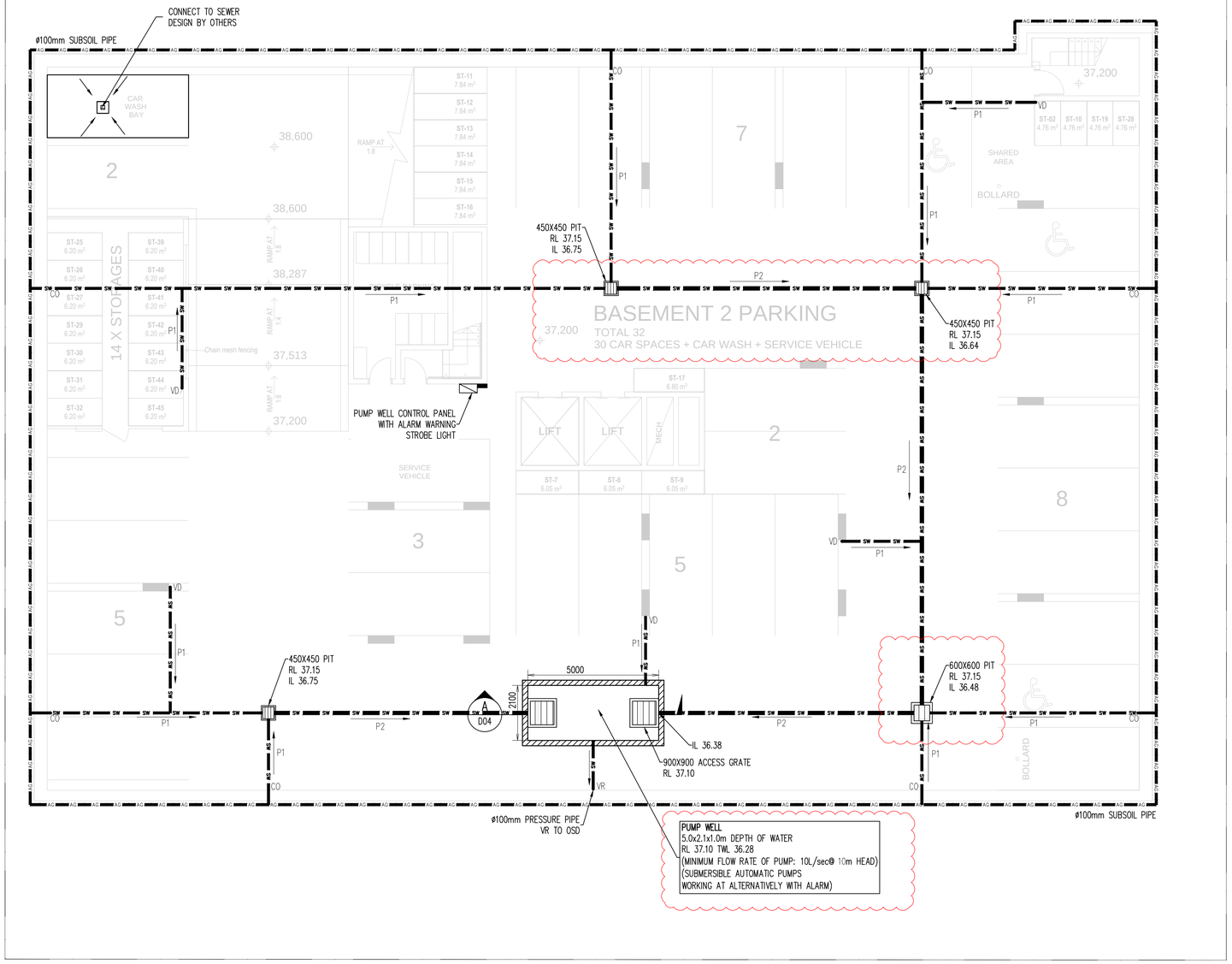
PROJECT
PROPOSED RESIDENTIAL FLAT BUILDING DEVELOPMENT
32–36 HOPE STREET
PENRITH, NSW

SHEET SUBJECT
COVER SHEET, LEGEND & DRAWING SCHEDULE

ARCH. REF:

PROJECT 32–36 HOPE STREET, PENRITH, NSW
DATE NOV 2017 | DRAWN S.S.N. | DESIGNED S.S.N. | CHECKED E.H.
SCALE @ A1 NTS | JOB No 171552
AUTHORISED Osman Chowdhury | DWG No D00 | REV A



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4. ALL PITS IN DRIVEWAYS BE HEAVY DUTY GRATES. DIRECT SURFACE FLOW TO ALL GRATED SURFACE INLET PITS.
5. ALL WORK DO BE DONE IN ACCORDANCE WITH AS/NZ 3500.3.2:2015 AND COUNCIL SPECIFICATIONS.
6. LOCATION OF DOWNPIPES & FLOOR WASTES ARE INDICATIVE ONLY. DOWNPIPE & FLOOR WASTE SIZE, LOCATION & QUANTITY TO BE DETERMINED BY BUILDER & IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
7. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, LANDSCAPE AND STRUCTURAL PLANS.
8. ANY DISCREPANCIES OR OMISSIONS SHALL BE REFERRED TO THE DESIGN ENGINEER FOR RESOLUTION.
9. ALL PITS OR GRATES IN TRAFFICABLE AREAS TO BE HEAVY DUTY.
10. ALL GUTTERS WILL BE FITTED WITH LEAF GUARDS AND SHOULD BE INSPECTED AND CLEANED TO ENSURE LEAF LITTER CANNOT ENTER THE DOWNPIPES

SYMBOLS

RL	PIT SURFACE LEVEL
IL	INVERT LEVEL
TK	TOP OF KERB
SW	STORMWATER DRAINAGE PIPE
RWT	DOWNPIPE TO RAINWATER TANK
SW	OVERFLOW PIPE FROM RAINWATER TANK
AG	ø100 SUBSOIL PIPE
FW	FLOOR WASTE 150X150
FW	FLOOR WASTE 150ø
RWO	RAINWATER OUTLET 300ø
DP	DOWN PIPE
CO	CLEAN OUT
IO	INSPECTION OPENING
VD	VERTICAL DROP
VR	VERTICAL RISER
	CONCRETE COVER JUNCTION PIT
	GRATED INLET PIT
	WIDE GRATED DRAIN
	OVERLAND FLOW PATH

A1

No	AMENDMENT	ENG	DRAFT	DATE
C	FOR D.A. APPROVAL	E.H.	M.D.	04.09.18
B	FOR D.A. APPROVAL	E.H.	S.S.N.	08.08.18
A	FOR D.A. APPROVAL	E.H.	S.S.N.	27.11.17

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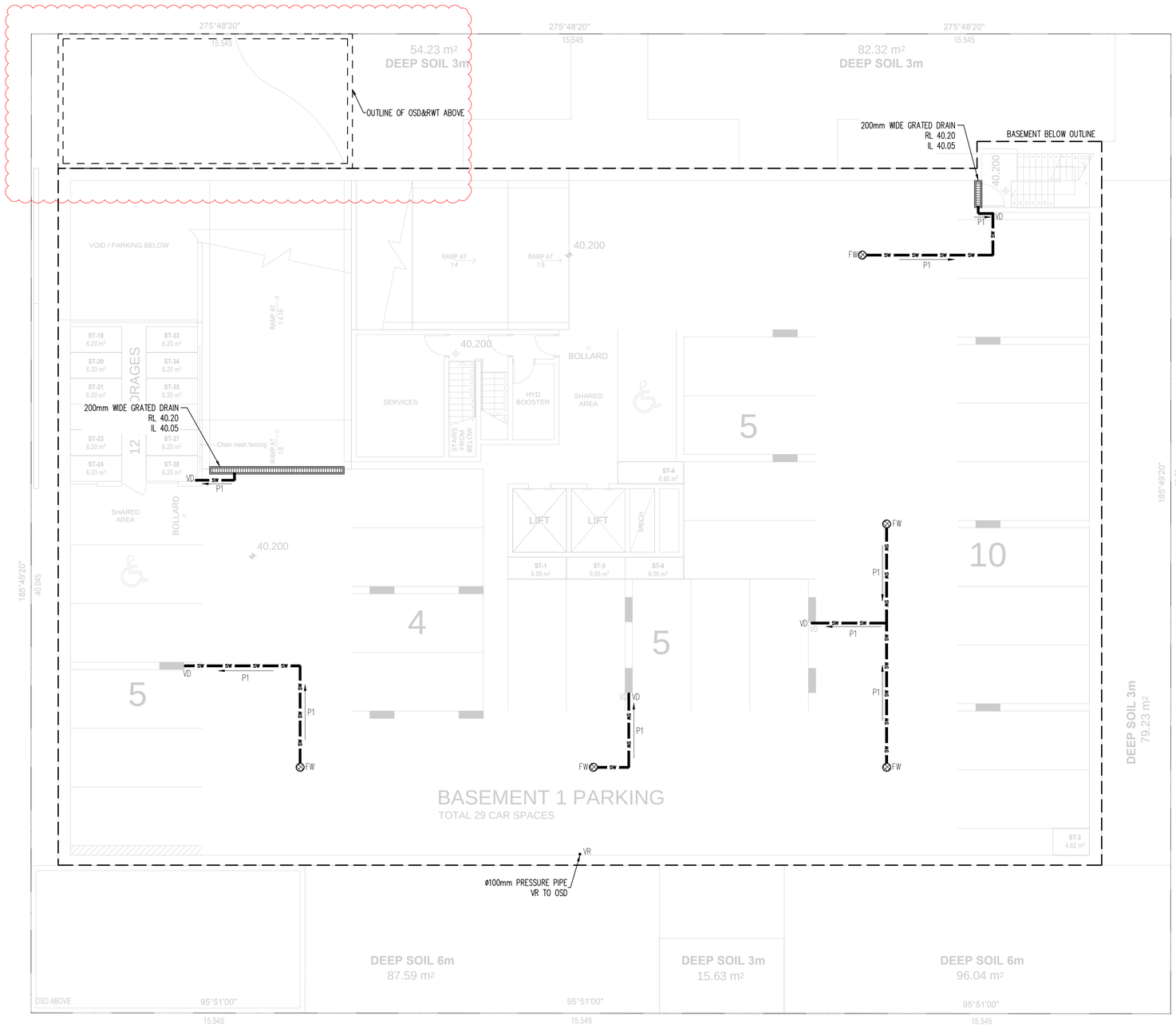
PROJECT
PROPOSED RESIDENTIAL FLAT BUILDING DEVELOPMENT
32-36 HOPE STREET
PENRITH, NSW

SHEET SUBJECT
BASEMENT 2 STORMWATER DRAINAGE PLAN

ARCH. REF:

PROJECT 32-36 HOPE STREET, PENRITH, NSW
DATE NOV 2017 | DRAWN S.S.N. | DESIGNED S.S.N. | CHECKED E.H.
SCALE @ A1 1:100 | JOB No 171552
AUTHORISED Osman Chowdhury | DWG No D01 | REV C



LEGEND

REFER TO AS.3500 PART 3 TABLE 7.2
P1 : 100ø UPVC PIPE AT 1.0% MIN. GRADE
P2 : 150ø UPVC PIPE AT 1.0% MIN. GRADE
P3 : 225ø UPVC PIPE AT 0.5% MIN. GRADE
P4 : 300ø UPVC PIPE AT 0.4% MIN. GRADE
P5 : 375ø UPVC PIPE AT 0.4% MIN. GRADE

DIAL 1100 BEFORE YOU DIG

NOTES

1. ALL LINES ARE TO BE MIN. 100ø UPVC @ MIN 1.0% GRADE UNLESS NOTED OTHERWISE.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE & LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS. ALL DESIGN LEVELS SHOWN ON PLAN SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.
3. ALL PIPES TO HAVE MIN 200mm COVER IF LOCATED WITHIN PROPERTY.
4. ALL PITS IN DRIVEWAYS BE HEAVY DUTY GRATES. DIRECT SURFACE FLOW TO ALL GRATED SURFACE INLET PITS.
5. ALL WORK DO BE DONE IN ACCORDANCE WITH AS/NZ 3500.3.2:2015 AND COUNCIL SPECIFICATIONS.
6. LOCATION OF DOWNPIPES & FLOOR WASTES ARE INDICATIVE ONLY. DOWNPIPE & FLOOR WASTE SIZE, LOCATION & QUANTITY TO BE DETERMINED BY BUILDER & IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
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FW	FLOOR WASTE 150ø
RWO	RAINWATER OUTLET 300ø
DP	DOWN PIPE
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IO	INSPECTION OPENING
VD	VERTICAL DROP
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	CONCRETE COVER JUNCTION PIT
	GRATED INLET PIT
	WIDE GRATED DRAIN
	OVERLAND FLOW PATH

A1 0 1 2 3 4 5 6 7 8 9 10

No	AMENDMENT	ENG	DRAFT	DATE
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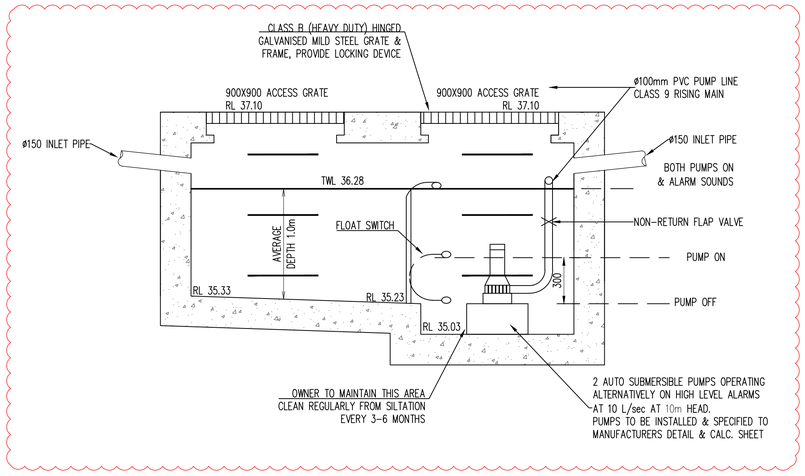
PROJECT
PROPOSED RESIDENTIAL FLAT BUILDING DEVELOPMENT
32-36 HOPE STREET
PENRITH, NSW

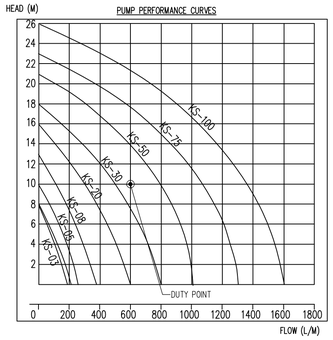
SHEET SUBJECT
BASEMENT 1 STORMWATER DRAINAGE PLAN

ARCH. REF:

PROJECT 32-36 HOPE STREET, PENRITH, NSW
DATE NOV 2017 | DRAWN S.S.N. | DESIGNED S.S.N. | CHECKED E.H.
SCALE @ A1 1:100 | JOB No 171552
AUTHORISED Osman Chowdhury | DWG No D02 | REV C



A D01 TYPICAL SECTION THROUGH PUMP PIT
SCALE NTS



PUMP WELL DETAILS

AREA DRAINING TO SUMP= 110.0m²

SUMP SIZE BASED ON 100 YEAR 2 HR STORM, I= 44.4 mm/hr,
Q=CIA/3600= 1X 44.4 X 110.0/3600 = 1.35 L/sec
VOLUME REQUIRED = 1.35 X(2x60x60) =9768 L = 9.76m³
STORAGE PROVIDED 5.0X2.1X1.0= 10.5m³

PUMP OUT RATE BASED ON 100YR 5MIN STORM, I=220 mm/hr
(MIN RATE REQUIRED AS PER AS3500.3 IS 10 L/sec)
Q=CIA/3600= 1X 220X 110.0/3600 = 6.72 L/sec

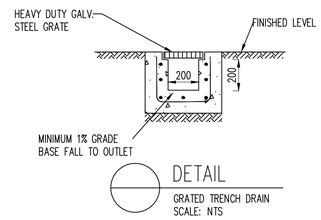
DUAL KS-50 PUMP OR EQUIVALENT TO BE INSTALLED IN SUMP AND CONNECTED TO CONTROL PANEL WHICH WILL ALLOW FOR THE PUMP TO OPERATE ALTERNATIVELY ON HIGH LEVEL WITH ALARM AT 10 L/sec AT 10m HEAD

Type	Output		Outlet		Rated Head Capacity		Maximum Head	Maximum Capacity	Weigh	Dimension		
	HP	kW	mm	Inch	M	LPM	M	LPM	Kg	L(mm)	W(mm)	H(mm)
KS-03	1/3	0.25	40	1 1/2"	3	130	8	180	9	188	141	305
KS-04	1/2	0.4	50	2"	5	150	8	220	11	208	140	359
KS-05	1/2	0.4	50	2"	5	160	10	260	14	230	156	375
KS-08	1	0.75	50	2"	6	240	13	380	21	290	180	425
KS-20	2	1.5	80	3"	10	300	16	600	31	278	182	475
KS-30	3	2.2	80	3"	10	500	18	800	42	390	250	450
KS-50	5	3.7	100	4"	10	800	21	1100	48	450	240	530
KS-75	7 1/2	5.6	100	4"	15	800	23	1300	60	550	310	590
KS-100	10	7.5	150	6"	18	900	25	1600	70	550	310	610

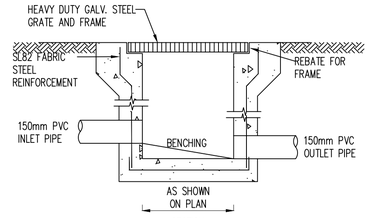
PUMP SPECIFICATIONS
STANDARD PUMP-OUT NOTES

THE PUMP-OUT SYSTEM IS DESIGNED TO WORK IN THE FOLLOWING MANNER –

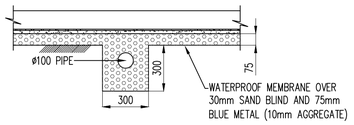
1. THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATELY SO AS TO ALLOW BOTH PUMPS TO HAVE EQUAL OPERATION LOAD & PUMP LIFE.
2. A LOW LEVEL FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE BELOW GROUND TANK. IN THIS REGARD THIS FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMPS.
3. A SECOND FLOAT SHALL BE PROVIDED AT A HIGHER LEVEL, APPROXIMATELY 300mm ABOVE THE MINIMUM WATER LEVEL, WHEREBY ONE OF THE PUMPS WILL OPERATE & DRAIN THE TANK TO THE LEVEL OF THE LOW LEVEL FLOAT.
4. A THIRD FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHOULD START THE OTHER PUMP THAT IS NOT OPERATING & ACTIVATE THE ALARM.
5. AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBE LIGHT & A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO THE BASEMENT LEVEL. THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE.



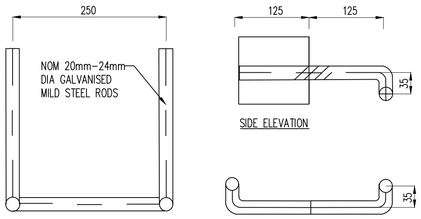
DETAIL
GRATED TRENCH DRAIN
SCALE: NTS



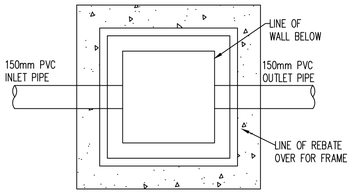
SECTION



TYPICAL SECTION THROUGH SUBSOIL HARD PIPE
SCALE: NTS

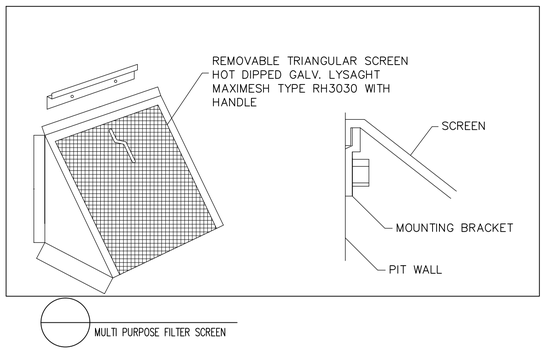


DETAIL
STEP IRONS
NTS
NOTE: INSTALL WHERE PITS ARE DEEPER THAN 1000



PLAN WITHOUT GRATE

DETAIL
STORMWATER PIT
SCALE NTS



MULTI PURPOSE FILTER SCREEN

DIAL1100 BEFORE YOU DIG

DANGER

CONFINED SPACE
NO ENTRY WITHOUT CONFINED SPACE TRAINING

HEIGHT 150MM

WIDTH 200MM

THIS IS AN
ON-SITE STORMWATER DETENTION SYSTEM

REQUIRED BY YOUR LOCAL COUNCIL

IT IS AN OFFENCE TO REDUCE THE VOLUME OF THE TANK OR BASIN OR TO INTERFERE WITH THE ORIFICE PLATE THAT CONTROLS THE OUTFLOW

THE BASE OF THE OUTLET CONTROL PIT AND THE DEBRIS SCREEN MUST BE CLEANED OF DEBRIS AND SEDIMENT ON A REGULAR BASIS BY THE OWNER

THIS PLATE MUST NOT BE REMOVED

SIZE: 110 mm x 80 mm
CORNERS: Square
COLOUR: Etched and filled Black Legend on Natural Silver Background
MATERIAL: Aluminium 0.9mm Mill

A1 0 1 2 3 4 5 6 7 8 9 10

No	AMENDMENT	ENG	DRAFT	DATE
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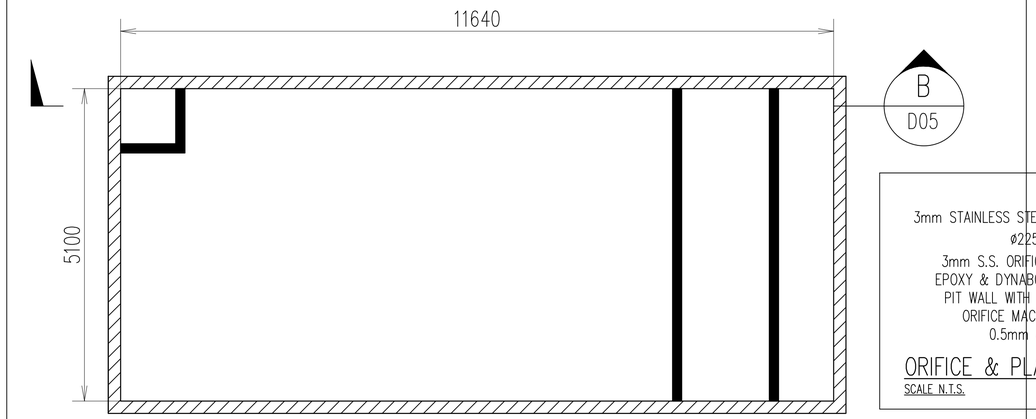
PROJECT
PROPOSED RESIDENTIAL FLAT BUILDING DEVELOPMENT
32-36 HOPE STREET
PENRITH, NSW

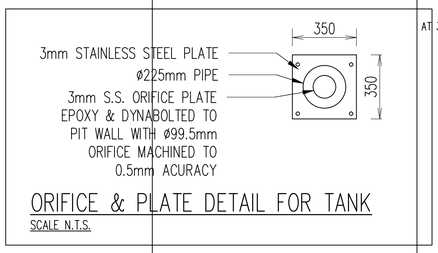
SHEET SUBJECT
STORMWATER DRAINAGE SECTIONS & DETAILS 1

ARCH. REF:

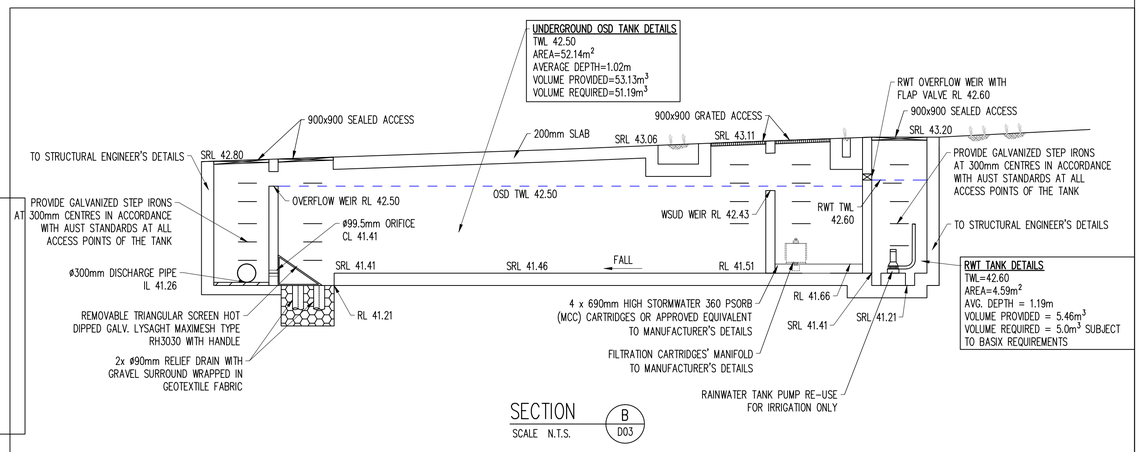
PROJECT 32-36 HOPE STREET, PENRITH, NSW
DATE NOV 2017 | DRAWN S.S.N. | DESIGNED S.S.N. | CHECKED E.H.
SCALE @ A1 AS SHOWN | JOB No 171552
AUTHORISED Osman Chowdhury | DWG No D04 | REV B



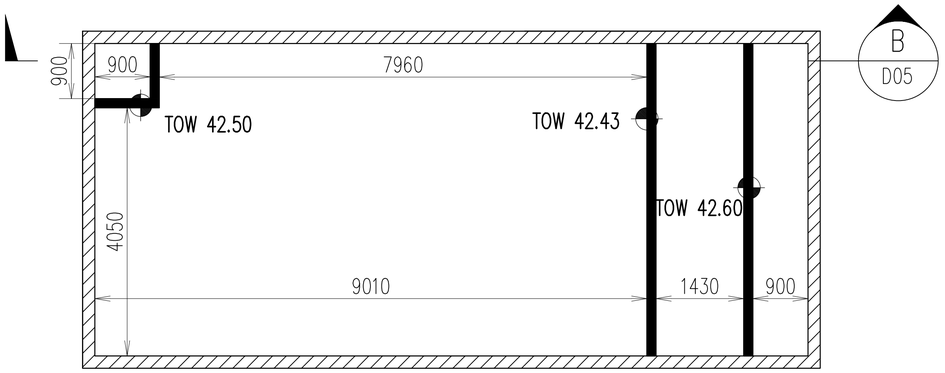
OSD DIMENSIONS
SCALE 1:50



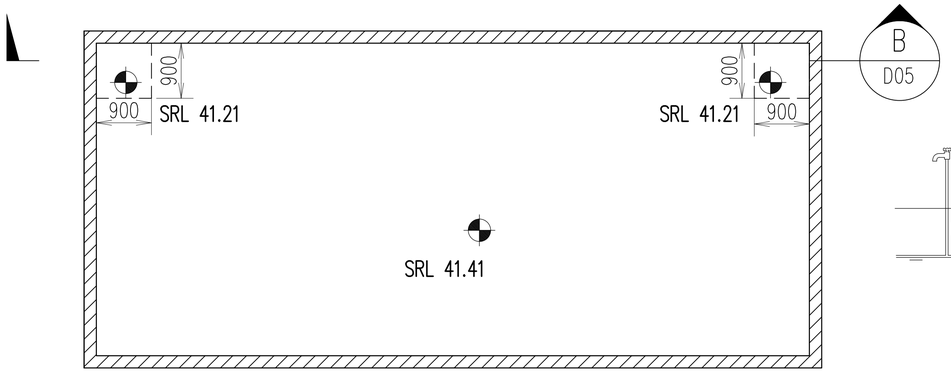
ORIFICE & PLATE DETAIL FOR TANK
SCALE N.T.S.



SECTION
SCALE N.T.S.
B
D03



OSD INTERNAL WALLS
SCALE 1:50

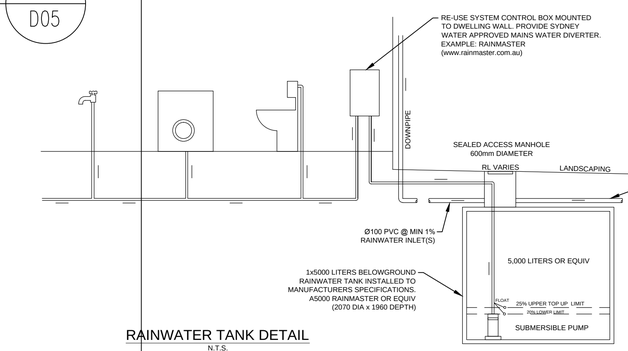


OSD BOTTOM SRL
SCALE 1:50

Stormwater Drainage System Maintenance Schedule

171552

Maintenance Action	Frequency	Responsibility	Procedure
General			
Inspect roof drainage system of building and remove any debris/sludge	Six Monthly	Maintenance Contractor	Remove any leaves or debris and sludge from gutters of building and flush downpipes of building to remove any blockages. Pits downstream of downpipes to be cleaned of flushed debris.
Inspect pits and trench drains on site and remove debris/litter/sludge	Monthly or following Rain Period	Maintenance Contractor	Remove grate. Remove any debris/litter/sludge from within pits.
Inspect site for litter and floatable debris and remove	Fortnightly	Maintenance Contractor	Remove litter from site and sweep all driveway and pathways in order to remove leaves or sediments that may enter into the drainage system.
Basement Pump out			
Inspect and clean flap valve,	Six Monthly	Owner/Maintenance Contractor	Remove grate and check flap valve and pipe for blockages and clean. Check hinges for rust and test operation by moving flap to full extent.
Check hinge operation.			
Check attachment of flap valve to wall pit.	Annually	Maintenance Contractor	Remove grate and ensure valve fixings are secure.
Check flap valve seal.	Six Monthly	Maintenance Contractor	Remove grate and fill pit with water, ensure flap seals against side of pit with minimal leakage.
Inspect walls for cracking or spalling.	Annually	Maintenance Contractor	Remove grate to inspect internal walls, remove vegetation to inspect external wall, repair as required.
Inspect sump and clean.	Six Monthly	Owner	Remove grate and clean sediment/sludge from sump.
Inspect grate for damage or blockage.	Six Monthly	Owner	Check both sides of grate for corrosion (particularly welds and corners); also check for damage and blockages.
Inspect outlet pipe and remove blockages	Six Monthly	Maintenance Contractor	Remove grate and flush outlet pipe to ensure it drains freely. Check for debris on upstream side of return line.
Outlets			
Inspect & remove any blockage of orifices	Six monthly	Owner	Remove grate & screen to inspect orifice. See plan for location of outlets
Check attachment of orifice plates to wall of chamber and/or pit (gaps less than 5 mm)	Annually	Maintenance Contractor	Remove grate and screen. Ensure plates are mounted securely, tighten fixings if required. Seal gaps as required.
Check orifice diameters are correct and retain sharp edges	Five yearly	Maintenance Contractor	Compare diameter to design (see Work-as-Executed) and ensure edge is not pitted or damaged.
Inspect screen and clean	Six monthly	Owner	Remove grate(s) and screens if required to clean them.
Check attachment of screens to wall of chamber or pit	Annually	Maintenance Contractor	Remove grate(s) and screen(s). Ensure screen fixings are secure. Repair as required.
Check screen(s) for corrosion	Annually	Maintenance Contractor	Remove grate(s) and examine screen(s) for rust or corrosion, especially at corners or welds.
Inspect walls (internal and external, if appropriate) for cracks or spalling	Annually	Maintenance Contractor	Remove grate(s) to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required.
Inspect outlet sumps & remove any sediment/sludge	Six monthly	Owner	Remove grate(s) and screen(s). Remove sediment/sludge build-up and check orifices are clear.
Inspect grate(s) for damage or blockage	Six monthly	Owner	Check both sides of a grate for corrosion, (especially corners and welds) damage or blockage.
Inspect outlet pipe & remove any blockage	Six monthly	Maintenance Contractor	Remove grate(s) and screen(s). Ventilate underground storage if present. Check orifices and remove any blockages in outlet pipe. Flush outlet pipe to confirm it drains freely. Check for sludge/debris on upstream side of return line.
Check step irons for corrosion	Annually	Maintenance	Remove grate. Examine step irons and repair any corrosion or damage
Check fixing of step irons is secure	Six monthly	Maintenance Contractor	Remove grate(s) and ensure fixings are secure prior to placing weight on step iron.
Storage			
Inspect storage & remove any sediment/sludge in pit	Six monthly	Owner	Remove grate(s) and screen(s). Remove sediment/sludge build-up.
Inspect internal walls of storage (and external, if appropriate) for cracks or spalling	Annually	Maintenance Contractor	Remove grate(s) to inspect internal walls. Repair as required. Clear vegetation from external walls if necessary and repair as required.
Inspect & remove any debris/litter/mulch etc blocking grates	Six monthly	Owner	Remove blockages from grate(s) and check if storage is blocked.
Inspect areas draining to the storage(s) & remove debris/mulch/litter etc likely to block screens/grates	Six monthly	Owner	Remove debris and floatable material likely to be carried to grates.
Compare storage volume to volume approved. (Rectify if loss > 5%)	Annually	Maintenance Contractor	Compare actual storage available with Work-as Executed plans. If volume loss is greater than 5%, arrange for reconstruction to replace the volume lost. Council to be notified of the proposal.
Inspect storages for subsidence near pits	Annually	Maintenance	Check along drainage lines and at pits for subsidence likely to indicate leakages.



RAINWATER TANK DETAIL
N.T.S.

RWT NOTE:
RAINWATER RE-USE AS SPECIFIED BY BASIX CERTIFICATE TO OUTDOOR TAPS AND/OR TOILETS AND/OR WASHING MACHINE.

STORAGE TANK NOTES:

1. TANK WATER TAPS SHALL BE MARKED "RAINWATER NOT TO HUMAN CONSUMPTION".
2. RAINWATER TANKS SHALL BE CONNECTED TO MAINS WATER SUPPLY AS BACKUP.
3. THE PUMPS ARE TO BE INSULATED IN ACCORDANCE WITH COUNCIL POLICY.
4. PUMPS SHALL PROVIDE MINIMUM 150 kPa PRESSURE.
5. EACH TANK TO BE CONNECTED TO AN OUTDOOR TAP FOR IRRIGATION USE.
6. RAINWATER TANKS TO BE CLEANED OUT EVERY 6 MONTHS.
7. WATER TANK AND ASSOCIATED STRUCTURE TO BE THE SAME COLOR, OR A COLOR COMPLEMENTARY TO THE DWELLING.
8. TOP TANK TO BE BELOW TOP OF NEAREST FENCE, OR 1.8 METERS WHICHEVER IS LESS.
9. THE WATER TANK SHOULD BE LOCATED AT LEAST 900mm FROM ANY PROPERTY BOUNDARY
10. PLUMBING FROM THE WATER TANK IS TO BE KEPT SEPARATED FROM THE RETICULATED WATER SUPPLY SYSTEM.
11. TANK TO BE BUILT ON SELF-SUPPORTING BASE.
12. PROVIDE BACK-FLOW PREVENTION DEVICE AT MAINS WATER METER.
13. ROOF DRAINING TO TANK MUST NOT CONTAIN LEAD, TAR BASED PAINTS OR ASBESTOS.
14. WATER TO BE DRAWN FROM ANAEROBIC ZONE OF TANK.

DANGER

CONFINED SPACE
NO ENTRY WITHOUT
CONFINED SPACE
TRAINING

HEIGHT 150MM

WIDTH 200MM

LEGEND

DP : 100ø DOWN PIPE

: STORMWATER PIPE @1% MIN. U.N.O.

P1 : 100ø UPVC PIPE AT 1% MIN. GRADE U.N.O.
P2 : 150ø UPVC PIPE AT 1% MIN. GRADE U.N.O.
P3 : 225ø UPVC PIPE AT 1% MIN. GRADE U.N.O.
P4 : 300ø UPVC PIPE AT 1% MIN. GRADE U.N.O.
PIPE CAST IN SLAB

CALCULATIONS DETAILS FOR OSD TANK
CATCHMENT AREA = 1828.22 m^2
AS PER COUNCIL DCP, THE SITE STORAGE RATE IS 280m^3/Ha WITH A PERMISSIBLE SITE DISCHARGE OF 120L/s/Ha.
THEREFORE, VOLUME OF OSD REQUIRED = 280x(1828.22/10000) = 51.19m^3.
PERMISSIBLE SITE DISCHARGE = 120x(1828.22/10000)= 21.94 L/s

ORIFICE DIAMETER CALCULATIONS DETAILS FOR OSD TANK
1– $PSD=CxAx(2xGxH)^{0.5}$
$21.94=0.61xAx(2x9.81x1.09)^{0.5}$

THEREFORE, D=99.5mm

A1

No	AMENDMENT	ENG	DRAFT	DATE
B	FOR D.A. APPROVAL	E.H.	M.D.	04.09.18
A	FOR D.A. APPROVAL	E.H.	S.S.N.	27.11.17

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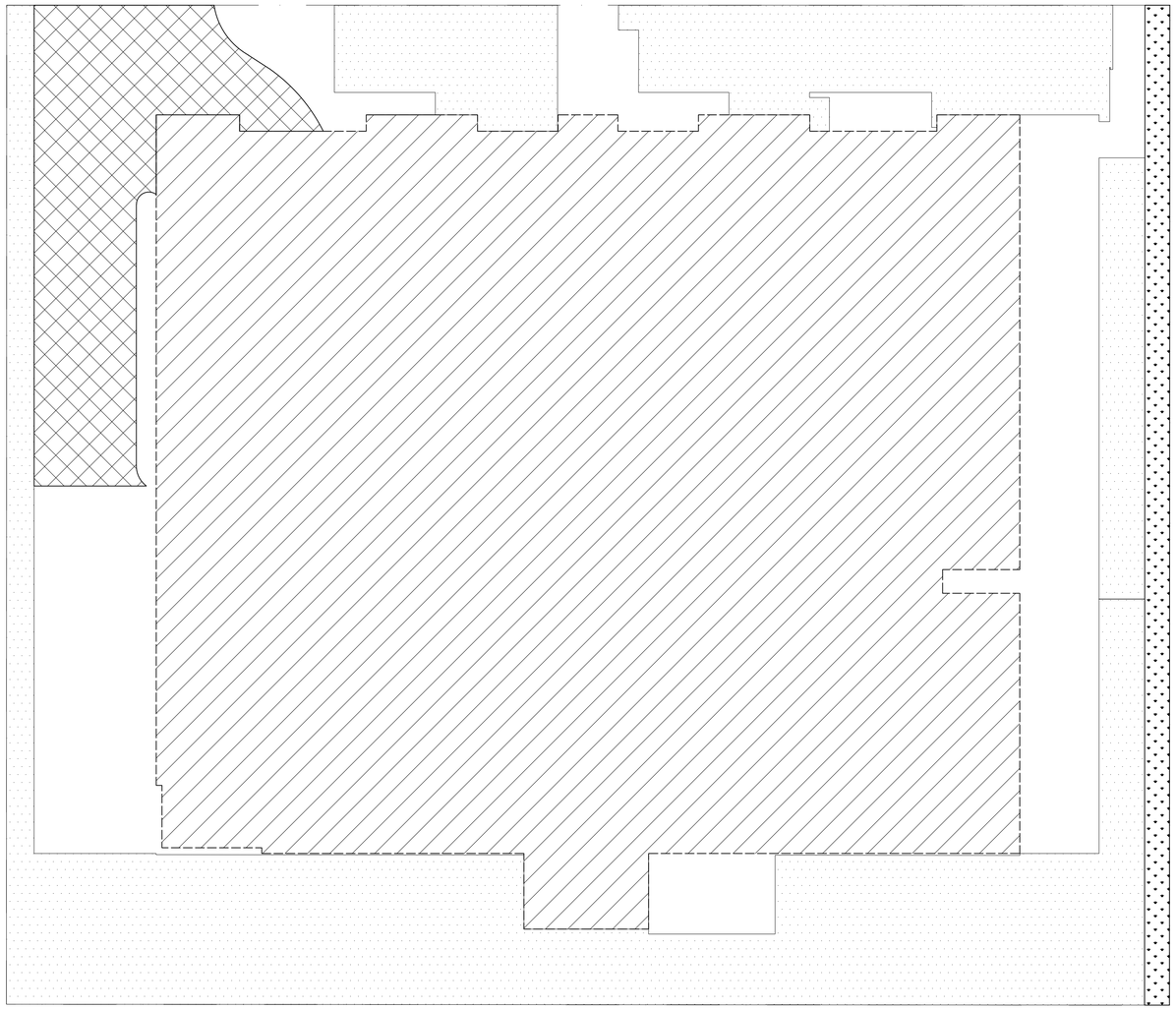
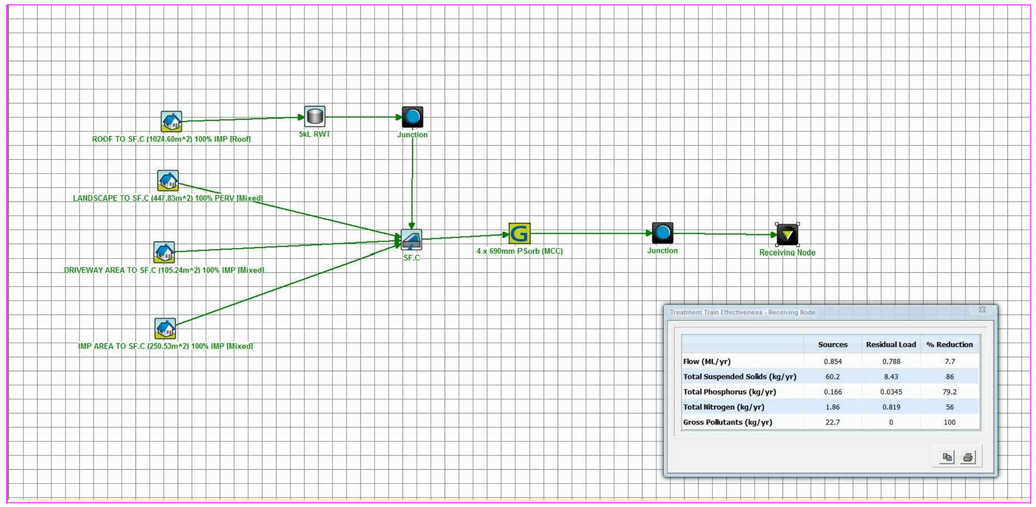
PROJECT
PROPOSED RESIDENTIAL FLAT BUILDING DEVELOPMENT
32–36 HOPE STREET
PENRITH, NSW

SHEET SUBJECT
STORMWATER DRAINAGE SECTIONS & DETAILS 2

ARCH. REF:

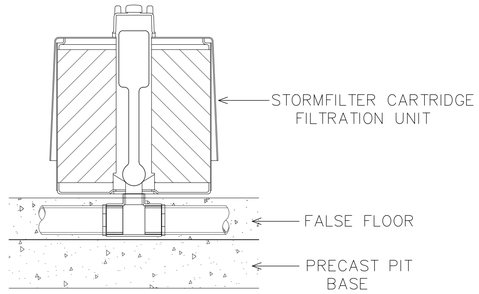
PROJECT	32–36 HOPE STREET, PENRITH, NSW		
DATE	DRAWN	DESIGNED	CHECKED
NOV 2017	S.S.N.	S.S.N.	E.H.
SCALE @ A1		JOB No	
As Shown		171552	
AUTHORISED		DWG No	REV
Osman Chowdhury		D05	B





	Sources	Residual Load	% Reduction
Flow (ML/yr)	0.854	0.788	7.7
Total Suspended Solids (kg/yr)	60.2	8.43	86
Total Phosphorus (kg/yr)	0.166	0.0345	79.2
Total Nitrogen (kg/yr)	1.86	0.819	56
Gross Pollutants (kg/yr)	22.7	0	100

MUSIC MODEL RESULTS – REFER TO STORMWATER QUALITY REPORT (SQR) FOR DETAILS



STORMFILTER CARTRIDGE DETAIL

HATCHED AREA DENOTES DRIVEWAY AREA = 105.24m²

HATCHED AREA DENOTES PERVIOUS AREA= 447.83m²

HATCHED AREA DENOTES IMPERVIOUS AREA= 250.53m²

HATCHED AREA DENOTES ROOF AREA= 1024.60m²

HATCHED AREA DENOTES SWALE AREA EXCLUDED FROM THE SITE AREA= 40m²

Filtration Unit Maintenance Schedule

Facility Component Requiring Maintenance	Maintenance Activity	When Maintenance Activity Is Required	Expected Facility Performance After Maintaining	INSPECTION/MINOR MAINTENANCE (TIMES/YEAR)	MAJOR MAINTENANCE (TIMES/YEAR)
StormFilter® Cartridges and Containment Structure	Trash and Debris Removal	Floatable objects or other trash is present in the filter. Remove to avoid hindrance of filtration and eliminate unsightly debris and trash.	Permanent removal from storm system.	2 (and after major storms)	1 (except in case of a spill)
	Cartridge Replacement and Sediment Removal	1. Media has been contaminated by high levels of pollutants, such as after a spill.	1. New media is able to effectively treat stormwater.	-	-
Drainage System Piping	Flushing With Water	Drainage system is obstructed by debris or sediment.	Outflow is not restricted.	-	-

A1 0 1 2 3 4 5 6 7 8 9 10

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PROJECT
PROPOSED RESIDENTIAL FLAT BUILDING DEVELOPMENT
32–36 HOPE STREET
PENRITH, NSW

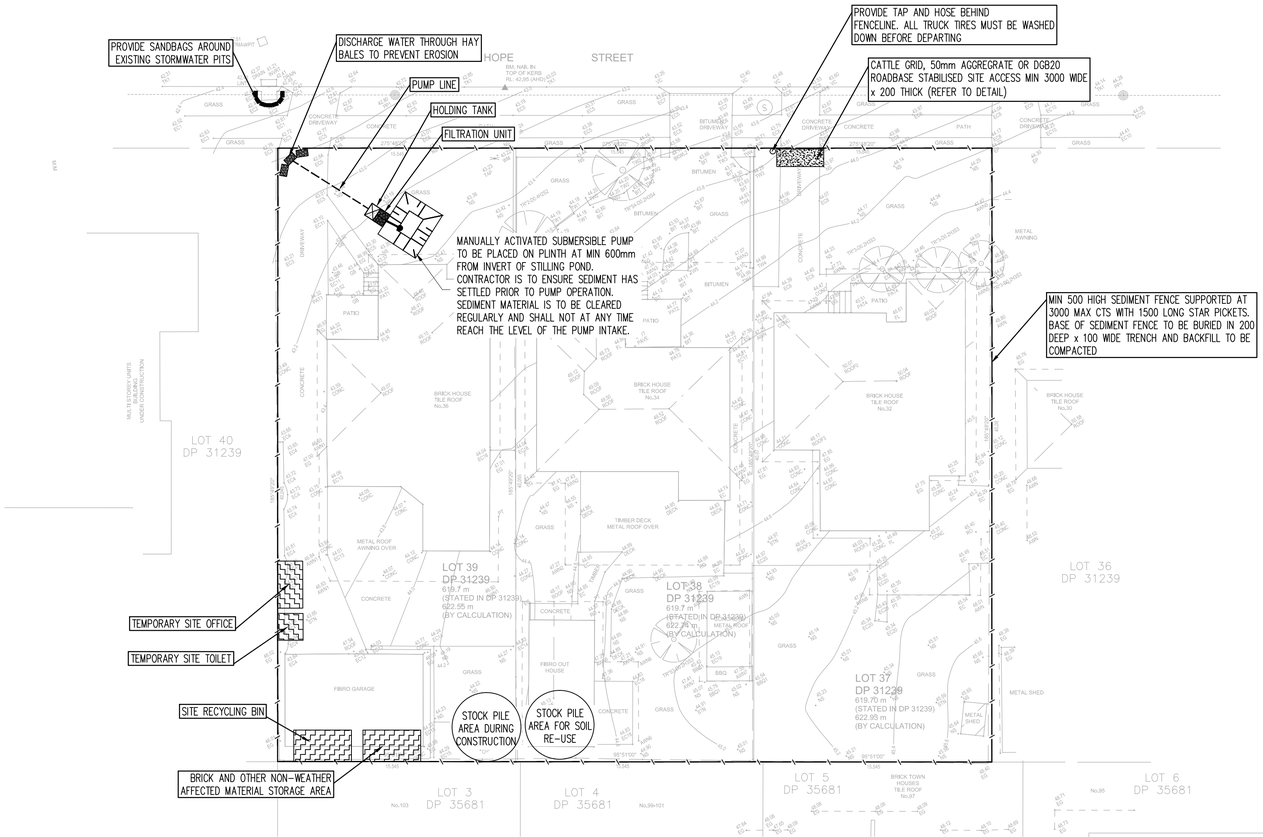
SHEET SUBJECT
WSUD DETAILS

ARCH. REF:

PROJECT 32–36 HOPE STREET, PENRITH, NSW

DATE	DRAWN	DESIGNED	CHECKED
NOV 2017	S.S.N.	S.S.N.	E.H.

SCALE @ A1: As Shown
JOB No: 171552
AUTHORISED: Osman Chowdhury
DWG No: D06
REV: B

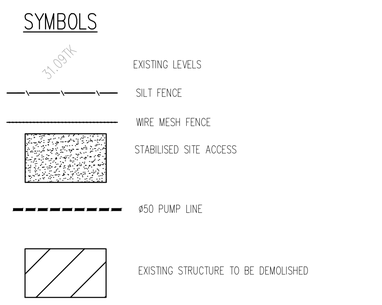


EROSION CONTROL NOTES

1. ALL EROSION & SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH 'MANAGING URBAN STORMWATER, 4TH EDITION' BY LANDCOM.
2. ALL EROSION AND SILTATION CONTROL DEVICES ARE TO BE PLACED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION AND REMOVED REGULARLY DURING CONSTRUCTION
3. ALL TREES ARE TO BE PRESERVED UNLESS INDICATED OTHERWISE ON THE ARCHITECT'S OR LANDSCAPE ARCHITECT'S DRAWINGS. EXISTING GRASS COVER SHALL BE MAINTAINED EXCEPT IN AREAS CLEARED FOR BUILDINGS, PAVEMENTS ETC- CONTRACTOR TO MINIMISE DISTURBED AREAS.
4. INSTALL TEMPORARY SEDIMENT BARRIERS TO ALL INLET PITS LIKELY TO COLLECT SILT LADDEN WATER
5. NOT WITHSTANDING DETAILS SHOWN, IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO ENSURE THAT ALL SITE ACTIVITIES COMPLY WITH THE REQUIREMENTS OF THE CLEAN WATERS ACT.
6. ALL DISTURBED AREAS AND STOCKPILES TO BE STABILISED WITHIN 14 DAYS. ALL STOCKPILES TO BE CLEAR FROM DRAINS, GUTERS AND FOOTPATHS.
7. TOPSOIL TO BE STRIPPED, STOCKPILED AND RE-SPREAD ON COMPLETION OF EARTHWORKS. NONE TO BE REMOVED.
8. NO DISTURBANCE OF SITE PERMITTED OTHER THAN IMMEDIATE AREA OF THE WORKS.
9. DRAINAGE IS TO BE CONNECTED TO STORMWATER SYSTEM AS SOON AS POSSIBLE.

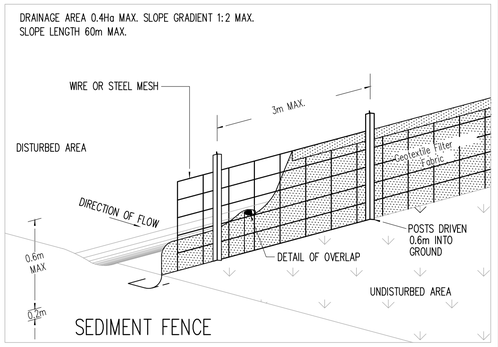
NON-COMPLIANCE MAY RESULT IN A $1500 FINE

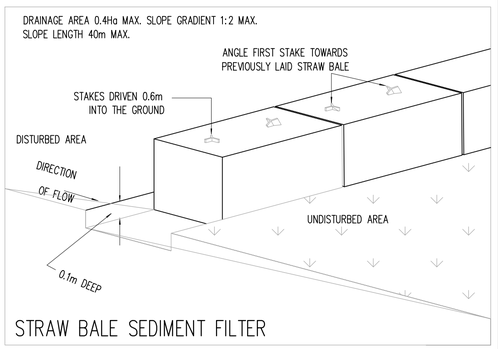
SYMBOLS

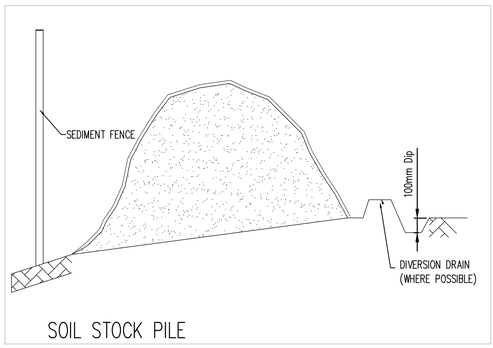


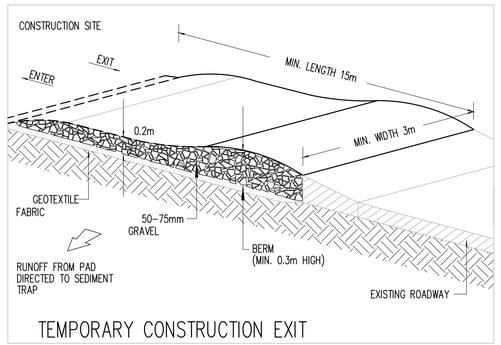
NOTES THIS DRAWING

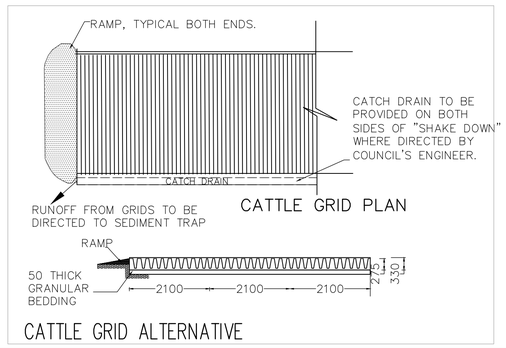
1. ALL DOCUMENTS WILL BE SUBMITTED TO COUNCIL FOR APPROVAL.
2. ALL SEDIMENT CONTROL MEASURES ARE TO BE IN PLACE.
3. INSTALLATION OF SILT FENCING, SEDIMENTATION BARRIERS AROUND DRAINS.
4. FENCING IS TO BE 1.8m(min) HEIGHT, PLACED AROUND THE SITE UNTIL THE WORK IS COMPLETE.
5. THE SITE GATES WILL BE LOCATED AT **HOPE STREET**.
6. THE HARDSTAND AREAS OR CATTLE GRIDS WILL BE PLACED AT THE SITE ENTRANCES AND EXITS. TO REMOVE THE BULK OF DIRT AND MUD THAT MAY ACCUMULATE ON TRUCK TYRES.
7. CONTRACTOR WILL CONDUCT REGULAR STREET SWEEPS ALONG THE ACCESS ROUTE TO ENSURE THE ROADS ADJACENT TO THE SITE ENTRANCES ARE KEPT CLEAN OF ANY DIRT AND DEBRIS.
8. REGULAR ENVIRONMENTAL INSPECTIONS WILL BE CARRIED OUT BY CONTRACTOR'S PERSONNEL TO ENSURE COMPLIANCE WITH THIS PLAN.

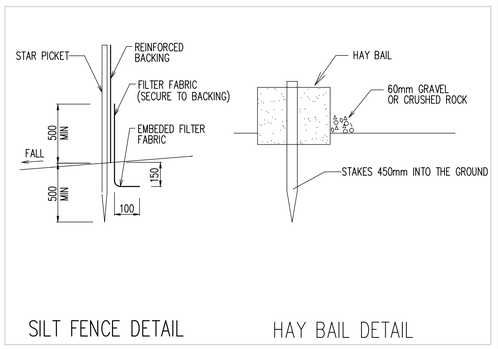












A1 0 1 2 3 4 5 6 7 8 9 10

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PROJECT
PROPOSED RESIDENTIAL FLAT BUILDING DEVELOPMENT
32-36 HOPE STREET
PENRITH, NSW

SHEET SUBJECT
EROSION AND SEDIMENT CONTROL PLAN & DETAILS

ARCH. REF:

PROJECT	32-36 HOPE STREET, PENRITH, NSW
DATE	NOV 2017
DRAWN	S.S.N.
DESIGNED	S.S.N.
CHECKED	E.H.
SCALE @ A1	1:200 U.N.O.
JOB No	171552
AUTHORISED	Osman Chowdhury
DWG No	D10
REV	A

WASTE MANAGEMENT PLAN

DEMOLITION, CONSTRUCTION AND USE OF PREMISES

The applicable sections of this table must be completed and submitted with your Development Application.

Completing this table will assist you in identifying the type of waste that will be generated and will advise Council of how you intend to reuse, recycle or dispose of the waste.

The information provided on the form (and on submitted plans) will be assessed against the objectives of the DCP.

OUTLINE OF PROPOSAL
Site Address: 32-36 Hope Street Penrith
Applicants name and address: Designcorp Australia Pty Ltd 16 Dunlop Street North Parramatta NSW 2151
Phone:9630 9911 **Fax**: 9630 9922
Buildings and structures currently on the site: Each property contains a brick dwelling and detached garages. All structures on site are to be demolished
Brief description of proposal: Proposed residential flat building comprising of six storeys and two basement levels.
The details provided on this form are the intentions of managing waste relating to this project. Signature of applicant  Date: 06/12/2017

STAGE ONE – DEMOLITION

This is the stage with the greatest potential for waste minimisation, particularly in Sydney where there are high levels of development, relatively high tipping charges and where alternative quarry materials are located on the outskirts.
Applicants should consider is whether it is possible to re-use existing buildings, or parts thereof, for the proposed use.
With careful onsite sorting and storage and by staging work programs it is possible to re-use many materials, either on-site or off-site.
Council is seeking to move from the attitude of straight demolition to a process of selected deconstruction, ie. total reuse and recycling both off-site and on-site. This could require a number of colour-coded or clearly labelled bins onsite (rather than one size fits all).

Applicants should demonstrate project management which seeks to:

- re-use of excavated material on-site and disposal of any excess to an approved site;
- green waste mulched and re-used in landscaping either on-site or off-site;
- bricks, tiles and concrete re-used on-site as appropriate, or recycled off site;
- plasterboard re-used in landscaping on-site, or returned to supplier for recycling;
- framing timber re-used on-site or recycled elsewhere;
- windows, doors and joinery recycled off-site;
- plumbing, fittings and metal elements recycled off-site;
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with WorkCover Authority and EPA requirements;
- Locations of on-site storage facilities for material to be reused on-site, or separated for recycling off-site; and
- Destination and transportation routes of all materials to be either recycled or disposed of off-site.

The following table should be completed by applicants proposing any demolition work. The following details should be shown on your plans.

- Location of on-site storage space for materials (for re-use) and containers for recycling and disposal.
- Vehicle access to the site and to storage and container areas.

Demolition Stage One – To be completed for proposals involving demolition

Materials on Site		Destination		
		Reuse & recycling		Disposal
Type of material	Estimated volume (m3) or area (m2) or weight (t)	On-Site Specify how materials will be reused or recycled on site	Off-site Specify the contractor and recycling outlet	Specify the contractor and landfill site
EXAMPLE	**e.g.. 2m3**	**e.g. clean and reuse for footings and broken bricks behind retaining walls**	**e.g. sent by XYZ Demolishes to ABC Recycling Company**	**e.g. nil to landfill**
Excavation material	2m3	Re-use as fill where possible	Has-a-bin Auburn Waste Management	Horsley Park Waste Management centre
Green waste	4m3	---	Has-a-bin Auburn Waste Management	---
Bricks	0.50m3	---	Concrete Recyclers Group Camellia	---
Tiles	2m3	---	Concrete Recyclers Group Camellia	---
Concrete	3m3	---	Concrete Recyclers Group Camellia	---
Timber – please specify	6m3	---	Has-a-bin Auburn Waste Management	---
Plasterboard	6m3	---	Has-a-bin Auburn Waste Management	WSN Enviro Solutions Wallgrove Road, Eastern Crk
Metals	2m3	---	Sims Metal 43 Ashford Ave Milperra	---
Asbestos	6m3	---	---	Horsley Park Waste Management centre
Other waste e.g. ceramic tiles, paints, plastics, tubing, cardboard	6m3 (general)	---	---	Has-a-bin Auburn Waste Management

Demolition Stage One - continued

How will waste be separated and/or stored onsite for reuse and recycling? How will site operations be managed to ensure minimal waste creation and maximum reuse and recycling?

e.g. Staff training, selected deconstruction v. straight demolition, waste management requirements stipulated in contracts with sub-contractors, on-going checks by site supervisors, separate area set aside for sorted wastes, clear signage for waste areas etc.

The demolition/excavation waste contractors engaged will be responsible for the sorting and disposal of the waste according to the rules and regulations

Note: Details of the site area to be used for on-site separation, treatment and storage (including weather protection) should be provided on plan drawings accompanying your application.

STAGE TWO – CONSTRUCTION

Stage Two – Potential for Waste Minimisation During Construction Stage

- Consider the following measures that may also save resources and minimise waste at the construction stage:
  - Purchasing Policy – i.e. Ordering the right quantities of materials and prefabrication of materials where possible;
  - Reusing formwork;
  - Minimising site disturbance, limiting unnecessary excavation;
  - Careful source separation of off-cuts to facilitate re-use, resale or efficient recycling;
  - Co-ordination/sequencing of various trades.

How to Estimate Quantities of Waste

- There are many simple techniques to estimate volumes of construction and demolition waste. The information below can be used as a guide by builders, developers & homeowners when completing a waste management plan:

To estimate Your Waste:
ii. Quantify materials for the project
iii. Use margin normally allowed in ordering
iv. Copy these amount of waste into your waste management plan

- When estimating waste the following percentages are building "rule of thumb" and relate to renovations and smallhomebuilding:

Material	Waste as a Percent of the Total Material Ordered
Timber	5-7%
Plasterboard	5-20%
Concrete	3-5%
Bricks	5-10%
Tiles	2-5%

Converting Volume into Tonnes : A Guide for Conversion

Timber = 0.5 tonnes per m2
Concrete = 2.4 tonne per m3
Bricks = 1.0 tonne per m3
Tiles = 0.75 tonne per m3
Steel = 2.4 tonne per m3

- To improve provide more reliable figures:
- Compare your projected waste quantities with actual waste produced;
- Conduct waste audits of current projects;
- Note waste generated and disposal methods;
- Look at past waste disposal receipts;
- Record this information to help estimate future waste management plans.
- On a waste management plan amounts of waste may be stated in – m2 or m3 or tonnes (t).

Construction Stage Two – for proposals involving construction

Materials on Site		Destination		
		Reuse & recycling		Disposal
Type of material	Estimated volume (m3) or area (m2) or weight (t)	On-Site Specify how materials will be reused or recycled on site	Off-site Specify the contractor and recycling outlet	Specify the contractor and landfill site
EXAMPLE	**e.g.. 2m3**	**e.g. clean and reuse for footings and broken bricks behind retaining walls**	**e.g. sent by XYZ Demolishes to ABC Recycling Company**	**e.g. nil to landfill**
Excavation material	3000m3	Re-use as fill	---	WSN Enviro Solutions Wallgrove Road, Eastern Crk
Green waste	3m3	---	Has-a-bin Auburn Waste Management	---
Bricks	4m3	---	Concrete Recyclers Group Camellia	---
Tiles	---	---	---	---
Concrete	4m3	---	Concrete Recyclers Group Camellia	---
Timber – please specify	4m2	---	WSN Enviro Solutions Wallgrove Road, Eastern Crk	---
Plasterboard	5m3	---	---	WSN Enviro Solutions Wallgrove Road, Eastern Crk
Metals	2m3	---	Sims Metal 43 Ashford Ave Milperra	---
Other waste e.g. ceramic tiles, paints, plastics, tubing, cardboard	3m3	---	---	Has-a-bin Auburn Waste Management

How will waste be separated and/or stored onsite for reuse and recycling? How will site operations be managed to ensure minimal waste creation and maximum reuse and recycling?

e.g. Staff training, selected deconstruction v. straight demolition, waste management requirements stipulated in contracts with sub-contractors, on-going checks by site supervisors, separate area set aside for sorted wastes, clear signage for waste areas etc.

Refer to demolition process

Note: Details of the site area to be used for on-site separation, treatment and storage (including weather protection) should be provided on plan drawings accompanying your application.

STAGE THREE – DESIGN OF FACILITIES

- The following details should be shown on your plans:

  - Location of temporary storage space within each dwelling unit;
  - Location of Waste Storage and recycling Area(s), per dwelling unit or located communally onsite. In the latter case this could be a Garbage & Recycling Room;
  - Details of design for Waste Storage and Recycling Area(s) or Garbage and Recycling Room(s) and any conveyance or volume reduction equipment; and
  - Location of communal composting area.
  - Access for vehicles.

- Every builder shall be provided with a Waste Storage and Recycling Area which is flexible in size and layout to cater for future changes in use. The size is to be calculated on the basis of waste generation rates and proposed bin sizes.

Stage 3 – Design of Facilities – To be completed if designing waste facilities for the proposed development

Type of waste to be generated	Expected volume per week	Proposed on site storage and treatment facilities	Destination
General waste		3 x 1100L bins provided to be emptied weekly	Council pickup
Glass, cardboard, cans		3 x 1100L bins emptied fortnightly	Council pickup
Services bins		2 x 1100L bins provided to be emptied weekly	Council pickup

Note: details of on-site waste management facilities should be provided on plan drawings accompanying your application.

ON-GOING MANAGEMENT

Describe how you intend to ensure on-going management of waste on site (e.g. lease conditions, caretaker / manager on site).

Strata manager will be responsible for the provided bins to be maintained and put out for collection on council specified days

Owner / occupant will be responsible for the sorting out the appropriate product going into the provided bins to reduce the amount of general waste

Clause 4.6 Variation: Building Height

LOT CONSOLIDATION, DEMOLITION OF EXISTING STRUCTURES AND THE CONSTRUCTION OF A 6 STOREY RESIDENTIAL FLAT DEVELOPMENT CONTAINING AT 32-36 HOPE STREET, PENRITH

Prepared by: Think Planners Pty Ltd
Document Date: 26 October 2018
Consent Authority: Penrith City Council

QUALITY ASSURANCE

PROJECT: Statement of Environmental Effects – 6 Storey RFB

ADDRESS: Lot 37, 38 and 39 DP 31239: 32-36 Hope Street, Penrith

COUNCIL: Penrith City Council

AUTHOR: Think Planners Pty Ltd

ARCHITECT: Designcorp Architects

Date	Purpose of Issue	Rev	Reviewed	Authorised
6 December 2017	Draft Issue	Draft	SR	SF
26 October 2018	Final Issue for DA	Final	JW	JW

Table of Contents

Background

Maximum Building Height Departure

Clause 4.3 under the Penrith LEP stipulates a maximum building height of 18m for the subject site.

The development proposal is for a 6 storey residential flat building, consistent with the height of many residential flat buildings in the locality, however varies the 18m height limit.

The development exhibits the following building height elements

Portion	***Maximum Height***	***Departure***
Upper level of residential units (i.e. habitable floor area)	19.7m	1.7m & 9.44%
Lift Over-run and Fire Stair	22.45m	4.45m & 24.7%

Given the height departure a Clause 4.6 variation request has been prepared, noting that the request addresses a number of recent Land and Environment Court cases including *Four 2 Five v Ashfield* and *Micaul Holdings Pty Ltd v Randwick City Council* and *Moskovich v Waverley Council,* as well as *Zhang v Council of the City of Ryde*.

In addition a recent judgement in *Initial Action Pty Ltd v Woollahra Municipal Council (2018) NSWLEC 118* confirmed that it is not necessary for a non-compliant scheme to be a better or neutral outcome and that an absence of impact Is a way of demonstrating consistency with the objectives of a development standard. Therefore this must be considered when evaluating the merit of the building height departure.

The key tests or requirements arising from the above judgements is that:

- The consent authority be satisfied the proposed development will be in the public interest because it is "*consistent with*" the objectives of the development standard and zone is not a requirement to "*achieve*" those objectives. It is a requirement that the development be compatible with the objectives, rather than having to 'achieve' the objectives.

- Establishing that 'compliance with the standard is unreasonable or unnecessary in the circumstances of the case' does not always require the applicant to show that the relevant objectives of the standard are achieved by the proposal (Wehbe "test" 1). Other methods are available as per the previous 5 tests applying to SEPP 1, set out in Wehbe v Pittwater.

- The proposal is required to be in 'the public interest'.

In relation to the current proposal the keys are:

- Demonstrating that the development remains consistent with the objectives of the maximum building height control'
- Demonstrating consistency with the R4 zoning;
- Demonstrating there are sufficient environmental planning grounds to vary the standard; and
- Satisfying the relevant provisions of Clause 4.6.

Address of Clause 4.6 Provisions

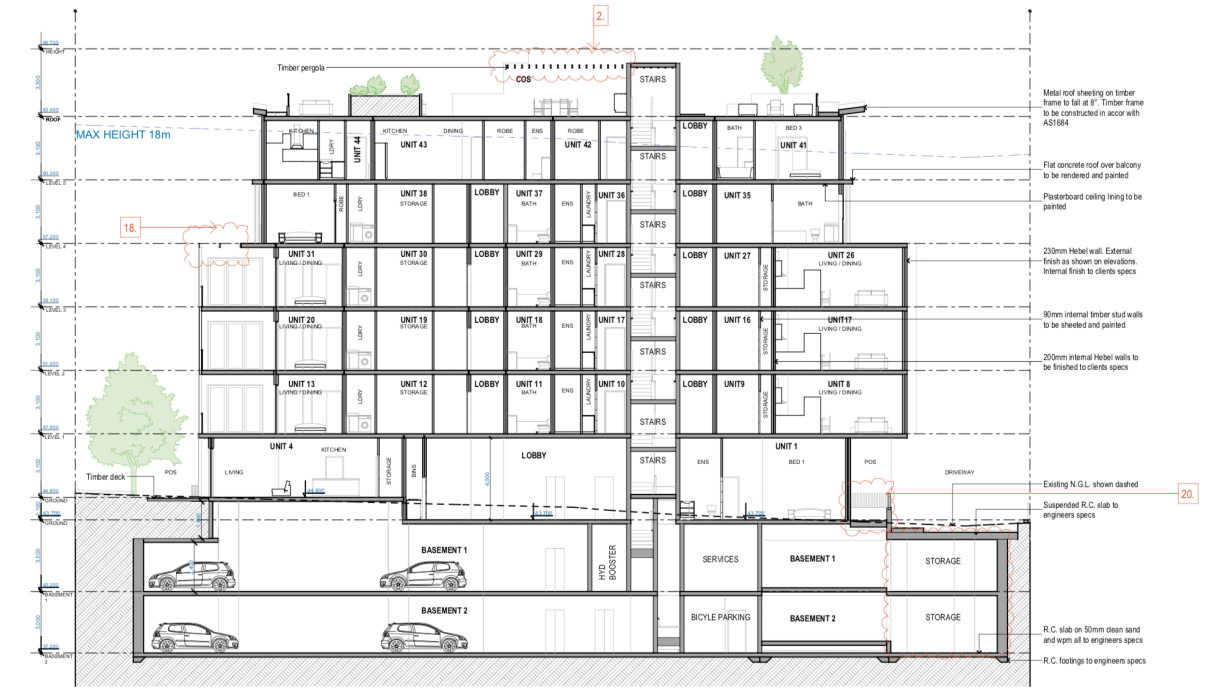
A detailed discussion against the relevant provisions of Clause 4.6 are provided below with further discussion against the relevant case law 'tests' set down by the Land and Environment Court.

As shown on the sections below, the proposed development varies the height control to a portion of the upper level, roof form, lift overrun and shade structures within the rooftop common open space.

This is a function of the waste servicing requirements and relevant clearances to the basement, topography of the site, architectural features of the proposed building and additional amenity provided to the common open space area with a small scale pergola structure.

The numerical departure is listed in the table above.

Two 3D height plans are provided below and a section drawing to demonstrate the nature of the departure and the portion of the building height control that is exceeded.



SECTION A
1:200

Therefore, the proposal is noncompliant with Clause 4.3 – height of buildings that stipulates that the height of a building is not to exceed 18m on the subject site.

The location of the building height departure will ensure that they are not readily viewable from the street level from Hope Street given the design steps back the upper 2 levels and therefore the recessed nature of the upper level means it will not be visually dominant.

Clause 4.6 of the Penrith Local Environmental Plan 2010 provides that development consent may be granted for development even though the development would contravene a development standard. This is provided that the relevant provisions of the clause are addressed, in particular subclause 3-5 which provide:

> *(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, and

(b) the concurrence of the Director-General has been obtained.

(5) In deciding whether to grant concurrence, the Director-General must consider:

(a) whether contravention of the development standard raises any matter of significance for State or regional environmental planning, and

(b) the public benefit of maintaining the development standard, and

(c) any other matters required to be taken into consideration by the Director-General before granting concurrence.

Each of these provisions are addressed individually below.

Clause 4.6(3)

In accordance with the provisions of this clause it is considered that compliance with the development standard is unreasonable or unnecessary in the circumstances of the case as the underlying objectives of the control are achieved. The objectives of the Height development standard are stated as:

(1) The objectives of this clause are as follows:

a) to ensure that buildings are compatible with the height, bulk and scale of the existing and desired future character of the locality,

b) to minimise visual impact, disruption of views, loss of privacy and loss of solar access to existing development and to public areas, including parks, streets and lanes,

c) to minimise the adverse impact of development on heritage items, heritage conservation areas and areas of scenic or visual importance,

d) to nominate heights that will provide a high quality urban form for all buildings and a transition in built form and land use intensity.

The current development proposal is predominantly consistent with the building height except for a portion of level 6 however, the proposal remains consistent with the objectives based on the following:

- The proportion of the building that protrudes above the 18m height limit contains limited habitable floor space and continues to be 6 storeys, reinforcing that the breach to the height standard does not result in the development representing an overdevelopment of the site but rather a suitable contextual response to the topographical fall on the site in order to achieve a suitable ground floor outcome with sufficient amenity for the apartments at this level as well as catering for the additional height required for waste servicing trucks- which is a requirement that has been adopted by Council well after the adoption of the 18m height limit control in the LEP and therefore results in an increased height beyond the 18m.

- The overall height of the development presents as a compatible form of development to the anticipated high density residential development that are emerging in the locality, noting that the emerging character is for 6 storey residential flat buildings in the locality and 6 storeys is the prevailing form of development being carried in the R4/18m height limit area. The 6th storey of the proposal is recessed behind the main building alignment to downplay visual dominance as viewed from the public domain and adjoining residential properties.

- The proposed buildings will present an appropriate bulk and scale on the site with 3 balanced vertical components/proportions that are consistent with other approved and already constructed 6 storey residential flat building developments in Hope Street and surrounding area.

- The additional height does not generate any additional amenity impacts given the location of the site and the surrounding site context.

- Given the scale of the proposal, and the extent of the variation is not perceptible at street level given the upper level of the building is setback behind the lower levels which means the additional height will not be seen from a pedestrian level when standing in the public domain.

- The proposal provides for a suitable planning outcome through limiting south facing units. Therefore the design response has been to maximise the amenity of apartments through a cut-out in the building and suitable recessed elements rather than a 'square' building utilising every available area of floor space.

- In the absence of additional height, the ability to deliver a satisfactory waste management and truck turning areas within the site is not achievable or feasible- again noting the requirement for on-site collection came into effect after the adoption of the LEP amendments- and therefore nearly all residential flat buildings represent a degree of departure from the 18m control to facilitate this. The additional floor to ceiling height needed for truck turning areas for a heavy rigid vehicle is 4.5m which is significantly larger than the normal requirements for floor to floor heights within a residential development and is a key driver of the extent of the height non-compliance.

- The proposal ensures that the area is provided with high density residential development to support the growth of Penrith and to align with the principles of urban consolidation that seek to ensure the efficient use of community infrastructure by providing higher density residential development at strategic locations, noting that both the Penrith train station and CBD are located within walking distance as well as arterial roads that service the area.

- The proposal has been designed to ensure that privacy impacts are mitigated against and that the proposal will not obstruct existing view corridors.

- The proposal does not result in any discernible increased shadow impact given the orientation of the site and setbacks that fully comply with the requirements of the Apartment Design Guide.

- The non-compliance to the height control has no impact on the setting of any items of environmental heritage or view corridors.

- The proposal does not adjoin any low-density areas or sensitive interfaces and will integrate with future development to the north, east, south and west.

As outlined above the proposal remains consistent with the underlying objectives of the control and as such compliance is considered unnecessary or unreasonable.

Clause 4.6(4)

In accordance with the provisions of Clause 4.6(4) Council can be satisfied that this written request has adequately addressed the matters required to be demonstrated by Clause 4.6(3). As addressed the proposed development is in the public interest as it remains consistent with the objectives of the building height control. In addition, the proposal is consistent with the objectives of the R4 zone, being:

- *To provide a variety of housing types within a high density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To ensure that a high level of residential amenity is achieved and maintained.*
- *To encourage the provision of affordable housing.*
- *To ensure that development reflects the desired future character and dwelling densities of the area.*

The proposal will provide a high quality residential development in a strategic location within close proximity to the Penrith train station and CBD, bus interchange to maximise public transport patronage and to encourage walking and cycling. The scale of the development will help to revitalise the area with delivery of an activated ground floor and an attractive overall development.

As a result, the development will contribute towards creating a vibrant and sustainable neighbourhood that will support both the function and growth of Penrith.

Furthermore, the proposal will complement and enhance the local streetscape by virtue of the strong articulated built form and recessed upper level and will provide clear legibility building at the street level.

It is understood that the concurrence of the Director-General can be assumed in the current circumstances.

Clause 4.6(5)

As addressed, it is understood the concurrence of the Director-General may be assumed in this circumstance, however the following points are made in relation to this clause:

a) The contravention of the building height control does not raise any matter of significance for State or regional environmental planning given the nature of the development proposal; and

b) There is no public benefit in maintaining the development standard as it relates to the current proposal. The departure from the building height control is acceptable in the circumstances given the underlying objectives are achieved and it will not set an undesirable precent for future development within the locality based on the observed building forms in the locality. The significant benefits of the proposal must be emphasised in considering the merits of the departure to the height control and the proposal is a site-specific response and is not replicated elsewhere as such 'precedent' issues are not relevant.

Strict compliance with the prescriptive building height requirement is unreasonable and unnecessary in the context of the proposal and its unique circumstances. The proposed development meets the underlying intent of the control and is a compatible form of development that does not result in unreasonable environmental amenity impacts.

The design response aligns with the intent of the control and provides for an appropriate transition to the adjoining properties.

The proposal promotes the economic use and development of the land consistent with its zone and purpose. Council is requested to invoke its powers under Clause 4.6 to permit the variation proposed.

The objection is well founded and considering the absence of adverse environmental, social or economic impacts, it is requested that Council support the development proposal.

Land and Environment Court Case Law

The Land and Environment Court, through case law, provides guidelines for the consideration of Clause 4.6 departures.

Wehbe v Pittwater Council Wehbe v Pittwater related to a SEPP 1 objection and outlines that there are 5 methods to establish that the application of a development standard is unreasonable or unnecessary in the circumstances of the case.

1. The development achieves the objectives of the development standard;
2. The underlying objective or purpose of the development standard is not relevant to the development with the consequence that compliance is unnecessary;
3. The underlying objective or purpose of the development standard would be defeated or thwarted if compliance was required with the consequence that compliance is unreasonable;

4. The development standard has been virtually abandoned or destroyed by the Council's own actions in granting consents departing from the standard and hence compliance with the standard is unnecessary and unreasonable; and
5. The zoning of particular land is unreasonable or inappropriate so that a development standard appropriate for that zoning was also unreasonable or unnecessary as it applied to that land and that compliance with the standard in that case would also be unreasonable or unnecessary.

The case law indicates that if ***any*** of these methods are satisfied then the departure to the standard can be supported. In respect of this site, it is considered that the proposal satisfies method 1 for the reasons outlined above.

Further, the requirement in cl4.6(3)(b) to justify that there are sufficient environmental planning grounds for the variation.

There are particular circumstances associated with this site and the building height departure. The proposal seeks to deliver a building that is 6 storeys which is consistent with the emerging high-density character of developments along Hope Street and in the surrounding R4 zone. The additional height is needed to comply with Council's stringent on-site waste collection requirements which require a heavy rigid vehicle to gain access to the site for pickup of bulk waste storage. This means that an additional floor to ceiling height is required at the ground floor effectively increasing the overall building height. The proposal provides a better outcome as waste servicing can occur on site to meet Council's requirements.

The proposed building has been designed to present with 3 vertical proportions, the more solid lower level, moving up to the lighter middle component with balconies and lots of large window features then into the top proportion which has a winged architectural feature as viewed from Hope Street. It is the upper part of the winged feature which presents most of the variation where there is habitable roof space. Removing a part of this upper portion of the building would ruin the balance of these 3 proportions of the building and reduce the architectural flare and statement that is being presented with the winged feature of the upper storey. The proposed building design delivers a better outcome in terms of architectural style and urban design outcomes.

The largest variation to the building height is on the rooftop where there is common open space. The architect has taken into consideration Council's advice about the need to create a variety of interesting gathering spaces on the rooftop garden and this has resulted in an area with a small pergola. This will ensure the space is shaded during the summer months and offers the residents with a high level of amenity. There is also a portion of the fire stairs that protrudes into the building height plane, however, this is to ensure accessible lift access to all levels within the building and does not add to the bulk and scale of the development. Higher amenity for the rooftop common open space is delivering a better environmental planning outcome.

Along the southern façade the architect has incorporated an interesting design feature which creates an indent in the building which then creates a small space within the access corridor where people and meet or wait for visitors/residents. This indent also permits the building to have more dual aspect units and cross through ventilation.

There are also circumstances that relate to the topographical fall of the site and the relationship to the levels in Hope Street. This fall means that to achieve strict compliance results in the floor levels to be further stepped and cut into the site which results in a poor outcome for the ground floor units and it would result in a suboptimal outcome as compared to the current situation which results in the minor technical non-compliance to the building height control. Strict compliance is clearly not a preferred outcome on environmental planning grounds.

Therefore, the current proposal is a preferable outcome from an environmental planning perspective and demonstrates that there is merit in varying the height control to achieve a better design response on the site.

Conclusion

Strict compliance with the prescriptive building height control is unreasonable and unnecessary in the context of the proposal and its particular circumstances. The proposed development meets the underlying intent of the control and is a compatible form of development that does not result in unreasonable environmental amenity impacts.

The proposal will not have any adverse effect on the surrounding locality, and is consistent with the future character envisioned, while supporting the role of Penrith as a strategic centre. The proposal promotes the economic use and development of the land consistent with its zone and purpose. Council is requested to invoke its powers under Clause 4.6 to permit the proposed variation.

REDGUM Horticultural
Arboriculture & Horticulture Consultants

REPORT

ARBORICULTURAL IMPACT ASSESSMENT

32-36 Hope Street, Penrith NSW

Prepared 2 December 2017
Ref: 3638

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Contents

1.0 PREFACE

Redgum Horticultural has prepared this report for and on behalf of Designcorp Architects Pty Ltd *(the architect)*, 16 Dunlop Street, North Parramatta NSW.

Mr. Craig Martin *(the author)* attended 32-36 Hope Street Penrith (*the site*), on 28 November 2017 and the trees and their growing environment were examined. The site is subject to a Development Application and this report and any works recommended herein, that require approval from the consenting authority, forms part of that Development application. This report takes into consideration the trees within the site and within five metres of the common boundary affected by the development.

2.0 INTRODUCTION

The land is situated in the Penrith City Council (*the Council)* Local Government Area (*LGA*) and the trees are protected under Part 5 (Clause 5.9) of Local Environment Plan 2010. The Council is the consenting authority for development works on the site. This report involves 6 trees (*the trees*), as indicated on Site Plan A - Survey of Subject Trees (Appendix D) and considers their removal. The trees will be considered as 1 stand to encompass all trees within the scope of this, as marked on Appendix D, Site Plan A - Survey of Subject Trees.

The site is comprised of three residential blocks where the existing structures are to be demolished and are to be replaced with a proposed residential flat building with basement parking, requiring the removal of existing trees within the site. As part of the Landscape Plan where appropriate, the tree cover on the site will be enhanced by planting with advanced specimens/s of appropriate tree species for the space available above and below ground being soil volumes available and to prevent future conflict between trees and built structures.

The proposed building design and its configuration and infrastructure were arrived at prior to the undertaking of an arboricultural assessment of the trees on the site to determine their significance by Redgum Horticultural.

The Summary lists the general condition of trees and a summary of works in Table 1.0. In section 5.0 each individual tree is described in greater detail including protective or remedial works. Tree maintenance works including pruning, removal or transplantation are detailed in section 4.0.

3.0 SUMMARY

This report considers 6 trees located within the site which are identified as Trees 1, 2, 3, 4, 5 & 6 that are recommended to be removed and replaced as they cannot be retained due to the proposed development. They are recommended for removal and replacement with super advanced specimens in 75 or 100 litre bags size stock within more appropriate positions within the development. Replacement of this specimen needs to be mindful of their spatial requirements to allow them to grow to maturity and not be impeded by the built structure.

The general condition of each tree and a summary of works are listed in Table 1.0.

1.0 AIMS

1.1 Detail the condition of the trees on the site or on adjoining sites where such trees may be affected by the proposed works, by assessment of individual specimens or stands, and indicate remedial works or protection measures for their retention in a safe and healthy condition, or a condition not less than that at the time of initial inspection for this report, or in a reduced but sustainable condition due to the impact of the development but ameliorated through tree protection measures able to be applied, and will consider the location and condition of the trees in relation to the proposed building works, or recommend removal and replacement where appropriate.

1.2 Provide as an outcome of the assessment, the following: a description of the trees, observations made, discussion of the effects the location of the proposed building works may have on the trees, and make recommendations required for remedial or other works to the trees, if and where appropriate.

1.3 Determine from the assessment as detailed in 1.2 a description of the works or measures required to ameliorate the impact upon the trees to be retained, by the proposed building works or future impacts the trees may have upon the new building works if and where appropriate, or the benefits of removal and replacement if appropriate for the medium to long term safety and amenity of the site.

2.0 OBJECTIVES

2.1 Assess the condition of the subject trees.

2.2 Determine impact of development on the subject trees.

2.3 Provide recommendations for retention or removal of the subject trees.

3.0 METHODOLOGY
Note: Individual methodologies applied as applicable.

3.1 The method of assessment of tree/s applied is adapted from the principles of visual tree assessment undertaken from the ground, which considers:

- Tree health and subsequent stability, both long and short term
- Sustainable Retention Index Value (SRIV) Version 4 (IACA 2010) ©
- Hazard potential to people and property
- Amenity values
- Habitat values
- Significance

3.2 This assessment is undertaken using standard tree assessment criteria for each tree based on the values above and is implemented as a result of at least one comprehensive and detailed site inspection to undertake a visual tree assessment from the ground of each individual tree, or stand of trees, or a representative population sample. Any dimensions recorded as averages, or by approximation are noted accordingly.

3.3 This report adopts Australian Standard AS4970 2009 *Protection of trees on development sites* as a point of reference and guide for the recommended minimum setbacks (Table 2 – Part B) from the centre of a tree's trunk to development works and the distances may be increased or decreased by the author in accordance with AS4970 – Section 3.3.4 as a result of other factors providing mitigating circumstances or constraints as indicated by but not restricted to the following:

1. Condition of individual trees,
2. Tolerance of individual species to disturbance,
3. Geology e.g. physical barriers in soil, rock floaters, bedrock to surface
4. Topography e.g. slope, drainage,
5. Soil e.g. depth, drainage, fertility, structure,
6. Microclimate e.g. due to landform, exposure to dominant wind,
7. Engineering e.g. techniques to ameliorate impact on trees such as structural soil, gap graded fill, lateral boring,
8. Construction e.g. techniques to ameliorate impact on trees such as pier and beam, bridge footings, suspended slabs,
9. Root mapping,
10. Physical limitations - existing modifications to the environment and any impact to tree/s by development e.g. property boundaries, built structures, houses, swimming pools, road reserves, utility services easements, previous impact by excavation, or construction in other directions, soil level changes by cutting or filling, existing landscaping works within proximity, modified drainage patterns,
11. Extraneous factors e.g. potential future impacts from development on adjoining land when the tree is located on or near to a property boundary.

3.4 Trees in groups may be referred to as stands and a stand may exclusively contain specimens to be either retained or removed or a combination of both. A stand may be used to discuss all the trees on a given site to expedite their assessment, or refer to trees growing proximate to one another or within a defined space. Stands may be comprised by mass boundary or screen plantings, to form a group of the same or a mixture of taxa. Each stand is considered as a single unit with each component tree assessed and expressed in tabular form, or indicated by a given percentage as a population sample of each stand. Where it is appropriate for a stand of trees to be retained in full or part, the location and setback of Tree Protection Zone fences or works, are prescribed to provide for the preservation of the stand or selected component trees, in a condition not less than that at the time of initial inspection for its incorporation into the landscape works for the site, or in a reduced but sustainable condition due to the impact of the development but ameliorated through tree protection measures.

3.5 The meanings for terminology used herein are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009. An extract from the IACA Dictionary forms a glossary of terms included as Appendix E.

4.0 PRUNING STANDARDS

4.1 Any pruning recommended in this report is to be to the Australian Standard® AS4373 *Pruning of amenity trees*, and conducted in accordance with the NSW Work Cover Authority Code of Practice, Tree Work, 2007.

4.2 All pruning or removal works are to be in accordance with the appropriate Tree Management Policy where applicable, or Tree Management Order (TMO), or Tree Preservation Order (TPO).

4.3 Tree maintenance work is specialised and in order to be undertaken safely to ensure the works carried out are not detrimental to the survival of a tree being retained, and to assist in the safe removal of any tree, should be undertaken by a qualified arboriculturist with appropriate competencies recognised within the Australian Qualification Framework, with a minimum of 5 years of continual experience within the industry of operational amenity arboriculture, and covered by appropriate and current types of insurance to undertake such works.

Table 1.0 General condition and Schedule of works of trees or large shrubs. Trees described in greater detail in section 7.0.

Tree No.	*Genus and species*	Common name	Condition G = Good, F = Fair P = Poor, D = Dead W= Weed	Description of work to be done
1	*Acer negundo*	Box Elder Maple	F	Remove and replace with new plantings as per Landscape Plan
2	*Plumeria rubra*	Frangipani	F	Remove and replace with new plantings as per Landscape Plan
3	*Plumeria rubra*	Frangipani	F	Remove and replace with new plantings as per Landscape Plan
4	*Plumeria rubra*	Frangipani	F	Remove and replace with new plantings as per Landscape Plan
5	*Plumeria rubra*	Frangipani	F	Remove and replace with new plantings as per Landscape Plan
6	*Plumeria rubra*	Frangipani	F	Remove and replace with new plantings as per Landscape Plan
7	*DEAD*		D	Remove and replace with new plantings as per Landscape Plan

5.0 TREE ASSESSMENT – 5.1 - Assessment of a stand of Trees

Tree No.	*Genus & Species* Common Name	Age Y = Young M = Mature O = Overmature	Vigour GV = Good Vigour LV = Low Vigour	Condition G = Good F = Fair P = Poor D = Dead	1. SRIV Age, Vigour, Condition / Index Rating www.iaca.org.au / 2. Estimated Life Expectancy 1. Long 2. Medium 3. Short	Crown Form D = Dominant C = Co-dominant I = Intermediate S = Suppressed F = Forest E = Emergent	Ht. Approx. metres	Crown Spread approx. metres / Orientation N= north S= South E= East W=West				Crown Cover % / Crown Density % / D = dormant	DBH in mm @ 1.4m, or other, as indicated / Trunk Orientation other than R = radial, e.g. N/S g = ground	Trunk Lean 1 = Upright-Slight 2 = Moderate 3 = Severe 4 = Critical. 5 = Acaulescent / Orientation / ST = Static P = Progressive Sc = Self-correcting	Roots Evident at Root Crown 1. = None 2. = Adventitious 3. = Basal Flare 4. = Buttresses 5. = First Order Roots (FOR), No. & distribution e.g. R = radial, or one each to N, S, E and W	Pests, Diseases & Damage No or Yes If Yes see comments	Branch Bark Included No or Yes or N/A	Form G = Good Form P = Poor Form	Significance scale 1=High 2=Medium 3=Low / Retention Value 1=High 2=Medium 3=Low 4=Remove
1	*Acer negundo*	M	GV	F	MGVF - 9	D	8	3	3	3.5	3.5	80	300@300	5/R	1	NO	NO	G	2
					2			N	S	E	W	80	R	ST					2
	Box Elder Maple	Comments: Located rear boundary, Adjoining site.																	
2	*Plumeria rubra*	Y/M	GV	F	Y/MGVF - 8.5	C	2	1.5	1.5	1	1	80	200	5/R	1	NO	NO	G	3
					2			N	S	E	W	70	R	ST					3
	Frangipani	Comments:																	
3	*Plumeria rubra*	M	GV	F	MGVF - 9	D	3	2	2	2	2	70	250@300	5/R	1	NO	NO	G	2
					2			N	S	E	W	80	R	ST					2
	Frangipani	Comments:																	
4	*Plumeria rubra*	Y/M	GV	F	Y/MGVF - 8.5	C	2	1.25	1.25	1.25	1.25	60	140@300	5/R	1	NO	NO	G	3
					2			N	S	E	W	80	R	ST					3
	Frangipani	Comments:																	
5	*Plumeria rubra*	Y/M	GV	F	Y/MGVF - 8.5	C	2	1.25	1.25	1.25	1.25	60	150@300	5/R	1	NO	NO	G	3
					2			N	S	E	W	80	R	ST					3
	Frangipani	Comments:																	
6	*Plumeria rubra*	Y/M	GV	F	Y/MGVF - 8.5	C	2	1.25	1.25	1.25	1.25	60	150@300	5/R	1	NO	NO	G	3
					2			N	S	E	W	80	R	ST					3
	Frangipani	Comments:																	
7	*DEAD*	Comments: Appears dead from street, tenant would not grant access.																	

Observations

5.2 The site has a stand of mature and semi-mature, planted, exotic deciduous taxa within the current proposal. They are recommended for removal and replacement with super advanced specimens in 75 or 100 litre bags size stock within more appropriate positions within the development. Replacement of this specimen needs to be mindful of their spatial requirements to allow them to grow to maturity and not be impeded by the built structure.

Tree Significance

5.3 Significant Trees as established by the Rating System for Tree Significance – IACA Stars (2010), Appendix A.

Significance Scale
1 – High
2 – Medium
3 – Low

Significance Scale	1	2	3
Redgum Tree No.		1, 3	2, 4, 5, 6

Tree Retention Value

5.4 See Appendix A for Retention Value Matrix.

Retention Value
High – Priority for Retention
Medium – Consider for Retention
Low – Consider for Removal
Remove - Priority for Removal

Retention Value	High Priority for. Retention	Medium Consider for Retention	Low Consider for Removal	Remove Priority for. Removal
Redgum Tree No.		1, 3	2, 4, 5, 6	

Demolition and Tree Removal/s

5.5 Trees 1, 2, 3, 4, 5 & 6 are to be removed as they are not worthy of retention or located within the site in a position where they cannot be retained due to the proposed building footprints and associated infrastructure such as excavation of the basement where encroachment will have an adverse impact on its roots and crown for viability and stability.

- Tree 1: *Acer negundo* - Box Elder Maple; located within the rear of the property and positioned between the existing garage and fence. If this current proposed design is approved, then this specimen cannot be retained and is recommended to be replaced as part of the proposed landscape works.

- Tree 2 & 3: *Plumeria rubra* - Frangipani; located within the front of No. 34 and positioned within the proposed building footprint. If this current proposed design is approved, then these specimens cannot be retained and are recommended to be replaced as part of the proposed landscape works.

- Tree 4, 5 & 6: *Plumeria rubra* - Frangipani; located within the front of No. 32 and positioned within the proposed building footprint. If this current proposed design is approved, then these semi-mature specimens cannot be retained and are recommended to be replaced as part of the proposed landscape works.

5.6 Removal of a tree within 6 m of a tree to be retained should be undertaken only by cutting down such a tree without damaging the trees to be retained, and by grinding out its stump. Where possible the structural roots of 20 mm diameter or greater of the tree to be cut down should not be removed, to minimise soil disturbance and to reduce the impact on the roots of any tree to be retained nearby. Where structural roots are to be removed, this should be undertaken manually by the use of non-motorized hand tools after the stump has been ground out when such roots are often easier to locate from the site of the stump from which they have been severed.

Specific - Tree works – Post Construction

5.7 Trees to be removed are to be replaced with advanced specimens being mindful of the space limitations of the new use of the site. The advanced trees should be situated in areas along the boundaries of the site. The planting in these locations will provide the maximum benefit to the surrounding properties by screening views to and from the site and the plantings included in the proposed landscape plan. The replacement trees will be situated in positions where they may grow to maturity unhindered and will not conflict with built structures or utility services and in greater numbers than the trees removed should provide a net increase in the local amenity.

6.0 CONCLUSION & RECOMMENDATIONS

6.1 The trees to be removed are to be undertaken in accordance with section 4.0, parts 4.1 - 4.3. As the trees are nominated for removal, replacement species in accordance with the associated Landscape documentation for the development is recommended. Where appropriate, the Landscape Plan will include planting with new trees including street tree/s.

6.2 The replacements are to be vigorous specimens with a straight trunk, gradually tapering and continuous, crown excurrent, symmetrical, with roots established but not pot bound in a volume container or approved similar and be maintained by an appropriately qualified and experienced landscape contractor.

It is often a consequence of redevelopment, and subject to the nature of the proposed land use that some or all of the trees present on the site prior to that redevelopment may be required to be removed and replaced with new tree plantings in different locations. This may be dependent upon the type of development and its design constraints and the requirements of the local planning instruments and any Landscape Design Codes if existing. Where tree removal is required for this development, it is considered that those trees identified within this report are not sustainable within the context of the proposed development. The retention of some or all of the existing trees contributes to: the preservation of local amenity, screening of views to and from the site, and a balance to the scale and bulk of buildings, while maintaining elements of a continuous landscape, providing a more harmonious integration and transition of the use of the land.

If all the recommendations and procedures detailed herein are adhered to, some or all of the trees the subject of this report will continue, or will be replaced with more appropriate plantings in suitable locations, or enhanced by additional new plantings, and will grow to develop as important landscape components providing elements of long term amenity for the property and its owners or occupants, and the local community.

The recommendations made in this report are subject to approval by the consent authority.

As a renewable and dynamic natural resource, the urban tree and the growing environment essential for its survival must be understood and carefully managed to balance its needs with those of people. It is crucial that as required: this resource be planned for, planted, nurtured, protected, maintained and replaced, to ensure appropriateness and suitability of new plantings and trees retained, for safety and viability, so that it remains vital, and is sustainable in continuity.

Craig Martin
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Post Grad Cert Wildlife Habitat Management 2006,
Diploma of Horticulture – Arboriculture; (AQF5) 2001,
Horticulture Certificate; 1988

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Appendix A

IACA Significance of a Tree, Assessment Rating System (STARS) © (IACA 2010) ©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined.

Tree Significance - Assessment Criteria

1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered Ecological Community or listed on Councils Significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

Environmental Pest / Noxious Weed Species

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

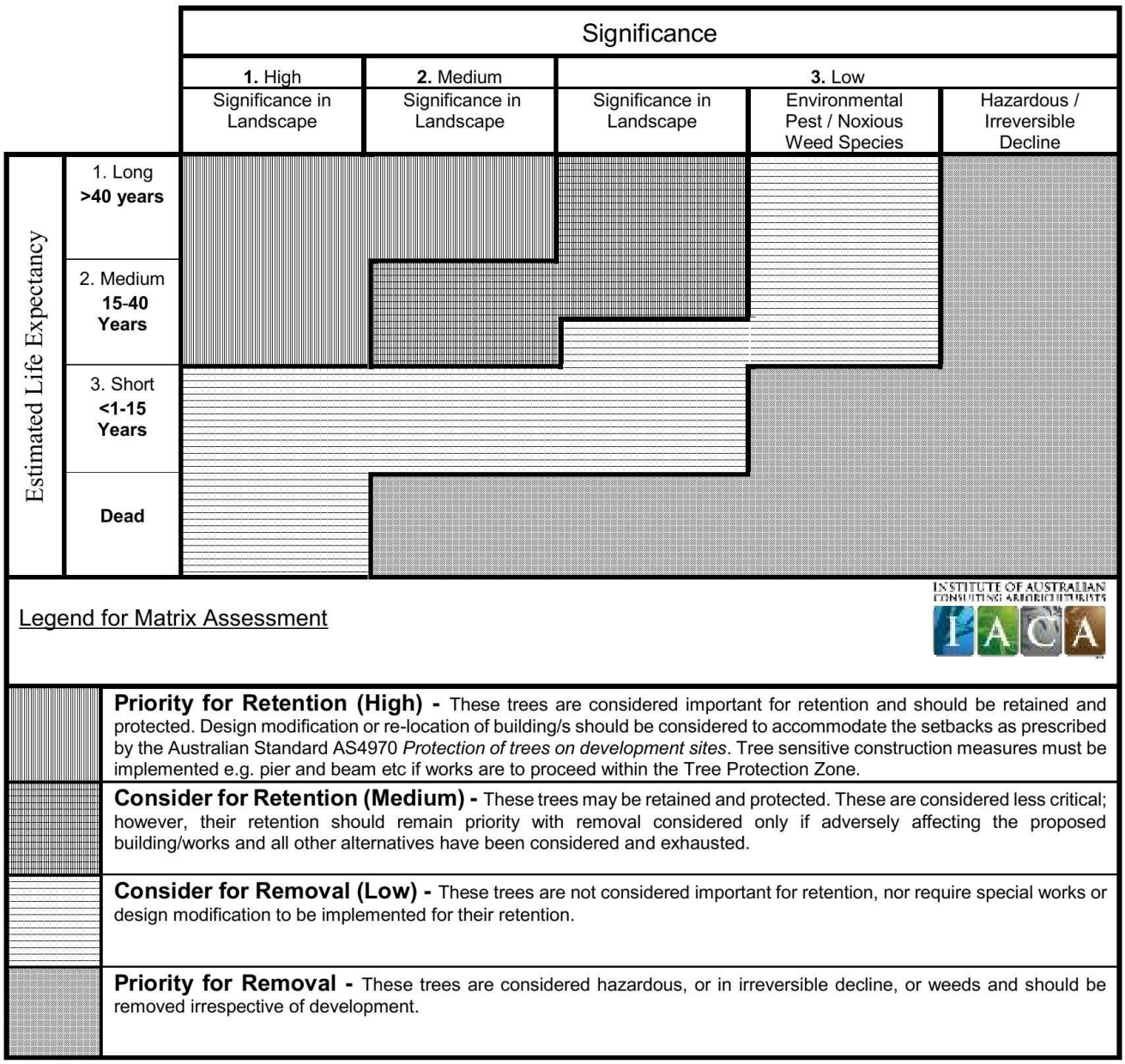
Hazardous/Irreversible Decline

- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

Table 1.0 Tree Retention Value - Priority Matrix.



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Footprint Green Pty Ltd 2001, *Footprint Green Tree Significance & Retention Value Matrix*, Avalon, NSW Australia, www.footprintgreen.com.au

Appendix B

Matrix - Sustainable Retention Index Value (S.R.I.V.) ©

Version 4, 2010

Developed by IACA – Institute of Australian Consulting Arboriculturists www.iaca.org.au

The matrix is to be used with the value classes defined in the Glossary for Age / Vigour / Condition.
An index value is given to each category where ten (10) is the highest value.

Age Class	Vigour Class and Condition Class					
	Good Vigour & Good Condition (GVG)	Good Vigour & Fair Condition (GVF)	Good Vigour & Poor Condition (GVP)	Low Vigour & Good Condition (LVG)	Low Vigour & Fair Condition (LVF)	Low Vigour & Poor Condition (LVP)
	Able to be retained if sufficient space available above and below ground for future growth. No remedial work or improvement to growing environment required. May be subject to high vigour. Retention potential - Medium – Long Term.	Able to be retained if sufficient space available above and below ground for future growth. Remedial work may be required or improvement to growing environment may assist. Retention potential - Medium Term. Potential for longer with remediation or favourable environmental conditions.	Able to be retained if sufficient space available above and below ground for future growth. Remedial work unlikely to assist condition, improvement to growing environment may assist. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	May be able to be retained if sufficient space available above and below ground for future growth. No remedial work required, but improvement to growing environment may assist vigour. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	May be able to be retained if sufficient space available above and below ground for future growth. Remedial work or improvement to growing environment may assist condition and vigour. Retention potential - Short Term. Potential for longer with remediation or favourable environmental conditions.	Unlikely to be able to be retained if sufficient space available above and below ground for future growth. Remedial work or improvement to growing environment unlikely to assist condition or vigour. Retention potential - Likely to be removed immediately or retained for Short Term. Potential for longer with remediation or favourable environmental conditions.
(Y) Young	YGVG - 9 Index Value 9 Retention potential - Long Term. Likely to provide minimal contribution to local amenity if height <5 m. High potential for future growth and adaptability. Retain, move or replace.	YGVF - 8 Index Value 8 Retention potential - Short – Medium Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5 m. Medium-high potential for future growth and adaptability. Retain, move or replace.	YGVP - 5 Index Value 5 Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5 m. Low-medium potential for future growth and adaptability. Retain, move or replace.	YLVG - 4 Index Value 4 Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5 m. Medium potential for future growth and adaptability. Retain, move or replace.	YLVF - 3 Index Value 3 Retention potential - Short Term. Potential for longer with improved growing conditions. Likely to provide minimal contribution to local amenity if height <5m. Low-medium potential for future growth and adaptability. Retain, move or replace.	YLVP - 1 Index Value 1 Retention potential - Likely to be removed immediately or retained for Short Term. Likely to provide minimal contribution to local amenity if height <5 m. Low potential for future growth and adaptability.
(M) Mature	MGVG - 10 Index Value 10 Retention potential -Medium - Long Term.	MGVF - 9 Index Value 9 Retention potential - Medium Term. Potential for longer with improved growing conditions.	MGVP - 6 Index Value 6 Retention potential - Short Term. Potential for longer with improved growing conditions.	MLVG - 5 Index Value 5 Retention potential - Short Term. Potential for longer with improved growing conditions.	MLVF - 4 Index Value 4 Retention potential - Short Term. Potential for longer with improved growing conditions.	MLVP - 2 Index Value 2 Retention potential - Likely to be removed immediately or retained for Short Term.
(O) Over-mature	OGVG - 6 Index Value 6 Retention potential - Medium - Long Term.	OGVF - 5 Index Value 5 Retention potential - Medium Term.	OGVP - 4 Index Value 4 Retention potential - Short Term.	OLVG - 3 Index Value 3 Retention potential - Short Term. Potential for longer with improved growing conditions.	OLVF - 2 Index Value 2 Retention potential - Short Term.	OLVP - 0 Index Value 0 Retention potential - Likely to be removed immediately or retained for Short Term.

Appendix C

Glossary

From

Dictionary for Managing Trees in Urban Environments by Draper BD and Richards PA 2009, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.

Age of Trees

Age Most trees have a stable biomass for the major proportion of their life. The estimation of the age of a tree is based on the knowledge of the expected lifespan of the taxa in situ divided into three distinct stages of measurable biomass, when the exact age of the tree from its date of cultivation or planting is unknown and can be categorized as *Young*, *Mature* and *Over-mature* (British Standards 1991, p. 13, Harris *et al*, 2004, p. 262).

Young Tree aged less than <20% of life expectancy, *in situ*.

Mature Tree aged 20-80% of life expectancy, *in situ*.

Over-mature Tree aged greater than >80% of life expectancy, *in situ*, or *senescent* with or without reduced *vigour*, and declining gradually or rapidly but irreversibly to death.

Condition of Trees

Condition A tree's *crown form* and growth habit, as modified by its *environment* (aspect, suppression by other trees, soils), the *stability* and *viability* of the *root plate*, trunk and structural branches (first (1st) and possibly second (2nd) order branches), including structural defects such as wounds, cavities or hollows, *crooked* trunk or weak trunk/branch junctions and the effects of predation by pests and diseases. These may not be directly connected with *vigour* and it is possible for a tree to be of *normal vigour* but in *poor condition*. Condition can be categorized as *Good Condition*, *Fair Condition*, *Poor Condition* and *Dead*.

Good Condition Tree is of good habit, with *crown form* not severely restricted for space and light, physically free from the adverse effects of *predation* by pests and diseases, obvious instability or structural weaknesses, fungal, bacterial or insect infestation and is expected to continue to live in much the same condition as at the time of inspection provided conditions around it for its basic survival do not alter greatly. This may be independent from, or contributed to by vigour.

Fair Condition Tree is of good habit or *misshapen*, a form not severely restricted for space and light, has some physical indication of *decline* due to the early effects of *predation* by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or is faltering due to the modification of the *environment* essential for its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.

Poor Condition Tree is of good habit or *misshapen*, a form that may be severely restricted for space and light, exhibits symptoms of advanced and *irreversible decline* such as fungal, or bacterial infestation, major die-back in the branch and *foliage crown*, *structural deterioration* from insect damage e.g. termite infestation, or storm damage or lightning strike, ring barking from borer activity in the trunk, root damage or instability of the tree, or damage from physical wounding impacts or abrasion, or from altered local environmental conditions and has been unable to adapt to such changes and may decline further to death regardless of remedial works or other modifications to the local *environment* that would normally be sufficient to provide for its basic survival if in *good* to *fair* condition. Deterioration physically, often characterised by a gradual and continuous reduction in vigour but may be independent of a change in vigour, but characterised by a proportionate increase in susceptibility to, and *predation* by pests and diseases against which the tree cannot be sustained. Such conditions may also be evident in trees of advanced senescence due to normal phenological processes, without modifications to the growing environment or physical damage having been inflicted upon the tree. This may be independent from, or contributed to by vigour.

Senescent / Moribund Advanced state of decline, dying or nearly dead.

Dead Tree is no longer capable of performing any of the following processes or is exhibiting any of the following symptoms;
Processes
Photosynthesis via its foliage crown (as indicated by the presence of moist, green or other coloured leaves);
Osmosis (the ability of the root system to take up water);
Turgidity (the ability of the plant to sustain moisture pressure in its cells);
Epicormic shoots or *epicormic strands* in Eucalypts (the production of new shoots as a response to stress, generated from latent or adventitious buds or from a *lignotuber*);
Symptoms
Permanent leaf loss;
Permanent wilting (the loss of turgidity which is marked by desiccation of stems leaves and roots);
Abscission of the *epidermis* (bark desiccates and peels off to the beginning of the sapwood).

Removed No longer present, or tree not able to be located or having been cut down and retained on a site, or having been taken away from a site prior to site inspection.

Branch

Branch An elongated woody structure arising initially from the trunk to support leaves, flowers, fruit and the development of other branches. A branch may itself fork and continue to divide many times as successive *orders of branches* with the length and taper decreasing incrementally to the *outer extremity* of the *crown*. These may develop initially as a gradually tapering continuation of the *trunk* with minimal division as in a *young* tree or a tree of *excurrent habit*, or in a *sapling*, or may arise where the trunk terminates at or some distance from the *root crown*, dividing into *first order branches* to form and support the *foliage crown*. In an *acaulescent* tree, branches arise at or near the *root crown*. Similarly, branches may arise from a *sprout mass* from damaged *roots*, *branches* or *trunk*.

Orders of branches The marked divisions between successively smaller branches (James 2003, p. 168) commencing at the initial division where the trunk terminates on a *deliquescent* tree or from *lateral* branches on an *excurrent* tree. Successive branching is generally characterised by a gradual reduction in branch diameters at each division, and each gradation from the trunk can be categorised numerically, e.g. first order, second order, third order etc.

Crown

Canopy 1. Of multiple trees, the convergence, or merging in full or part, of the crowns of two or more trees due to their proximity, or where competition for light and space available in a forest environment is limited as each tree develops forming a continuous layer of foliage. 2. Used as a plural for crown. 3. Sometimes synonymously used for crown (USA).

Crown Of an individual tree all the parts arising above the trunk where it terminates by its division forming branches, e.g. the branches, leaves, flowers and fruit; or the total amount of foliage supported by the branches. The crown of any tree can be divided vertically into three sections and can be categorised as *lower crown*, *mid crown* and *upper crown.* For a *leaning* tree these can be divided evenly into crown sections of one-third from the *base* to *apex*. The volume of a crown can be categorised as the *inner crown*, *outer crown* and *outer extremity of crown*.

Lower crown The *proximal* or lowest section of a crown when divided vertically into one-third (⅓) increments. See also *Crown*, *Mid crown* and *Upper crown*.

Mid crown The middle section of a crown when divided vertically into one-third (⅓) increments. See also *Crown*, *Lower crown* and *Upper crown*.

Upper crown The *distal* or highest section of a crown when divided vertically into one-third (⅓) increments. See also *Crown*, *Mid crown* and *Lower crown*.

Crown Projection (CP) Area within the *dripline* or beneath the lateral extent of the *crown* (Geiger 2004, p. 2). See also *Crown spread* and *Dripline*.

Dripline A line formed around the edge of a tree by the lateral extent of the *crown*. Such a line may be evident on the ground with some trees when exposed soil is displaced by rain shed from the crown. See also *Crown Projection*.

Crown Form of Trees

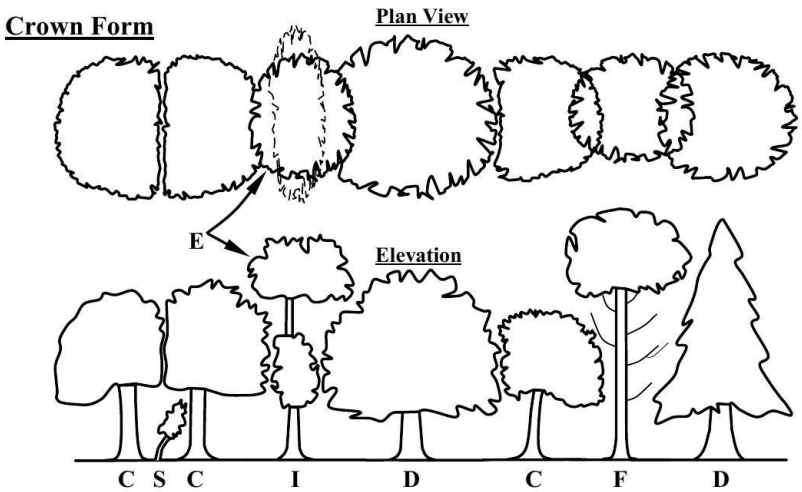
Crown Form The shape of the crown of a tree as influenced by the availability or restriction of space and light, or other contributing factors within its growing environment. Crown Form may be determined for tree shape and habit generally as *Dominant*, *Codominant*, *Intermediate*, *Emergent*, *Forest* and *Suppressed*. The habit and shape of a *crown* may also be considered qualitatively and can be categorized as *Good Form* or *Poor Form*.

Good Form Tree of *typical* crown shape and habit with proportions representative of the taxa considering constraints such as origin e.g. indigenous or exotic, but does not appear to have been adversely influenced in its development by environmental factors in situ such as *soil water* availability, prevailing wind, or cultural practices such as lopping and competition for space and light.

Poor Form Tree of *atypical* crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as *soil water* availability, prevailing wind, cultural practices such as lopping and competition for space and light; causing it to be *misshapen* or disfigured by disease or vandalism.

Crown Form Codominant Crowns of trees restricted for space and light on one or more sides and receiving light primarily from above e.g. constrained by another tree/s or a building.

Crown Form Dominant Crowns of trees generally not restricted for space and light receiving light from above and all sides.



(Source: **D**, **C**, **I** and **S**, and Elevation, Matheny and Clark 1998, **E**, **F** and Plan View,

Crown Form Emergent Crowns of trees restricted for space on most sides receiving most light from above until the *upper crown* grows to protrude above the canopy in a stand or forest environment. Such trees may be *crown form dominant* or transitional from *crown form intermediate* to *crown form forest* asserting both *apical dominance* and *axillary dominance* once free of constraints for space and light.

Crown Form Forest Crowns of trees restricted for space and light except from above forming tall trees with narrow spreading crowns with foliage restricted generally to the top of the tree. The trunk is usually erect, straight and continuous, tapering gradually, crown often excurrent, with first order branches becoming structural, supporting the live crown concentrated towards the top of the tree, and below this point other first order branches arising radially with each *inferior* and usually temporary, divergent and ranging from horizontal to ascending, often with internodes exaggerated due to competition for space and light in the *lower crown*.

Crown Form Intermediate Crowns of trees restricted for space on most sides with light primarily from above and on some sides only.

Crown Form Suppressed Crowns of trees generally not restricted for space but restricted for light by being *overtopped* by other trees and occupying an understorey position in the canopy and growing slowly.

Deadwood

Deadwood Dead branches within a tree's crown and considered quantitatively as separate to *crown cover* and can be categorised as *Small Deadwood* and *Large Deadwood* according to diameter, length and subsequent *risk* potential. The amount of dead branches on a tree can be categorized as *Low Volume Deadwood*, *Medium Volume Deadwood* and *High-Volume Deadwood*. See also *Dieback*.

Deadwooding Removing of dead branches by *pruning*. Such pruning may assist in the prevention of the spread of *decay* from *dieback* or for reasons of safety near an identifiable target.

Small Deadwood A dead branch up to 10mm diameter and usually <2 metres long, generally considered of low *risk* potential.
Large Deadwood A dead branch >10mm diameter and usually >2 metres long, generally considered of high *risk* potential.
High Volume Deadwood High Volume Deadwood Where >10 dead branches occur that may require *removal*.
Medium Volume Deadwood Where 5-10 dead branches occur that may require *removal*.
Low Volume Deadwood Where <5 dead branches occur that may require *removal*.

Dieback

Dieback The death of some areas of the *crown*. Symptoms are leaf drop, bare twigs, dead branches and tree death, respectively. This can be caused by root damage, root disease, bacterial or fungal canker, severe bark damage, intensive grazing by insects, *abrupt changes* in growth conditions, drought, water-logging or over-maturity. Dieback often implies reduced *resistance, stress* or *decline* which may be temporary. Dieback can be categorized as *Low Volume Dieback*, *Medium Volume Dieback* and *High-Volume Dieback*.

High Volume Dieback Where >50% of the *crown cover* has died.
Medium Volume Dieback Where 10-50% of the *crown cover* has died.
Low Volume Dieback Where <10% of the *crown cover* has died. See also *Dieback*, *High Volume Dieback* and *Medium Volume Dieback*.

Epicormic shoots

Epicormic Shoots Juvenile shoots produced at branches or trunk from *epicormic strands* in some Eucalypts (Burrows 2002, pp. 111-131) or sprouts produced from dormant or latent buds concealed beneath the bark in some trees. Production can be triggered by fire, pruning, wounding, or root damage but may also be as a result of *stress* or *decline*. Epicormic shoots can be categorized as *Low Volume Epicormic Shoots*, *Medium Volume Epicormic Shoots* and *High Volume Epicormic Shoots*.

High Volume Epicormic Shoots Where >50% of the *crown cover* is comprised of live *epicormic shoots*.
Medium Volume Epicormic Shoots Where 10-50% of the *crown cover* is comprised of live *epicormic shoots*.
Low Volume Epicormic Shoots Where <10% of the *crown cover* is comprised of live *epicormic shoots*.

General Terms

Cavity A usually shallow void often localized initiated by a *wound* and subsequent *decay* within the trunk, branches or roots, or beneath bark, and may be enclosed or have one or more opening.

Decay Process of degradation of wood by microorganisms (Australian Standard 2007, p. 6) and fungus.

Hazard The threat of danger to people or property from a tree or tree part resulting from changes in the physical condition, growing environment, or existing physical attributes of the tree, e.g. included bark, soil erosion, or thorns or poisonous parts, respectively.

Included bark 1. The bark on the inner side of the *branch union*, or is within a concave *crotch* that is unable to be lost from the tree and accumulates or is trapped by *acutely divergent* branches forming a *compression fork*. 2. Growth of bark at the interface of two or more branches on the inner side of a branch union or in the crotch where each branch forms a branch collar and the collars roll past one another without forming a graft where no one collar is able to subsume the other. Risk of failure is worsened in some taxa where branching is *acutely divergent* or *acutely convergent* and ascending or erect.

Hollow A large void initiated by a *wound* forming a *cavity* in the trunk, branches or roots and usually increased over time by *decay* or other contributing factors, e.g. fire, or fauna such as birds or insects e.g. ants or termites. A hollow can be categorized as an *Ascending Hollow* or a *Descending Hollow*.

Risk The random or potentially foreseeable possibility of an episode causing harm or damage.

Significant Important, weighty or more than ordinary.

Significant Tree A tree considered important, weighty or more than ordinary. Example: due to prominence of location, or *in situ*, or contribution as a component of the overall landscape for *amenity* or aesthetic qualities, or *curtilage* to structures, or importance due to uniqueness of taxa for species, subspecies, variety, *crown form*, or as an historical or cultural planting, or for age, or substantial dimensions, or habit, or as *remnant vegetation*, or habitat potential, or a rare or threatened species, or uncommon in cultivation, or of aboriginal cultural importance, or is a commemorative planting.

Substantial A tree with large dimensions or proportions in relation to its place in the landscape.

Sustainable Retention Index Value (SRIV) A visual tree assessment method to determine a qualitative and numerical rating for the viability of urban trees for development sites and management purposes, based on general tree and landscape assessment criteria using classes of *age*, *condition* and *vigour*. SRIV is for the professional manager of urban trees to consider the tree *in situ* with an assumed knowledge of the *taxon* and its growing environment. It is based on the physical attributes of the tree and its response to its environment considering its position in a matrix for age class, vigour class, condition class and its sustainable retention with regard to the safety of people or damage to property. This also factors the ability to retain the tree with remedial work or beneficial modifications to its growing environment or removal and replacement. SRIV is supplementary to the decision made by a tree management professional as to whether a tree is retained or removed (IACA - Institute of Australian Consulting Arboriculturists 2005).

Visual Tree Assessment (VTA) A visual inspection of a tree from the ground based on the principle that, when a tree exhibits apparently superfluous material in its shape, this represents repair structures to rectify *defects* or to reinforce weak areas in accordance with the *Axiom of Uniform Stress* (Mattheck & Breloer 1994, pp. 12-13, 145). Such assessments should only be undertaken by suitably competent practitioners.

Leaning Trees

Leaning A tree where the *trunk* grows or moves away from upright. A lean may occur anywhere along the *trunk* influenced by a number of contributing factors e.g. genetically predetermined characteristics, competition for space or light, prevailing winds, aspect, slope, or other factors. A *leaning* tree may maintain a *static lean* or display an increasingly *progressive lean* over time and may be hazardous and prone to *failure* and *collapse*. The degrees of leaning can be categorized as *Slightly Leaning*, *Moderately Leaning*, *Severely Leaning* and *Critically Leaning*.

Slightly Leaning A leaning tree where the trunk is growing at an angle within 0^{O}-15^{O} from upright.
Moderately Leaning A leaning tree where the trunk is growing at an angle within 15^{O}-30^{O} from upright.
Severely Leaning A leaning tree where the trunk is growing at an angle within 30^{O}-45^{O} from upright.
Critically Leaning A leaning tree where the trunk is growing at an angle greater than $>45^{O}$ from upright.
Progressively Leaning A tree where the degree of *leaning* appears to be increasing over time.
Static Leaning A leaning tree whose lean appears to have stabilized over time.

Periods of Time

Periods of Time The life span of a tree in the urban environment may often be reduced by the influences of encroachment and the dynamics of the environment and can be categorized as *Immediate*, *Short Term*, *Medium Term* and *Long Term*.

Immediate An *episode* or occurrence, likely to happen within a twenty-four (24) hour period, e.g. tree failure or collapse in full or part posing an imminent danger.
Short Term A period of time less than <1 – 15 years.
Medium Term A period of time 15 – 40 years.
Long Term A period of time greater than >40 years.

Roots

First Order Roots (FOR) Initial woody roots arising from the *root crown* at the base of the *trunk*, or as an *adventitious root mass* for structural support and *stability*. Woody roots may be buttressed and divided as a marked gradation, gradually tapering and continuous or tapering rapidly at a short distance from the root crown. Depending on soil type these roots may descend initially and not be evident at the root crown, or become buried by changes in soil levels. Trees may develop 4-11 (Perry 1982, pp. 197-221), or more first order roots which may radiate from the trunk with a relatively even distribution, or be prominent on a particular aspect, dependent upon physical characteristics e.g. leaning trunk, *asymmetrical* crown; and constraints within the growing *environment* from topography e.g. slope, soil depth, rocky outcrops, exposure to predominant wind, soil moisture, depth of *water table* etc.

Orders of Roots The marked divisions between woody roots, commencing at the initial division from the base of the trunk, at the *root crown* where successive branching is generally characterised by a gradual reduction in root diameters and each gradation from the trunk and can be categorized numerically, e.g. *first order roots*, second order roots, third order roots etc. Roots may not always be evident at the *root crown* and this may be dependent on species, age class and the growing environment. Palms at maturity may form an adventitious root mass.

Root Plate The entire root system of a tree generally occupying the top 300-600mm of soil including roots at or above ground and may extend laterally for distances exceeding twice the height of the tree (Perry 1982, pp. 197-221). Development and extent is dependent on water availability, soil type, *soil depth* and the physical characteristics of the surrounding landscape.

Root Crown Roots arising at the base of a trunk.

Zone of Rapid Taper The area in the *root plate* where the diameter of *structural roots* reduces substantially over a short distance from the *trunk*. Considered to be the minimum radial distance to provide structural support and *root plate* stability. See also *Structural Root Zone (SRZ)*.

Structural Roots Roots supporting the infrastructure of the *root plate* providing strength and *stability* to the tree. Such roots may taper rapidly at short distances from the *root crown* or become large and woody as with gymnosperms and dicotyledonous angiosperms and are usually 1st and 2nd order roots, or form an *adventitious root mass* in monocotyledonous angiosperms (palms). Such roots may be crossed and grafted and are usually contained within the area of *crown projection* or extend just beyond the *dripline*.

Symmetry

Symmetry Balance within a *crown,* or *root plate,* above or below the *axis* of the trunk of branch and foliage, and root distribution respectively and can be categorized as *Asymmetrical* and *Symmetrical*.

Asymmetrical Imbalance within a crown, where there is an uneven distribution of branches and the foliage *crown* or *root plate* around the vertical *axis* of the trunk. This may be due to *Crown Form Codominant* or *Crown Form Suppressed* as a result of natural restrictions e.g. from buildings, or from competition for space and light with other trees, or from exposure to wind, or artificially caused by pruning for clearance of roads, buildings or power lines. An example of an expression of this may be, crown asymmetrical, bias to west.

Symmetrical Balance within a crown, where there is an even distribution of branches and the *foliage crown* around the vertical *axis* of the trunk. This usually applies to trees of *Crown Form Dominant* or *Crown Form Forest*. An example of an expression of this may be crown symmetrical.

Trunk

Trunk A single stem extending from the *root crown* to support or elevate the *crown*, terminating where it divides into separate *stems* forming *first order branches*. A trunk may be evident at or near ground or be absent in *acaulescent* trees of *deliquescent* habit, or may be continuous in trees of *excurrent* habit. The trunk of any *caulescent* tree can be divided vertically into three (3) sections and can be categorized as *Lower Trunk*, *Mid Trunk* and *Upper Trunk*. For a *leaning* tree these may be divided evenly into sections of one third along the trunk.

Acaulescent A *trunkless* tree or tree growth forming a very short *trunk*. See also *Caulescent.*

Caulescent Tree grows to form a *trunk*. See also *Acaulescent.*

Lower trunk Lowest, or *proximal* section of a trunk when divided into one-third (⅓) increments along its *axis*. See also *Trunk*, *Mid trunk* and *Upper trunk*.

Mid trunk A middle section of a trunk when divided into one-third (⅓) increments along its *axis*. See also *Trunk*, *Lower trunk* and *Upper trunk*.

Upper trunk Highest, or *distal* section of a trunk when divided into one-third (⅓) increments along its *axis*. See also *Trunk*, *Lower trunk* and *Mid trunk*.

Diameter at Breast Height (DBH) Measurement of trunk width calculated at a given distance above ground from the base of the tree often measured at 1.4 m. The trunk of a tree is usually not a circle when viewed in cross section, due to the presence of *reaction wood* or *adaptive wood*, therefore an average diameter is determined with a *diameter tape* or by recording the trunk along its narrowest and widest axes, adding the two dimensions together and dividing them by 2 to record an average and allowing the orientation of the longest axis of the trunk to also be recorded. Where a tree is growing on a lean the distance along the top of the trunk is measured to 1.4m and the diameter then recorded from that point perpendicular to the edge of the trunk. Where a *leaning* trunk is *crooked* a vertical distance of 1.4m is measured from the ground. Where a tree branches from a trunk that is less than 1.4m above ground, the trunk diameter is recorded perpendicular to the length of the *trunk* from the point immediately below the base of the flange of the *branch collar* extending the furthest down the trunk, and the distance of this point above ground recorded as *trunk* length. Where a tree is located on sloping ground the DBH should be measured at half way along the side of the tree to average out the angle of slope. Where a tree is *acaulescent* or *trunkless* branching at or near ground an average diameter is determined by recording the radial extent of the trunk at or near ground and noting where the measurement was recorded e.g. at ground.

Vigour

Vigour Ability of a tree to sustain its life processes. This is independent of the *condition* of a tree but may impact upon it. Vigour can appear to alter rapidly with change of seasons (seasonality) e.g. *dormant*, deciduous or semi-deciduous trees. Vigour can be categorized as *Normal Vigour, High Vigour*, *Low Vigour* and *Dormant Tree Vigour*.

Normal Vigour Ability of a tree to maintain and sustain its life processes. This may be evident by the *typical* growth of leaves, *crown cover* and *crown density*, branches, roots and trunk and *resistance* to *predation*. This is independent of the *condition* of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation.

High Vigour *Accelerated growth* of a tree due to incidental or deliberate artificial changes to its growing *environment* that are seemingly beneficial, but may result in *premature aging* or failure if the favourable conditions cease, or promote *prolonged senescence* if the favourable conditions remain, e.g. water from a leaking pipe; water and nutrients from a leaking or disrupted sewer pipe; nutrients from animal waste, a tree growing next to a chicken coop, or a stock feed lot, or a regularly used stockyard; a tree subject to a stringent watering and fertilising program; or some trees may achieve an extended lifespan from continuous *pollarding* practices over the life of the tree.

Low Vigour Reduced ability of a tree to sustain its life processes. This may be evident by the *atypical* growth of leaves, reduced *crown cover* and reduced *crown density*, branches, roots and trunk, and a deterioration of their functions with reduced *resistance* to *predation*. This is independent of the *condition* of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation.

Appendix D

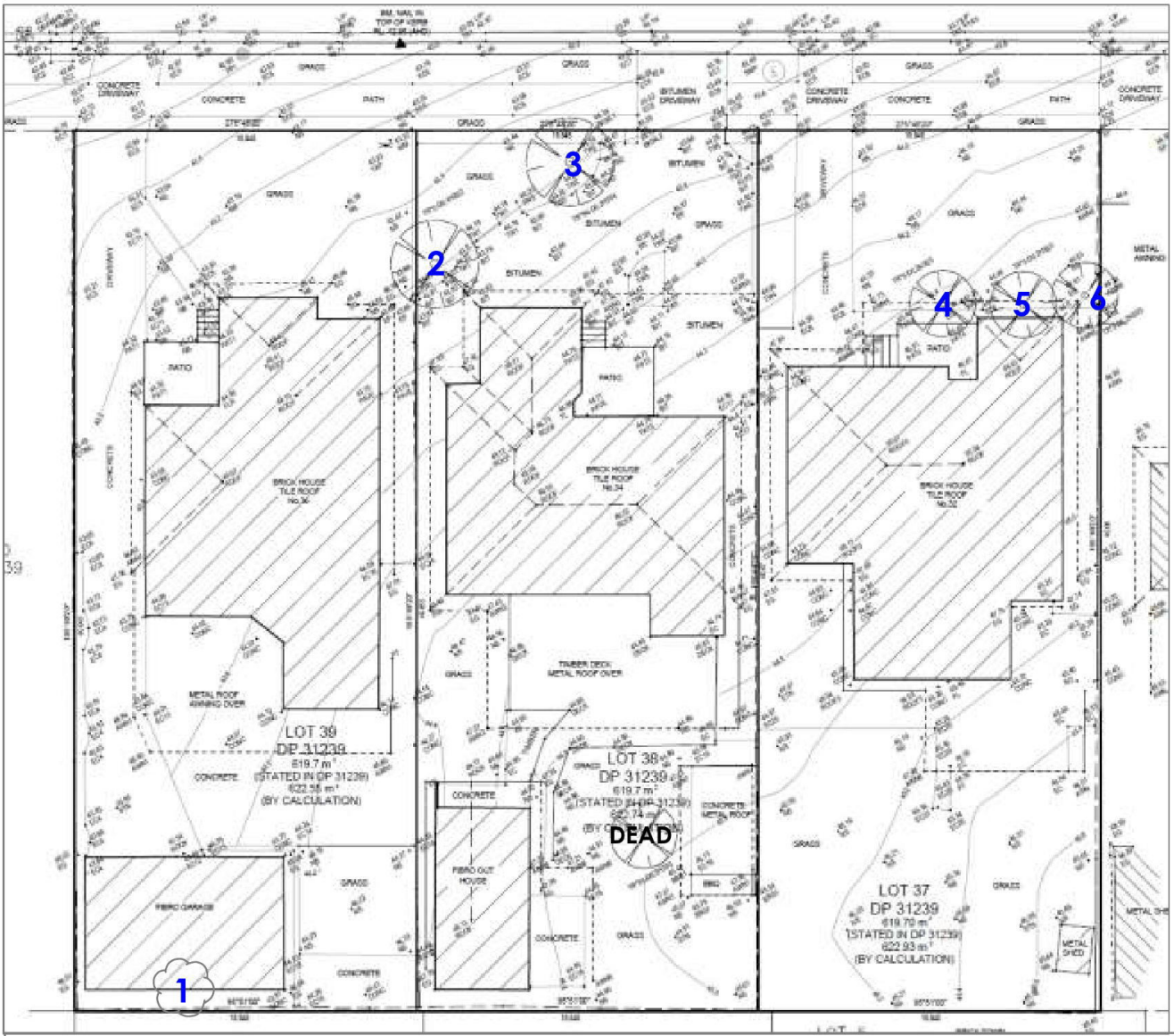
Survey of Subject Tree/s

Trees the subject of this report are marked on the plans in the following appendices and are numbered as listed below.

Redgum Tree No.	*Genus and species*	Common name	Recommendation
1	*Acer negundo*	Box Elder Maple	Remove and replace.
2	*Plumeria rubra*	Frangipani	Remove and replace.
3	*Plumeria rubra*	Frangipani	Remove and replace.
4	*Plumeria rubra*	Frangipani	Remove and replace.
5	*Plumeria rubra*	Frangipani	Remove and replace.
6	*Plumeria rubra*	Frangipani	Remove and replace.
7	*DEAD*		Remove and replace.

Appendix D - Site Plan A – Survey of Subject Trees

This report has relied upon the following plan/s and documents which have been reproduced from electronic transmission and no longer to original scale.



Legend

- Trees numbered in **blue** are recommended for removal.

Plan Details

Detail Survey of Lots 37, 38 & 39 in DP 31239, Ref: 6141-14 DET V2, Sheet 1 of 1, Date 17.11.2017, Scale 1:100 @ A2
C & A Surveyors NSW Pty Ltd, Suite 3, Level 4, 460 Church Street, North Parramatta NSW 2151. T: 02 9630 9299 E: info@candasurveyors.com.au

Access Compliance Report to accompany a

Development Application

Development Address:32-36 Hope Street, Penrith NSW
Client: Design Corp Architects Pty Ltd

vista access architects

This report is for a proposed New Building, the development being a building with classification as detailed below;

- Class 2 (building containing more than 2 SOUs i.e. sole-occupancy units)
- Class 7a (car park)

This report is based on the relevant components of;

- Building Code of Australia (BCA) 2016, Volume 1- Performance requirements of DP1, DP2, DP8, DP9, EP3.4, FP2.1 and Parts D2, D3, E3 and F2 (where applicable)
- Disability (Access to Premises-Building) Standards 2010 (henceforth referred to as APS)
- AS1428.1-2009 Part 1: General requirements for access, including any amendments
- AS1428.4.1-2009 Part 4.1: TGSIs (Tactile ground surface indicators), including any amendments
- AS2890.6-2009 Part 6: Off-street parking for people with disabilities.
- AS4299-1995 Adaptable Housing
- AS1735 Lifts types included in the BCA including Part 12: Facilities for persons with disabilities
- Australian Human Rights Commission's Guidelines on application of APS, Version 2
- State Environmental Planning Policy 65 (SEPP 65), Objective 4Q1, relating to requirements of the provision of Livable Housing Australia's Silver Level Apartments
- Livable Housing Australia's Livable Housing Design Guidelines- Fourth Edition

The assessment of the proposed development has been undertaken to the extent necessary to issue DA (Development application) consent under the Environmental Planning and Assessment Act. The proposal achieves the spatial requirements to provide access for people with a disability and it is assumed that assessment of the detailed requirements such as assessment of internal fit-out, details of stairs, ramps and other features will occur at CC (Construction Certificate) stage.

By compliance with the recommendation in this report, the development complies with the requirements of Access Code of Disability (Access to Premises-Building) Standards 2010, the Disability Access relevant sections of Building Code of Australia 2016, the requirements of SEPP 65 related to Objective 4Q1 - Livable Housing, and the essential criteria of AS4299-Adaptable Housing.

ASSESSED BY

Vanessa Griffin
Access Consultant and LHA Assessor
ACAA Associate Membership number 500
LHA Assessor Licence number 20035

PEER REVIEWED BY

Farah Madon
Accredited Access Consultant and LHA Assessor
ACAA Accredited Membership number 281
LHA Assessor Licence number 10032

Vista Access Architects Pty. Ltd.

General overview of Project:

This development proposes a New Building with a total of 43 residential units.
The project is within Penrith Council LGA that requires the provision of 10% Adaptable units and therefore the development proposes 5 Adaptable units. The project also provides for 9 LHA Silver Level units to comply with the 20% Livable unit requirement of SEPP 65.
This report is based on discussions with the project architects and a review of drawings and other relevant documentation provided to us. No site visit was undertaken for the purposes of this project.

Relevant dates:

Fee proposal, number FP-7308 dated 17-10-2017. Fee proposal was accepted by Client on 08-11-2017.

Assessed Drawings:

The following drawings by Design Corp Architects have been assessed for compliance.

Drawing no	Date	Issue	Details
D4	14-11-2017	D	Basement 1 floor plan
D5	14-11-2017	D	Basement 2 floor plan
D6	14-11-2017	D	Ground floor plan
D7	14-11-2017	D	Level 1 plan
D8	14-11-2017	D	Level 2 plan
D9	14-11-2017	D	Level 3 plan
D10	14-11-2017	D	Level 4 plan
D11	14-11-2017	D	Level 5 plan
D12	14-11-2017	D	Roof Top plan
D21	14-11-2017	D	Adaptable unit plan

Document Issue:

Issue	Date	Details
Draft	13-11-2017	Issued for Architect's review
Draft 2	11-12-2017	Issued for Architect's review
A	11-12-2017	Issued fro DA

Limitations and Copyright information:

This assessment is based on the provided drawings and not based on constructed works, hence the assessment will provide assurance of compliance only if all the recommendations as listed in this report are complied with and constructed in accordance with the requirements of the current BCA, AS1428.1-2009 and other latest, relevant standards and regulations applicable at the time of construction. Assessment is based on classification/use of the building. If the Class of the building changes to any other building Class, this access report will have to be updated accordingly.

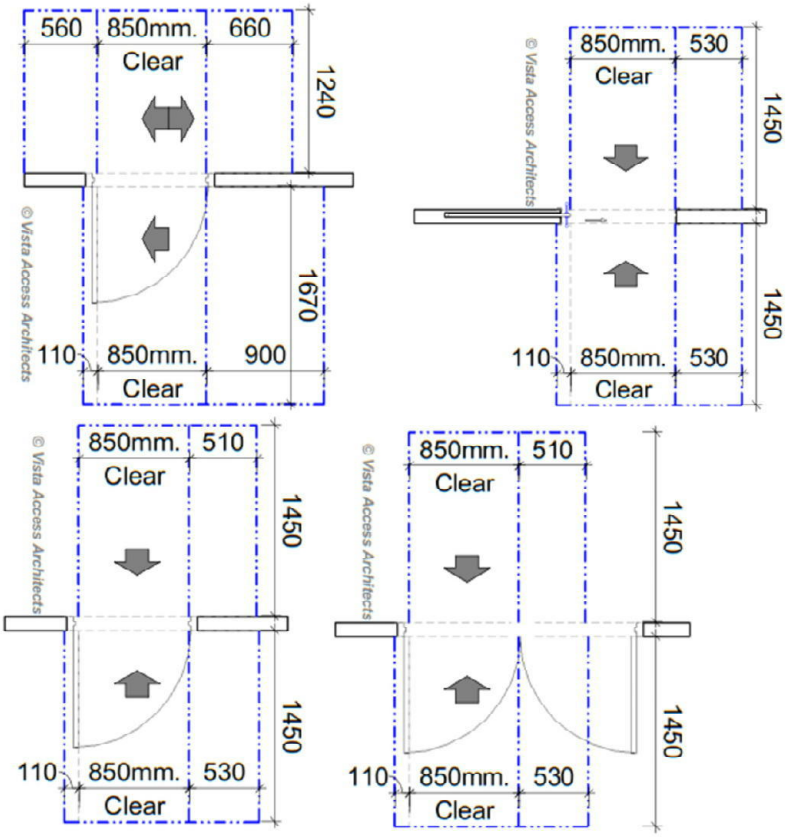
Unless stated otherwise, all dimensions mentioned in the report are net (CLEAR) dimensions and are not be reduced by projecting skirting, kerbs, handrails, lights, fire safety equipment, door handles less than 900mm above FFL (finished floor level) or any other fixtures/fit out elements. When we check drawings we assume that the dimensions noted are CLEAR dimensions. *Only some numerical requirements from relevant AS (Australian Standards) have been noted in the report and for further details and for construction purposes refer to the latest relevant AS.*

This report is does not assess compliance matters related to WHS, Structural design, Services design, Parts of DDA other than those related to APS or Parts of BCA or Parts of AS other than those directly referenced in this report. VAA gives no warranty or guarantee that this report is correct or complete and will not be liable for any loss arising from the use of this report. We will use our best judgement in regards to the LHA assessments. However, we are not to be held responsible if another licenced LHA assessor comes to a different conclusion about compliance, certification or allocation of a particular Quality mark to us as a number of items are subject to interpretation.

We have no ability to check for slip resistance of surfaces. All wet areas, parking areas, pavement markings shall have the appropriate slip resistance for the location. We also have no ability to check for wall reinforcements once the walls have already been constructed. The builder is to take full responsibility that the requirements listed in this report are met and the construction to be as per requirements of AS1428.1/ AS4299 / AS2890.6/ AS3661/ AS4586

A report issued for DA (development application) is not suitable for use for CC (construction certificate) application.

	BCA Part D3 Access for People with a Disability
	BCA D3.1 General building Access requirements SOU refers to a Sole Occupancy Unit
Requirement	**Class 2** For residential use components, access is required: - From a required accessible pedestrian entrance to at least 1 floor with SOUs and till the entry of doors of each SOU on that level. - To and within 1 of each type of room or space in common use. - Where floor is accessed by an AS1428.1 ramp or lift, all SOUs on that level till their entry doors and to and within all common use areas on that level.
Compliance Comments	Complies - Access has been provided from the main pedestrian entry doorway to the entry doors of all SOUs on all levels by means of accessible pathways and lifts. - Access has been provided to at least 1 of each common use spaces such as communal garden on Roof top level. - Where common use areas are on a floor that is accessible by means of a ramp or lift (Roof Top in this case), access has been provided to the same. - Access has been provided to common use garbage storage rooms on each floor level and a separate bin area has been provided to the ground floor plan. Details to be verified at CC stage of works.
Requirement	**Class 7a**- Covered car park. - To and within any level containing accessible carparking spaces.
Compliance Comments	Complies. Access has been provided to all levels containing Accessible carparking spaces.
	BCA Part D3.2 Access to buildings
Requirement	**Accessway is required from;** - Main pedestrian entry at the site boundary for new buildings. - Main pedestrian entry door for existing buildings (as per APS). - Any other accessible building connected by a pedestrian link. - Accessible car parking spaces.
Compliance Comments	Complies. - Level Access has been provided from the main pedestrian entry at the site boundary. - Access has been provided from accessible car parking spaces by means of a lift. Details to be verified at CC stage of works.
Requirement	**External Walkway / Pedestrian Access-** to be as per requirements of AS1428-2009.
Compliance Comments	Capable of compliance. Details to be verified at CC stage of works.
Requirement	**Accessway** is required through: - Main entry; and - Not less than 50% of all pedestrian entrances; and - In building with floor area over 500m², non-accessible entry and accessible entry to be not more than 50M apart.
Compliance Comments	Complies The building has only 1 pedestrian entry, which has been designed to be accessible. Details to be verified at CC stage of works.
Requirement	Where accessible pedestrian entry has **Multiple doorways:** - At least 1 to be accessible if 3 provided - At least 50% to be accessible, if more than 3 provided - Where doorway has multiple leaves, at least 1 leaf is to have clear opening of 850mm (excluding automatic doors)
Compliance	Capable of compliance.

Comments	In common use areas, all single hinged doors and in case of multiple leaf doorways, at least 1 operable leaf is required to provide a clear opening of 850mm with the door circulations spaces as per AS1428.1-2009. This is achievable and the door selections are to be verified at CC stage of works. 
	BCA Part D3.3 Parts of buildings required to be accessible
Requirement	Every **Ramp** with grades steeper than 1:20 and less than or equal to 1:14 (excluding fire-isolated ramp) is to be compliant with : - AS1428.1-2009 (including but not limited to - maximum grade of 1:14 with appropriate landings at a maximum of 9M of a flight of ramp). - Handrails and kerbs to be provided on both sides with appropriate handrails extensions. - 1M clear width to be provided between handrails / kerb / kerbrails. - Slip resistance of ramp and landings to comply with BCA Table D2.14
Compliance Comments	N/A No 1:14 ramps have been identified in the development.
Requirement	**Step ramp** if provided is to be compliant with: - AS1428.1-2009 including max grade of 1:10, max height of 190mm, max length of 1.9M - Slip resistance of ramp and landings to comply with BCA Table D2.14.
Compliance Comments	Capable of compliance. Step ramps have been provided to the roof top level. The details of the ramp will be assessed with the requirements of AS1428.1-2009 at the CC stage of works.
Requirement	**Kerb ramp** if provided is to be compliant with: - AS1428.1-2009 including max grade of 1:8, max height of 190mm, max length of 1.52M - Slip resistance of ramp and landings to comply with BCA Table D2.14.
Compliance Comments	N/A No kerb ramps have been identified in the development.
Requirement	Every **Stairway** (excluding fire-isolated stairway) is to be compliant with: - AS1428.1-2009 (including but not limited to opaque risers, handrails on both sides including appropriate handrail extensions between 1M clear width and compliant nosing strips) - Slip resistance to comply with BCA Table D2.14 when tested in accordance with AS4586.

Compliance Comments	Capable of compliance. Where non-fire-isolated stairways have been provided, the features of the stairway will be assessed with the requirements of AS1428.1-2009 at the CC stage of works. **Note:** In some cases the stairway from the basement to the ground floor level is considered to be non-fire-isolated, in which case full compliance will be required as per AS1428.1-2009. Verify with the BCA consultant. **Note:** For stairways with 180˚ turns at landings, in order for the handrails to comply, the risers have to be offset at the mid-landings so that no vertical sections are created in the handrails. This applies to both non- fire-isolated and fire-isolated stairways.
Requirement	**Handrail cross-section** – for stairways and ramps to comply with AS1428.1-2009. - Diameter of handrails to be between 30mm-50mm and located not less than 50mm from adjacent walls with no obstructions to top 270˚ arc.
Compliance Comments	Capable of compliance. Details to be verified at CC stage of works.
Requirement	Every **Fire-isolated Stairway** is to be compliant with AS1428.1-2009 in the following aspects: - Handrail on one side (requirement under D2.17) with 1M clear space. Handrail extensions are not required. There are to be no vertical handrail sections at landings. - Nosing strips 50mm-75mm wide with minimum of 30% luminance contrast and - Slip resistance to comply with BCA Table D2.14.
Compliance Comments	Capable of compliance. For stairways with 180˚ turns at landings, in order for the handrails to comply, the risers have to be offset at the mid-landings or handrail extensions to be shown so that no vertical sections are created in the handrails. This applies to both non- fire-isolated and fire-isolated stairways. Detailed features of the fire-isolated stairways will be assessed with the requirements of AS1428.1 at the CC stage of works.
Requirement	**Slip resistance requirements as per BCA** BCA Table D2.14 has the following Slip –resistance requirements when tested in accordance with AS4586 :

Application	**Surface conditions**	
	Dry	**Wet**
Ramp steeper than 1:14	P4 or R11	P5 or R12
Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11
Tread or landing surface	P3 or R10	P4 or R11
Nosing or landing edge strip	P3	P4

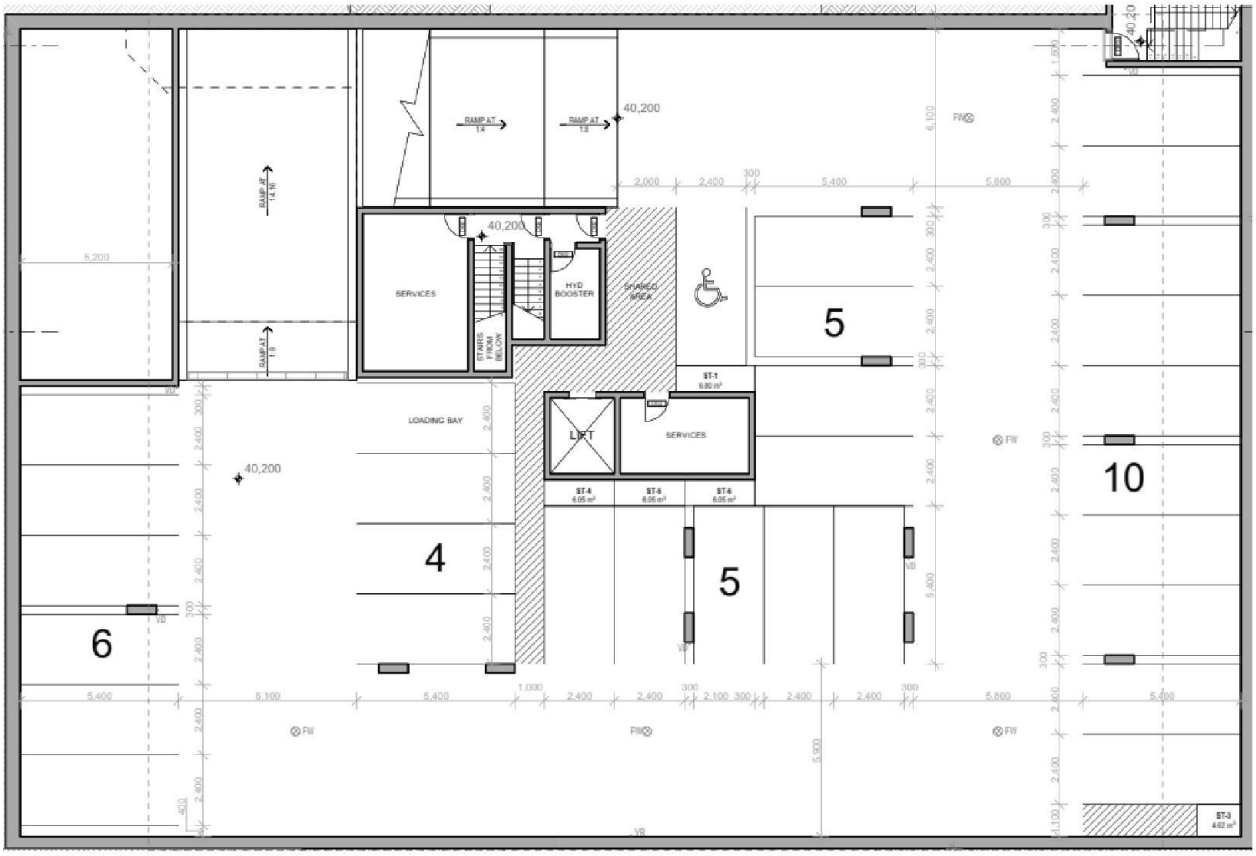
Slip resistance requirements as per AS4299
AS4299 has slip resistance requirements based on requirements of AS3661 (Slip resistance of pedestrian surfaces) for the following areas:
- Floor surfaces in sanitary facilities including all toilets and bathrooms (essential feature).
- Floor surfaces in the kitchens and Laundries (essential feature).
- Pathways / walkways within the site, within landscaped areas, balconies and other external paved areas (desirable feature for Class A or B developments).
- AS3661.1-1993 is an old Australian standard which has been superseded with AS4586:2013 (Slip resistance classification of new pedestrian surface materials).

HB 197 An introductory guide to the slip resistance of pedestrian surface materials provides guidelines for the selection of slip-resistant pedestrian surfaces

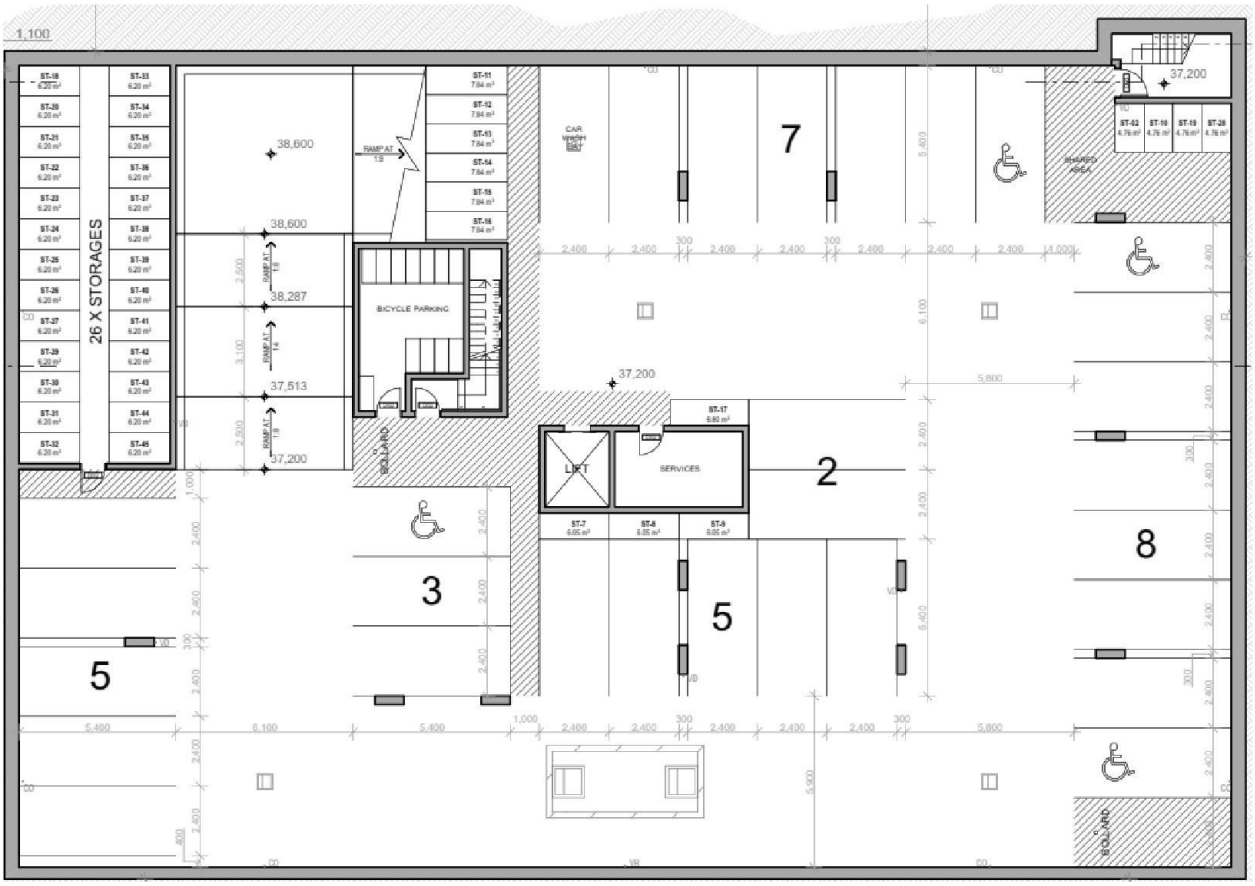
Compliance Comments	Capable of compliance. For Slip resistance of surfaces the builder is required to provide a Certificate stating that the Slip resistance of these surfaces complies with the above listed requirements when tested as per AS4586. Add the above requirements to the Project Specifications to ensure compliance.
Requirement	Every **Passenger lift** is to comply with the requirements of BCA E3.6.
Compliance Comments	This has been assessed further in the report in the Lifts section. Refer to Lifts section.

Requirement	**Passing spaces requirement** It is a requirement to provide passing spaces in accessways complying with AS1428.1 at maximum 20 M intervals, where a direct line of sight is not available. Space required is 1800x2800mm (in the direction of travel). Chamfer of 400x400mm is permitted at corners.
Compliance Comments	N/A There are no accessways over 20M lengths in the development where a direct line of sight is not available.
Requirement	**Turning spaces requirement** It is a requirement to provide turning spaces in accessways complying with AS1428.1-2009 within 2M of the end of accessways where it is not possible to continue travelling and at every 20M intervals. CLEAR Space required is 1540mmx2070mm in the direction of travel (measured from skirting to skirting).
Compliance Comments	Complies. - Adequate turning spaces have been provided with minimum common use passageway widths being 1540mm clear or alternatively a space of 1540mm x 2070mm provided at or within 2M of the end of the passageway. - A space of 1540mm x 2070mm is also required / provided in front of all passenger lift doors. Details to be verified at CC stage of works.
Requirement	**Carpet specifications** Carpet if used in areas required to be accessible are to be provided with pile height or thickness not more than 11mm and carpet backing not more than 4mm bringing the total height to a maximum of 15mm.
Compliance Comments	Capable of compliance if carpets are provided in the common use areas. Carpet selections generally take place at CC stage of works. Selection of carpets as specified above will lead to compliance. Details to be verified at CC stage of works.
	BCA Part D3.4 Exemption
Requirement	**Access is not required to be provided in the following areas :** - Where access would be inappropriate because of the use of the area - Where area would pose a health and safety risk - Any path which exclusively provides access to an exempted area
Compliance Comments	For information only. Areas such as lift machine rooms, fire services room, commercial kitchens etc. in the development are exempted from providing access under this clause due to WHS concerns. Where a care taker is provided in the development, the toilet provided exclusively for use by the caretaker can be excluded from providing access based on the provisions in this clause.
	BCA Part D3.5 Accessible Carparking
Requirement	**Class 2** There are no Accessible carparking requirements for a Class 2 under the BCA. If adaptable housing has been mandated by the Council, then carparking spaces for Adaptable units will be required under the requirements of AS4299- Adaptable housing.
Compliance Comments	Complies. Penrith Council requires provision of 10% Adaptable units in the development. Development has total number of 45 units. 10% of 43 = 5 required Adaptable units. Therefore 5 accessible compliant carparking spaces are required for the residential component of the development. 5 Accessible compliant car parking spaces have been provided in development. One accessible compliant parking space is required to be allocated to each of the Adaptable units. Detailed features of the accessible/ adaptable parking spaces are to be verified at CC stage of works.

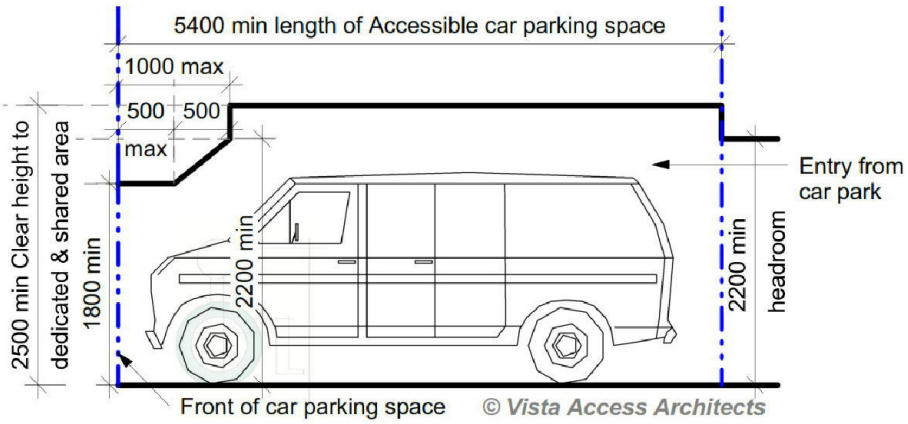
Basement 1 shown below



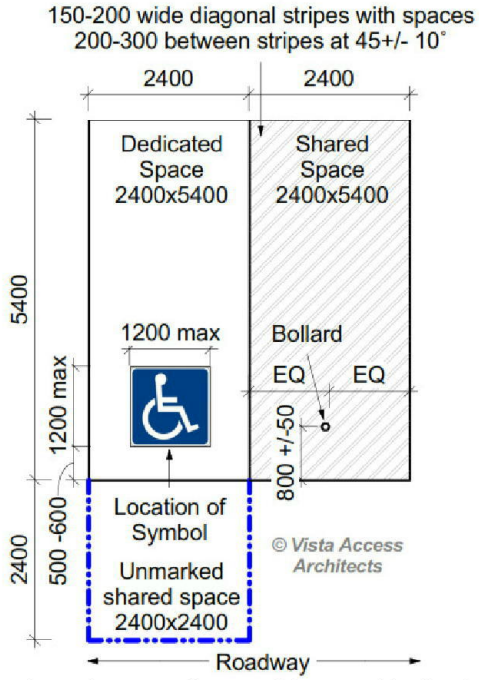
Basement 2 shown below



	AS2890.6-2009 requirements for Accessible car parking space
Requirement	- Dedicated space 2.4Mx5.4M, Shared space 2.4Mx5.4M at the same level - Slip resistant flooring surface with maximum fall 1:40 in any direction or maximum 1:33 if bituminous and outdoors. - Central Bollard in shared space at 800+/-50mm from entry point . - Pavement marking in dedicated space by means of access symbol between 800mm-1000mm high placed on a blue rectangle of maximum 1200mm and between 500mm-600mm from its entry point (marking not required where allocated to an Adaptable unit). - Minimum headroom of 2.2M at entrances and 2.5M is required over shared zones as well as dedicated spaces. - Non-trafficked area of the shared space to have marking strips at 45˚, 150-200mm wide at 200mm-300mm spaces (not required where driveways are used as shared spaces)
Compliance Comments	Capable of compliance. Add the above listed requirements to project specifications to ensure compliance. Refer to diagrams below for requirements, especially in regards to head height requirements. **Note:** The pavement marking shall have the appropriate slip resistance for the location. This requirement is to be added to the project specifications to ensure compliance.

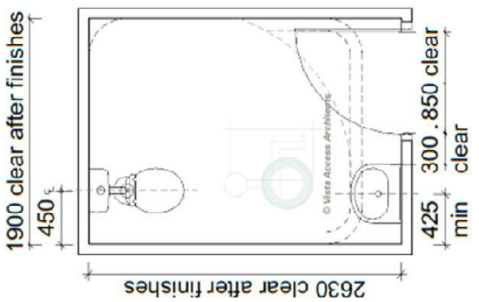


Head heights for both dedicated accessible parking space and the shared zone to be as shown above. No beams, pipes, sprinklers or any other encroachments are persmissible for the entire 5.4M width of the dedicated and shared zone as per Section shown above.



The Accessible parking, shared zones, linemarking and bollard to be as shown above.

	BCA Part D3.6 Signage
Requirement	**Braille and Tactile signage is required to identify Accessible Sanitary facilities**  International sign of access is required to signage to all accessible sanitary facilities (excluding SOUs within Class 1b or Class 3) and signage is required to identify if facility is for LH (left hand transfer) or RH (right hand transfer)
Compliance Comments	Capable of compliance. Signage selections generally take place at CC stage of works. Selection and location of signage as specified above will lead to compliance. Details of selected signage to be verified at CC stage of works.
Requirement	**Braille and Tactile signage is required to identify Ambulant Sanitary facilities**
Compliance Comments	N/A No common use, ambulant sanitary facilities have been provided in the development.
Requirement	**Braille and Tactile signage is required to identify Hearing Augmentation**
Compliance Comments	N/A Hearing augmentation is not provided since there is no inbuilt amplification system proposed in the development.
Requirement	 **Braille and Tactile signage is required to identify a Fire exit door** required by E4.5 by stating the 'Exit' and 'Level', followed by either: - The floor level number or - Floor level descriptor or - A combination of both of the above. Sign must be located on the side that faces a person seeking egress The "?" shown in image above is to be replaced with the floor level where the door is located. Image of the running person is optional.
Compliance Comments	Capable of compliance. All doors nominated as Exit doors require signage as described above. Signage selections generally take place at CC stage of works. Selection of signage as specified above will lead to compliance. Details of selected signage to be verified at CC stage of works.
Requirement	**Signage is required to a non-accessible pedestrian entrance**
Compliance Comments	N/A The development has only 1 entry which has been designed to be accessible.
Requirement	**Signage is required where a bank of sanitary facilities is not provided with an accessible unisex sanitary facility.**
Compliance Comments	N/A
Requirement	**All signage is required to be as per Specification D3.6 Braille and Tactile Signs** This includes location of signage, specifications in regards to braille and tactile characters, luminance contrast and lighting.
Compliance Comments	Capable of compliance. Signage selections generally take place at CC stage of works. Selection of signage as specified above will lead to compliance. Details of selected signage to be verified at CC stage of works.

	BCA Part D3.8 Tactile indicators (TGSIs)
Requirement	**TGSIs are required when approaching:** - Stairways other than fire-isolated stairways. - Escalators / passenger conveyor / moving walk. - Ramp (other than fire-isolated ramps / kerb or step or swimming pool ramps). - Under an overhead obstruction of <2M if no barrier is provided. - When accessway meets a vehicular way adjacent to a pedestrian entry (if no kerb / kerb ramp provided at the location). Compliance is required with AS1428.4.1 including Luminance contrast and slip resistance requirements for all TGSIs.
Compliance Comments	N/A No areas requiring TGSIs have been identified in the development.
	BCA Part D3.11 Limitations on Ramps
Requirement	**On an accessway:** - A series of connected ramps must not have a combined vertical rise of more than 3.6M; - And a landing for a step ramp must not overlap a landing for another step ramp or ramp.
Compliance Comments	Complies. Details to be verified at CC stage of works.
	BCA Part D3.12 Glazing on Accessways
Requirement	**Glazing requirements**: Where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening are required to have a glazing strip as per requirements of AS1428.1
Compliance Comments	Capable of compliance Glazing strips are required to be provided to full length glazed areas (doors and windows) used in common use areas such as lift lobbies and common passageways. Glazing strip selections generally take place at CC stage of works. Selection of glazing strips as specified above will lead to compliance and these selection details are to be verified at CC stage of works.
	BCA Part F Accessible Sanitary Facilities BCA F2.4 Accessible sanitary facilities
Requirement	**Accessible unisex toilet** is to be provided in accessible part of building such that; - It can be entered without crossing an area reserved for 1 sex only - Where male and female sanitary facilities are provided at different locations, Accessible unisex toilet is only required at one of the locations - Even distribution of LH and RH facilities - An accessible facility is not required on a level with no lift / ramp access.
Compliance Comments	Complies. 1 unisex accessible toilet has been provided in the development. 
Requirement	**Accessible unisex toilet are to be designed in accordance with AS1428.1-2009**
Compliance Comments	Complies. Detailed features of the Accessible unisex toilet will be assessed with the requirements of AS1428.1-2009 at the CC stage of works

Requirement	**Ambulant use male / female toilets** are to be provided if an additional toilet to the Accessible unisex toilet is provided
Compliance Comments	N/A. No common use ambulant use facilities have been provided in the development.
	BCA F2.4(a) Accessible unisex sanitary compartments
Requirement	**Class 2** - At least 1 unisex Accessible toilet when sanitary compartments are provided in common areas.
Compliance Comments	Complies. 1 unisex accessible RH transfer unisex accessible toilet has been provided in the common use areas.
	BCA F2.4(b) Requirements for Accessible unisex showers
Requirement	**Class 2** - At least 1 unisex Accessible shower when showers are provided in common areas.
Compliance Comments	N/A No common use shower facilities have been identified in the development.
	BCA Part E Lift Installations
	BCA E3.2 Stretcher facility in lifts
Requirement	A **Stretcher lift** is to be provided if a passenger lift is installed to serve any storey with an effective height of 12M. The space requirement is 600mm wide x 2000mm deep x 1400mm high above the floor level. Confirm this requirement with your BCA consultant.
Compliance Comments	Capable of compliance (if required due to the height of the building) Details to be verified at CC stage of works. Add the above listed requirements to project specifications to ensure compliance.
	BCA E3.6 Passenger lift
Requirement	In an accessible building, **Every Passenger Lift** (excluding electric passenger lift, electrohydraulic passenger lift, inclined lift) must be subject to limitations on use and must comply with **Tables E3.6a and E3.6b**
Compliance Comments	Capable of compliance. **Provide a certificate of compliance from the lift supplier**, stating that the proposed lift complies with the requirements of BCA Part E3- Lift installations. Add the above listed requirements to project specifications to ensure compliance.
Requirement	Limitations on use of Stairway platform lifts, Low-rise platform lift, Low-rise, low-speed constant pressure lift and small sized, low-speed automatic lift
Compliance Comments	N/A Not identified in the development.
Requirement	**Handrail requirements for passenger lifts.** Apart from stairway platform lift and low-rise lifts, a handrail is required as per AS1735.12.
Compliance Comments	Capable of compliance. Details to be verified at CC stage of works.
Requirement	**Lift floor dimensions** (excluding stairway platform lift) - Lifts traveling **12M** or under, floor size, **1100mm wide x 1400mm deep** - Lifts travelling more than 12M, floor size 1400mm wide x 1600mm deep
Compliance Comments	Capable of compliance Details to be verified at CC stage of works. Additional lift car size may apply if stretcher lift is required under the BCA.

Requirement	Minimum **Door opening size** complying with AS1735.12, not less than 900mm clear (excluding stairway platform lift).
Compliance Comments	Capable of compliance Details to be verified at CC stage of works.
Requirement	All lifts with a power operated door are required to have a **Passenger protection system** complying with AS1735.12.
Compliance Comments	Capable of compliance Details to be verified at CC stage of works.
Requirement	**Lift landing doors** to be provided at upper landing (excluding stairway platform lift).
Compliance Comments	Capable of compliance Details to be verified at CC stage of works.
Requirement	**Lift car and landing control buttons** to comply with AS1735.12 (excluding stairway platform lift and low-rise platform lift).
Compliance Comments	Capable of compliance Details to be verified at CC stage of works.
Requirement	**Lighting** (for all enclosed lift cars) to be provided in accordance with AS1735.12 and AS1680. Minimum illuminance of 100 lx is required at the level of the car floor and average of 50 lx is required on the control panel surface.
Compliance Comments	Capable of compliance Details to be verified at CC stage of works.
Requirement	**To all lifts serving more than 2 levels**, audible and visual indication to be provided as per AS1735.12.
Compliance Comments	Capable of compliance. Details to be verified at CC stage of works.
Requirement	**Emergency hands free communication** (excluding stairway platform lift) – provide a button that alerts a call centre and a light that the call has been received.
Compliance Comments	Capable of compliance Details to be verified at CC stage of works.

Additional Features required as per AS1428

Refer to AS1428 for full list of requirements.

	The following accessibility requirements apply only to: - Common use areas within the residential component (including passageways leading to SOUs)
Requirement	**Accessway width requirements** - All Accessway widths are to be a minimum of 1M clear (measured from skirting to skirting) with vertical clearance of at least 2M
Compliance Comments	Complies. Details to be verified at CC stage of works.
Requirement	**Doorway requirements** - All common use doorways in the development in accordance with AS1428.1 - Door thresholds are to be level or they can incorporate a Threshold ramp as per AS1428.1 i.e. max 1:8 grade, max height of 35mm and located within 20mm of door leaf. - Distance between successive doorways in airlocks to be 1450mm which is measured when the door is in open position in case of swinging doors.
Compliance Comments	Capable of compliance. Details to be verified at CC stage of works.
Requirement	**Door hardware requirements** - Door hardware including door handles, door closers and the in-use indicators / snibs in accessible and ambulant toilets are required to comply with requirements of AS1428.1.
Compliance Comments	Capable of compliance. Door hardware selections generally take place at CC stage of works. Selection of door hardware as specified above will lead to compliance and these selection details are to be verified at CC stage of works.
Requirement	**Luminance contrast requirements for doorways.** - All doorways to have a minimum luminance contrast of 30% provided as per AS1428.1 with the minimum width of the luminance contrast to be 50mm.
Compliance Comments	Capable of compliance. Painting schedule is generally developed at the CC stage of works. The painting schedule of walls/doors and door frames are to consider the above requirements when colours are selected. Generally a light colour door with a dark colour frame will satisfy requirements. Selection details are to be verified at CC stage of works.
Requirement	**Floor or ground surfaces** - Use slip-resistant surfaces. The texture of the surface is to be traversable by people who use a wheelchair and those with an ambulant or sensory disability. - Abutment of surfaces is to have a smooth transition. Construction tolerances to be as per AS1428.1 - Grates if used in the accessible path of travel is required to comply with the requirements as per AS1428.1
Compliance Comments	Capable of compliance. Floor surface selections generally take place at CC stage of works. Selection of floor surfaces as specified above will lead to compliance and these selection details are to be verified at CC stage of works.
	Switches, Controls and Lighting requirements - All switches and controls (including controls for intercom facilities and external lift control buttons) on an accessible path of travel, Accessible SOUs and Accessible sanitary facilities to be located as per requirements of AS1428.1
Compliance Comments	Capable of compliance. Lighting fixture selections and locations generally take place at CC stage of works. Selection of lighting fixtures and locating them as specified above will lead to compliance. These selection/location details are to be verified at CC stage of works.

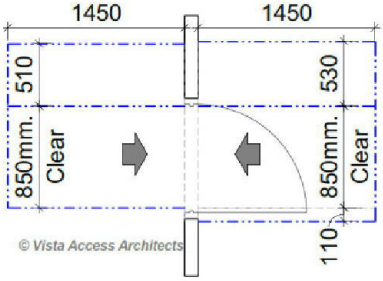
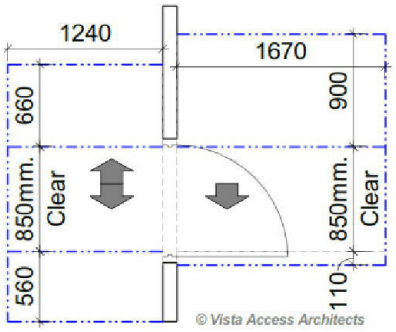
At DA stage there is insufficient information to certify compliance with the Standard, however, in accordance with the table below, the nominated units can comply with the spatial requirements of AS4299 for Adaptable Housing.

By incorporating the essential requirements listed Checklist below in the Specifications, the nominated Adaptable units can achieve full compliance with Adaptable House Class C

AS4299.1995 - Class C – Essential requirements.

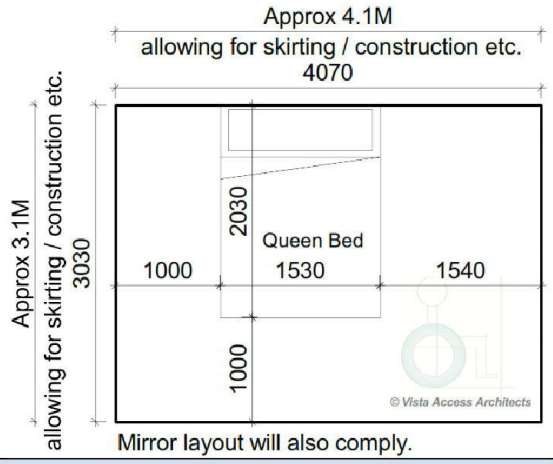
R☑= Required;

C☑ =Capable of compliance at **by adding the requirement to the project specifications** or in some cases capable of compliance at post adaptation stage (where noted in comments).

Requirements as per AS4299	R	C	Comments
Siting			
An AS1428.1 compliant, continuous accessible path of travel is required from street frontage and vehicle parking to entry doorway of the Adaptable unit.	☑	☑	Access is provided from street by means of an AS1428.1 compliant ramp / walkway and from accessible parking space by means of a lift. Details to be verified at the CC stage
Letter boxes			
Letterboxes to be on hard standing area connected to accessible pathway	☑	☑	Capable of compliance. Details to be verified at the CC stage
Parking			
Car parking space or garage of minimum 6.0Mx 3.8M or a hard surfaced level outside of 5.4Mx3.8M is to be provided as a sheltered car park or can be provided in the future	☑	☑	Capable of compliance. Space can also be provided as per AS2890.6 Details to be verified at the CC stage
Accessible Entry			
 			
Door circulation requirements of AS1428.1 with approach directions shown with arrows below. Accessible entry to be provided with, - An accessible door threshold - 1550mm diameter landing - 850mm clear opening door with clearances, door hardware operable with one hand and located 900-1100mm above floor	☑	☑	Capable of compliance. Details to be verified at the CC stage
Interior: General			
- Internal doors to have 820mm minimum clearance with provision for compliance with AS1428.1 for door approaches and minimum corridors width of 1M - Door hardware operable with one hand and located 900-1100mm above floor	☑	☑	Capable of compliance. Provide an 850mm clear opening door to the adaptable bathroom and 1 main bedroom. Rest to have 820mm clear opening. Details to be verified at the CC stage
Living room and dining room			
Circulation space of minimum 2250mm diameter.	☑	☑	Complies.
Kitchen			
It is general industry practice to accept that kitchen is something that has a very short life span and can be completely replaced when required to be adapted. As such only the following requirements apply,	☑	☑	Can be compliant post adaptation. Details to be verified at the CC stage

Potential of achieving the following at Post- Adaptation: - Minimum width 2.7M and 1550mm clear between benches - Provision for circulation at doors to comply with AS1428.1 (if doors provided) - Provision for benches, taps, cooktops, ovens as required under AS4299			

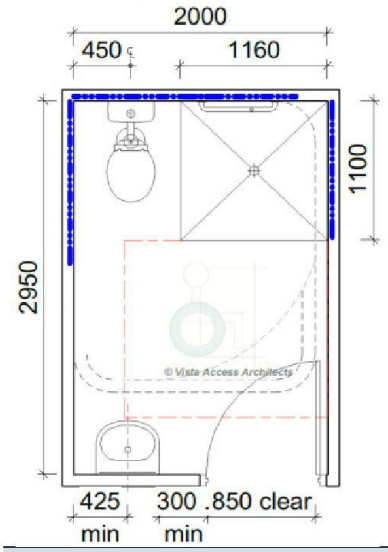
Main bedroom



Mirror layout will also comply.

At least one bedroom of area sufficient to accommodate a queen size bed and wardrobe and circulation space requirements of AS1428.2	☑	☑	Complies Details to be verified at the CC stage

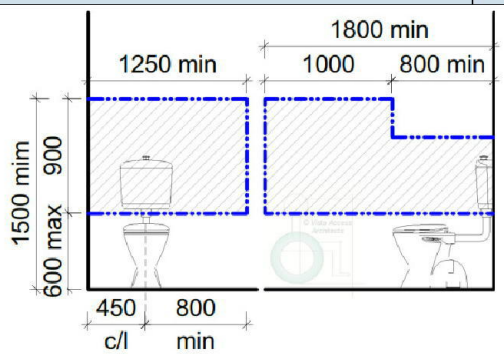
Main Adaptable bathroom

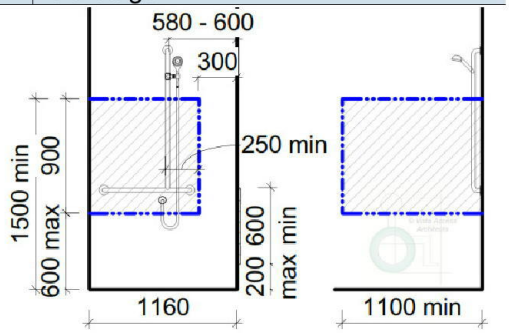


Post Adaptation bathroom layout shown above
Noted dimensions in these diagrams are approximate and depend on selected features such as size of the basin. These dimensions include allowances for reinforcements and construction tolerances.
Thick blue line indicates the location of wall reinforcements. Red dotted line indicates the shower circulation space. Black dotted line indicates the WC pan circulation space.

- Provision for bathroom area with Circulation spaces of Shower and WC (including fixtures) to comply with AS1428.1. - Note that wall reinforcements and waterproofing details to comply with AS4299	☑	☑	Complies A bathroom with minimum space of 2Mx 2.95M or 2.3Mx2.7M or 2.4Mx2.45M is achievable. Wall reinforcements to be verified at the CC stage.

Wall reinforcement requirements
Reinforcement requirements for the Adaptable unit for WC and shower (in post-adaptive position) showed hatched. Refer to AS4299 for further details.

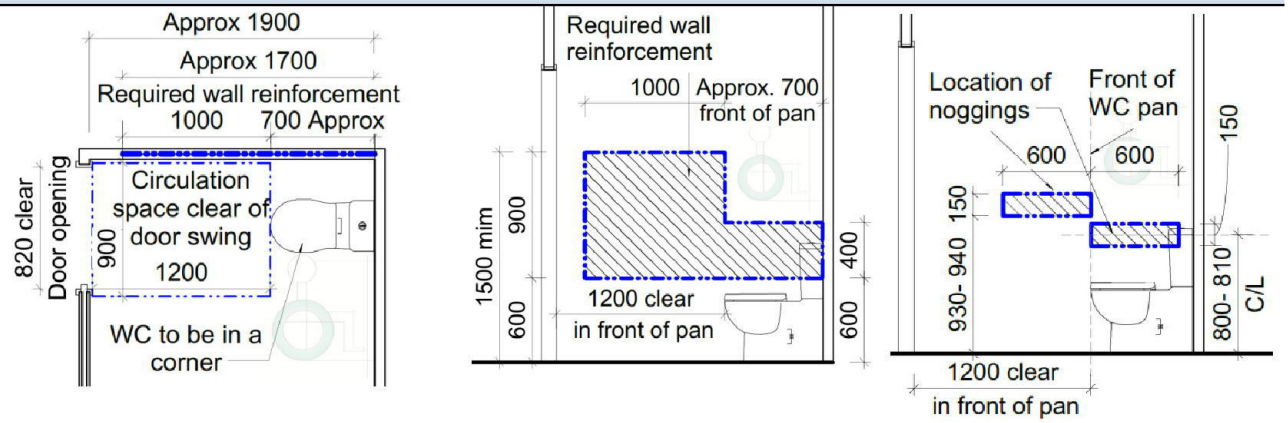


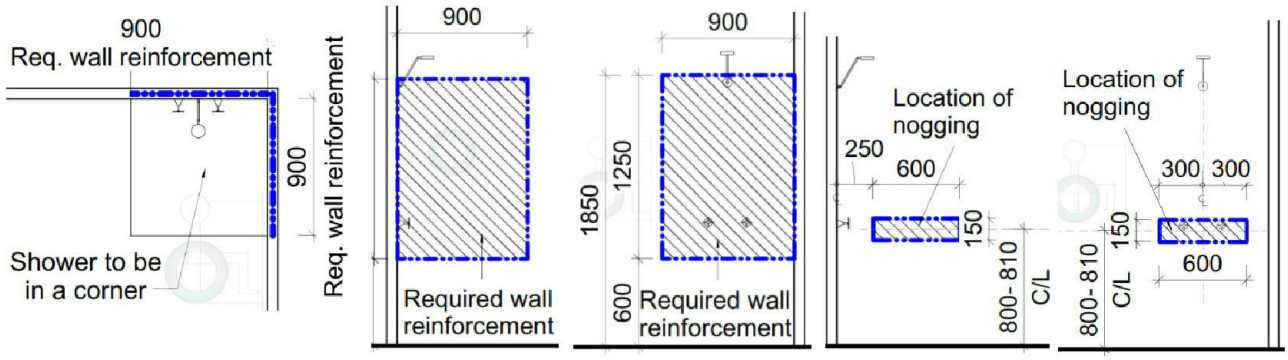


Laundry			
- Provision for adequate circulation space in front of or besides appliances (minimum 1550mm depth) - Circulation at doors to comply with AS1428.1 - Provision for automatic washing machine	☑	☑	Capable of compliance. Details to be verified at the CC stage
Other General requirements			
- All surfaces to be Slip resistant to AS3661 and AS 4586 - All GPOs and Lighting/ lux requirements as per AS4299 - All waterproofing as per AS4730	☑	☑	Capable of compliance. Details to be verified at the CC stage

Requirement	- Where the location of fixtures such as WC pans, wash basins, sinks, laundry fixtures and any other fixtures are to be relocated post-adaptation to comply with AS1428.1, then the service pipes (waste and water supply pipes) have to be laid in the correct AS1428.1 specified position at pre-adaptation itself and the services to be capped off for future use.
General recommendations (Advisory only / not mandatory)	- It is recommended that where balconies / outdoor areas have been provided to Adaptable units, provide the sliding doors such that the floor tracks are recessed, so level access can be provided to the balcony / outdoor areas from inside the unit. - Sliding doors in the living areas leading to outdoor areas are to be such that opening of the door is able to provide a clear opening space of 850mm with a latch side space of 530mm. - If the balcony is to be brought up to the same level as the unit at post-adaptation by means of decking etc. then ensure that the minimum handrail height requirements required under the BCA are complied with, considering the raised height of the balcony. - Consideration to be given to recess the slab in the wet areas so that there is no level difference once the floor finishes are applied (i.e. flush transition from carpeted area to tiles area).

2 Dwelling entry	(a) Dwelling Entry should provide an entrance door with (i) min **clear** opening width of door to be 820mm (ii) Step free threshold of max 5mm with rounded or bevelled lip (iii) reasonable shelter from the weather	Capable of compliance. Verify at CC
	(b) Level landing of 1200x1200mm at step-free entrance door on the arrival / external side of the entrance door.	Complies Verify at CC
	(c) Max permissible threshold is less than 56mm where provided with a 1:8 grade threshold ramp.	N/A
	(d) Entrance to be connected to a pathway (specified under Element 1) Note: The entrance to incorporate waterproofing and termite management requirements as specified in the NCC	Complies
3 Internal doors and corridors	(a) Doors to rooms on the entry level used for living, dining, bedroom, bathroom, kitchen, laundry and sanitary compartments to be (i) 820mm clear opening and (ii) provided with a level threshold of max 5mm between abutting surfaces with rounded or bevelled lip	Capable of compliance. Verify at CC
	(b) Internal corridors and passageways to doorway to be min 1M clear (measured from skirting to skirting)	Capable of compliance. Verify at CC
4 Toilet	(a) Toilet to be provided on the ground or entry level that provides, (i) Min 900mm between walls if located in separate room (ii) Min 1200mm clear space in forward of the WC pan exclusive of door swing. (iii) The toilet pan to be positioned in the corner of a room to enable handrails	Complies. Verify at CC
5 Shower	(a) One bathroom should feature a slip resistant, hobless 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.	Capable of compliance. Verify at CC
	For hobless specification please see Australian Standard AS3740-3.6. Reinforcement guidelines for walls in bathrooms and toilets are found in element 6	
6 Reinforcement of bathroom & toilet walls	(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.	Capable of compliance. Verify at CC
	(b), (c) and (d) the walls around toilet, bath and shower to be via: (i) Noggins with a thickness of at least 25mm (ii) Sheeting with a thickness of at least 12mm Refer to diagrams provided in the Livable Housing Guideline document.	Capable of compliance. Verify at CC





7 **Internal Stairways**	Stairways in dwellings must feature: (i) a continuous handrail on one side of the stairway where there is a rise of more than 1m.a minimum clear width of 1000mm	N/A No internal stairway in units.

Disability Discrimination Act

Advisory Only

The Federal Disability Discrimination Act 1992 (DDA) provides protection for everyone in Australia against discrimination based on disability. Section 32 of the DDA focuses on the provision of equitable and dignified access to services and facilities for people with mobility, sensory and cognitive disabilities.

Disability discrimination happens when people with a disability and their relatives, friends, carers, co-workers or associates are treated less fairly than people without a disability.

Compliance with Access to Premises Standards give certainty to building certifiers, building developers and building managers that, if access to (new parts) of buildings is provided in accordance with these Standards, the provision of that access, to the extent covered by these Standards, will not be unlawful under the DDA. This however applies only to the new building or new parts of an existing building and its affected part. All areas outside the scope of these areas are still subject to the DDA. We cannot guarantee or certify for DDA compliance because DDA compliance can only be assessed by the Courts.

Scope of DDA extends beyond the building fabric and also includes furniture and fittings.

Some recommendations to address common furniture and fittings have been listed below. Non provision of the below recommendations may not affect compliance under the BCA but may leave the building owner vulnerable to a claim under the DDA.

For new kitchens / BBQ areas in residential common use areas, it is suggested that this kitchen could be made partially accessible by providing a width of 900mm next to the sink as vacant space (without cabinetry under the bench top) and a tap within 300mm from the front of the sink next to the vacant space. The distance in between the benches to be 1550mm with the height of the kitchen bench top to be 850mm. This would allow a person in a wheelchair to independently move within the kitchen and use basic facility, being the sink independently.

Statement of Experience

Farah Madon- Director

ACAA Accredited Access Consultant, Livable Housing & Changing Places Registered Assessor

- Accredited member of Association of Consultants in Access Australia (ACAA) Membership no 281
- Architect, registered with the NSW Architects Registration Board. Registration number 6940
- Member of Australian Institute of Architects (RAIA), A+ Practice member, Membership no 49397
- Registered Assessor of Livable Housing Australia. License no 10032
- Registered Assessor of Changing Places Australia. Registration no CP006

Farah's Educational Profile and Qualifications include:

- Bachelor of Architecture Degree with Honours (B.Arch.)
- OHS Construction Induction Training Certificate
- Units PRDAC401A/403A/503A & CPP40811 from Certificate IV in Access Consulting
- Unit CPP50711 from the Diploma in Access Consulting
- Successful completion of ACAA's Access Consultant's testing process (Reaccreditation))

Farah has 18 years of experience in the field of Architecture and Access. Farah specialises in access consultancy services, including design for access, access related advise and auditing services and performance solution assessment for access related issues under the BCA by means of Expert Judgement. Farah has been invited as an expert witness for Access related matters in the Land and Environment Court.

Farah currently participates on the following key committees concerning access for people with disabilities, on an honorary basis:

- Vice President of Association of Consultants in Access Australia (ACAA)
- Convener of the ACAA's Access related Practice and Advisory Notes
- Community Representative Member of the Penrith City Council's Access Committee
- Member of Australian Institute of Architect's (RAIA) National Access Work Group (NAWG)
- Management Committee member of NSW Network of Access Consultants
- Livable Housing Australia's Industry Reference Group (IRG) Member

Vanessa Griffin- Access Consultant

ACAA Associate Access Consultant & Livable Housing Assessor

- Associate member of Association of Consultants in Access Australia (ACAA) Membership no 500
- Member of AIBS – Australian Institute of Building Surveyors
- Member of EDAP – Environmental Development and Allied Professionals

Vanessa's Educational Profile and Qualifications include:

- Diploma of Surveying 1997, Diploma of Health and Building Surveying in 1999
- OHS Construction Induction Training Certificate
- Certificate IV in Training and Assessment
- Certificate IV in Access Consulting

Jenny Desai- Access Consultant

ACAA Associate Access Consultant

- Associate member of Association of Consultants in Access Australia (ACAA) Membership no 572

Jenny's Educational Profile and Qualifications include:

- Master of Design (M.Des) from University of Technology, Sydney, NSW
- Graduate Diploma in Project Management from University of Technology, Sydney, NSW
- Bachelor of Interior Design (B.Id)
- Certificate IV in Access Consulting

Assessment Number:	00048441
Assessment Date:	23-Nov-17
Client Name:	Designcorp Architects
Client Ref Number:	-
Drawing Details:	Designcorp Architects - 2017-176, Issue C

Sustainability Assessment

Property Address: 32-36 Hope Street, PENRITH **BCA Climate Zone:** 6

Lot and Plan Number: 37-39 DP 31239 **Project Description:** Unit building (45 units)

Assessment Type: BASIX assessment

Result: Complies with Building Sustainability Index

QDC Credit: N/A

Construction Requirements

External Walls:	Brick veneer, Hebel and metal cladding	**Insulation:**	Reflective foil and R1.5 batts
Internal Walls:	Plasterboard; Hebel to party walls	**Insulation:**	R2.0 batts to party walls
Floor:	Suspended concrete	**Insulation:**	N/A
Ceiling:	Plasterboard	**Insulation:**	R2.5 batts where no unit above
Roof:	Concrete	**Insulation:**	N/A

Glazing: Majority single clear glass. Refer to individual NatHERS certificates.

Ceiling Penetrations: Sealed LED downlights and exhaust fans

Other: Refer to BASIX certificate

Assessor Name: Michael Young **Accreditation Number:** ABSA 90121

Signature: 

DISCLAIMER: The report and results above have been calculated using information made available to Accelerate Sustainability Assessments as supplied on the referenced drawings. The report and subsequent results are specific to this data and shall become null and void if any variations are made. Unless information has been noted on the drawings, or advised in writing, the results and report reflect a worst case scenario whereby default values and assumptions have been applied.

ABSA
Australian Building Sustainability Association

Class 2 Building

PROJECT CERTIFICATION

Project Certification Number	1011669015
Certification Date	23/11/2017
Assessor Name	Michael Young
Assessor Number	90121
Assessor Company	Accelerate Sustainability Assessments
Assessor Signature	

Client Details	Designcorp Architects Pty Ltd
Project Address	Lot 37-39 32-36 Hope Street Penrith NSW 2750

Software	BERSPro v4.3.0.1 (BERSPro)	**Climate Zone**	28
Averaged Simulated Energy: HEATING			**30.6 MJ/m2 pa**
Averaged Simulated Energy: COOLING			**34.4 MJ/m2 pa**
Averaged Simulated Energy: TOTAL			**65.0 MJ/m2 pa**

Averaged **NatHERS** Star Rating **7.1**

Sole-Occupancy Unit (SOU) Thermal Performance Specifications

Unit Number	Certificate Number	Floor Area		Simulated Loads (area adjusted MJ/m2/y)		NatHERS	Rated with Downlights
		Conditioned	Unconditioned	Heating	Cooling	Star Rating	
1	1011676168	99.7	4.7	36.7	38.9	6.6/10	Yes
10	1011676259	76.9	7.0	7.5	17.7	8.9/10	Yes
11	1011676267	68.7	6.1	7.7	21.7	8.8/10	Yes
12	1011676275	72.9	4.4	20.1	36.1	7.4/10	Yes
13	1011676283	78.3	2.4	24.9	23.8	7.8/10	Yes
14	1011676291	77.1	2.5	30.0	35.9	7.0/10	Yes
15	1011676309	76.1	3.7	44.0	26.6	6.8/10	Yes
16	1011676317	71.6	3.7	57.6	40.2	5.6/10	Yes
17	1011676325	75.0	2.3	26.6	39.6	6.9/10	Yes
18	1011676333	73.2	5.4	19.2	38.4	7.4/10	Yes

Project Certifiation Number	1011669015
Certification Date	23/11/2017

Sole-Occupancy Unit (SOU) Thermal Performance Specifications

Unit Number	Certificate Number	Floor Area		Simulated Loads (area adjusted MJ/m2/y)		NatHERS	Rated with Downlights
		Conditioned	Unconditioned	Heating	Cooling	Star Rating	
19	1011676341	68.7	6.1	7.6	21.1	8.8	Yes
2	1011676176	51.1	4.7	12.2	47.9	7.3	Yes
20	1011676358	68.7	6.1	8.1	21.4	8.8	Yes
21	1011676366	72.9	4.4	20.7	35.6	7.4	Yes
22	1011676374	78.3	2.4	25.6	23.2	7.8	Yes
23	1011676382	77.1	2.5	31.1	35.5	6.9	Yes
24	1011676390	76.1	3.7	44.9	25.8	6.8	Yes
25	1011676408	71.6	3.7	62.3	38.8	5.4	Yes
26	1011676416	75.0	2.3	27.1	48.5	6.6	Yes
27	1011676424	73.2	5.4	20.6	36.2	7.4	Yes
28	1011676432	76.9	7.0	8.1	17.2	8.9	Yes
29	1011676440	68.7	6.1	8.2	21.5	8.7	Yes
3	1011676184	71.0	5.1	17.5	29.1	7.9	Yes
30	1011676457	72.9	4.4	23.1	34.4	7.4	Yes
31	1011676465	78.3	2.4	26.6	22.9	7.8	Yes
32	1011676473	77.1	2.5	37.3	30.9	6.9	Yes
33	1011676481	76.1	3.7	48.7	25.0	6.7	Yes
34	1011676499	80.1	5.0	53.4	60.2	4.9	Yes
35	1011676507	48.0	5.4	24.4	60.3	6.2	Yes
36	1011676515	76.9	7.0	9.9	15.5	8.9	Yes
37	1011676523	68.7	6.1	9.8	19.5	8.8	Yes
38	1011676531	52.9	3.6	31.9	55.4	5.9	Yes
39	1011676549	53.5	2.0	36.3	17.7	7.6	Yes
4	1011676192	94.3	2.4	31.9	38.6	6.8	Yes
40	1011676101	92.7	5.0	52.8	36.8	5.9	Yes

Project Certifiation Number	1011669015
Certification Date	23/11/2017

Sole-Occupancy Unit (SOU) Thermal Performance Specifications

Unit Number	Certificate Number	Floor Area		Simulated Loads (area adjusted MJ/m2/y)		NatHERS	Rated with Downlights
		Conditioned	Unconditioned	Heating	Cooling	Star Rating	
41	1011676119	90.1	5.1	57.3	47.7	5.3	Yes
42	1011676127	95.2	3.8	33.5	52.4	6.1	Yes
43	1011676135	71.7	4.9	13.5	37.6	7.7	Yes
44	1011676143	82.6	5.2	49.9	38.7	5.9	Yes
45	1011676150	92.7	5.0	62.9	30.6	5.8	Yes
5	1011676200	78.5	4.3	45.9	43.0	5.9	Yes
6	1011676218	70.5	5.4	58.3	37.9	5.7	Yes
7	1011676226	71.6	3.7	56.6	41.0	5.6	Yes
8	1011676234	75.0	2.3	25.8	40.9	6.9	Yes
9	1011676242	73.2	5.4	18.5	39.9	7.4	Yes

BASIX® Certificate

Building Sustainability Index www.basix.nsw.gov.au

Multi Dwelling

Certificate number: 881520M

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 06/10/2017 published by the Department. This document is available at www.basix.nsw.gov.au

Secretary
Date of issue: Friday, 24 November 2017
To be valid, this certificate must be lodged within 3 months of the date of issue.

NSW GOVERNMENT Planning & Environment

Project summary	
Project name	00048441
Street address	32-36 Hope Street Penrith 2750
Local Government Area	Penrith City Council
Plan type and plan number	deposited 31239
Lot no.	37-39
Section no.	-
No. of residential flat buildings	1
No. of units in residential flat buildings	45
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Project score		
Water	✔ 41	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 35	Target 35

Certificate Prepared by
Name / Company Name: Accelerate Sustainability Assessments
ABN (if applicable): 82145435687

Description of project

Project address	
Project name	00048441
Street address	32-36 Hope Street Penrith 2750
Local Government Area	Penrith City Council
Plan type and plan number	deposited 31239
Lot no.	37-39
Section no.	-

Project type	
No. of residential flat buildings	1
No. of units in residential flat buildings	45
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Site details	
Site area (m²)	1864.74
Roof area (m²)	121.2
Non-residential floor area (m²)	0.0
Residential car spaces	52
Non-residential car spaces	10

Common area landscape	
Common area lawn (m²)	230.5
Common area garden (m²)	288.0
Area of indigenous or low water use species (m²)	0.0

Assessor details	
Assessor number	90121
Certificate number	1011669015
Climate zone	28

Project score		
Water	✔ 41	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 35	Target 35

Description of project

The tables below describe the dwellings and common areas within the project

Residential flat buildings - Building1, 45 dwellings, 5 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
1	3	99.7	4.7	26.3	0.0
5	2	78.5	4.3	104.1	0.0
9	2	73.2	5.4	0.0	0.0
13	2	78.3	2.4	0.0	0.0
17	2	75.0	2.3	0.0	0.0
21	2	72.9	4.4	0.0	0.0
25	2	71.6	3.7	0.0	0.0
29	2	68.7	6.1	0.0	0.0
33	2	76.1	3.7	0.0	0.0
37	2	68.7	6.1	0.0	0.0
41	3	90.1	5.1	0.0	0.0
45	3	92.7	5.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
2	1	51.1	4.7	20.6	0.0
6	2	70.5	5.4	70.0	0.0
10	2	76.9	7.0	0.0	0.0
14	2	77.1	2.5	0.0	0.0
18	2	73.2	5.4	0.0	0.0
22	2	78.3	2.4	0.0	0.0
26	2	75.0	2.3	0.0	0.0
30	2	72.9	4.4	0.0	0.0
34	2	80.1	5.0	0.0	0.0
38	1	52.9	3.6	0.0	0.0
42	3	95.2	3.8	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
3	2	71.0	5.1	67.7	0.0
7	2	71.6	3.7	0.0	0.0
11	2	68.7	6.1	0.0	0.0
15	2	76.1	3.7	0.0	0.0
19	2	76.9	7.0	0.0	0.0
23	2	77.1	2.5	0.0	0.0
27	2	73.2	5.4	0.0	0.0
31	2	78.3	2.4	0.0	0.0
35	1	48.0	5.4	0.0	0.0
39	1	53.5	2.0	0.0	0.0
43	2	71.7	4.9	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
4	2	94.3	2.4	35.2	0.0
8	2	75.0	2.3	0.0	0.0
12	2	72.9	4.4	0.0	0.0
16	2	71.6	3.7	0.0	0.0
20	2	68.7	6.1	0.0	0.0
24	2	76.1	3.7	0.0	0.0
28	2	76.9	7.0	0.0	0.0
32	2	77.1	2.5	0.0	0.0
36	2	76.9	7.0	0.0	0.0
40	3	92.7	5.0	0.0	0.0
44	2	82.6	5.2	0.0	0.0

Description of project

The tables below describe the dwellings and common areas within the project

Common areas of unit building - Building1

Common area	Floor area (m²)
Car park (Basement 1)	1004.0
Lift car (No.1)	-
Garbage room (Lvl 1)	5.5
Garbage room (Lvl 4)	5.5
Service room 1 (Basement 1)	19.0
Service room 2 (Basement 2)	11.0
Ground floor lobby	57.5
Hallway/lobby (Lvl 3)	50.0

Common area	Floor area (m²)
Car park (Basement 2)	1090.0
Garbage room (Ground)	38.0
Garbage room (Lvl 2)	5.5
Cleaner room (Rooftop)	3.5
Service room 2 (Basement 1)	11.0
Service room (Rooftop)	5.5
Hallway/lobby (Lvl 1)	50.0
Hallway/lobby (Lvl 4)	47.5

Common area	Floor area (m²)
Truck loading area	166.0
Bulky waste room (Ground2)	15.0
Garbage room (Lvl 3)	5.5
WC (Rooftop)	3.5
Service room 1 (Basement 2)	18.0
Hyd booster room	5.5
Hallway/lobby (Lvl 2)	50.0
Hallway/lobby (Lvl 5)	42.5

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - Building1
    (a) Dwellings
        (i) Water
        (ii) Energy
        (iii) Thermal Comfort
    (b) Common areas and central systems/facilities
        (i) Water
        (ii) Energy

2. Commitments for multi-dwelling houses

3. Commitments for single dwelling houses

4. Commitments for common areas and central systems/facilities for the development (non-building specific)
        (i) Water
        (ii) Energy

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

1. Commitments for Residential flat buildings - Building1

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✔	✔	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✔	✔
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✔	✔
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✔	✔
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✔	✔
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✔	✔	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✔	
(g) The pool or spa must be located as specified in the table.	✔	✔	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✔	✔	✔

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	4 star	no	4 star	4 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✔	✔	✔
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✔	✔
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✔	✔
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✔	✔	✔
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:			
(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and		✔	
(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✔	
(h) The applicant must install in the dwelling:			
(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;		✔	
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✔	✔
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✔	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✔	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	gas instantaneous 5 star	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
1	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	3 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
4	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	2 (dedicated)	3 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
35	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	1 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	1	yes
38	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	1 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes
41	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	3 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	1	no
44	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes
3, 6	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	1	no
2, 39	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	1 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
40, 42, 45	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	3 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes
All other dwellings	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.5 - 4.0	-	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	3 star (new rating)	yes	3.5 star	-	3.5 star	no	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.			
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.			
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✔	✔	✔
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✔	✔	✔

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
1	36.7	38.9
2	12.2	47.9
3	17.5	29.1
4	31.9	38.6
5	45.9	43.0
6	58.3	37.9
7	56.6	41.0
8	25.8	40.9
9	18.5	39.9
10	7.5	17.7
11	7.7	21.7
12	20.1	36.1
13	24.9	23.8
14	30.0	35.9
15	44.0	26.6
16	57.6	40.2
17	26.6	39.6
18	19.2	38.4
19	7.6	21.1
20	8.1	21.4
21	20.7	35.6
22	25.6	23.2
23	31.1	35.5
24	44.9	25.8
25	62.3	38.8
26	27.1	48.5
27	20.6	36.2

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
28	8.1	17.2
29	8.2	21.5
30	23.1	34.4
31	26.6	22.9
32	37.3	30.9
33	48.7	25.0
34	53.4	60.2
35	24.4	60.3
36	9.9	15.5
37	9.8	19.5
38	31.9	55.4
39	36.3	17.7
40	52.8	36.8
41	57.3	47.7
42	33.5	52.4
43	13.5	37.6
44	49.9	38.7
All other dwellings	62.9	30.6

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	4 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 1)	-	-	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Car park (Basement 1)	ventilation (supply + exhaust)	carbon monoxide monitor + 2-speed fan	fluorescent	none	Yes
Car park (Basement 2)	ventilation (supply + exhaust)	carbon monoxide monitor + 2-speed fan	fluorescent	none	Yes
Truck loading area	ventilation (supply + exhaust)	carbon monoxide monitor + 2-speed fan	fluorescent	none	Yes
Lift car (No.1)	-	-	fluorescent	connected to lift call button	No
Garbage room (Ground)	ventilation (supply + exhaust)	-	fluorescent	manual on / manual off	No
Bulky waste room (Ground2)	ventilation (supply + exhaust)	-	fluorescent	manual on / manual off	No
Garbage room (Lvl 1)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Garbage room (Lvl 2)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Garbage room (Lvl 3)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Garbage room (Lvl 4)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Cleaner room (Rooftop)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
WC (Rooftop)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Service room 1 (Basement 1)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Service room 2 (Basement 1)	no mechanical ventilation	-	fluorescent	manual on / manual off	No

	Common area ventilation system		Common area lighting		
Common area	**Ventilation system type**	**Ventilation efficiency measure**	**Primary type of artificial lighting**	**Lighting efficiency measure**	**Lighting control system/BMS**
Service room 1 (Basement 2)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Service room 2 (Basement 2)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Service room (Rooftop)	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Hyd booster room	no mechanical ventilation	-	fluorescent	manual on / manual off	No
Ground floor lobby	no mechanical ventilation	-	fluorescent	time clock and motion sensors	Yes
Hallway/lobby (Lvl 1)	no mechanical ventilation	-	fluorescent	time clock and motion sensors	Yes
Hallway/lobby (Lvl 2)	no mechanical ventilation	-	fluorescent	time clock and motion sensors	Yes
Hallway/lobby (Lvl 3)	no mechanical ventilation	-	fluorescent	time clock and motion sensors	Yes
Hallway/lobby (Lvl 4)	no mechanical ventilation	-	fluorescent	time clock and motion sensors	Yes
Hallway/lobby (Lvl 5)	no mechanical ventilation	-	fluorescent	time clock and motion sensors	Yes

Central energy systems	Type	Specification
Lift (No. 1)	geared traction with V V A C motor	Number of levels (including basement): 9

4. Commitments for common areas and central systems/facilities for the development (non-building specific)

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✔	✔
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✔	✔	✔
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✔	✔	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✔	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✔	✔
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✔	✔

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	4 star	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✔	✔
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✔	✔
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✔	✔	✔

Central energy systems	Type	Specification
Other	Building management system installed?: yes	-

Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

Legend

1. Commitments identified with a "✔" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✔" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✔" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).

CLIENT CONCEPT PRESENTATION

property	RESIDENTIAL FLAT BUILDING DEVELOPMENT 32-36 HOPE ST, PENRITH
council	PENRITH CITY COUNCIL
applicant: client	DESIGNCORP ARCHITECTS PTY LTD MR TONY YOUNAN
date	20/10/2017
job no.	2017-176

ABSA Class 2 Building Multi-Unit
Validation Number: 1011659015
Validation Date: 23/11/2017
Assessor Name: Michael Young
Assessor Number: 90121
Assessor Signature:
Simulated under BASIX Thermal Comfort Protocol
BASIX

7.1 Average star rating
NATIONWIDE HOUSE ENERGY RATING SCHEME www.nathers.gov.au

Certificate no.: 0002210680
Assessor Name: Michael Young
Accreditation no.: 90121
Certificate date: 23 November 2017
Dwelling Address: 32-36 Hope Street Penrith, NSW 2750

www.nathers.gov.au

project: PROPOSED RESIDENTIAL FLAT BUILDING DEVELOPMENT @ 32-36 HOPE ST, PENRITH
client: MR TONY YOUNAN
drawn: E.K.
checked: J.E.
scale: as shown
date: OCT 17
ref: 2017-176
Council / PCC

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18m HEIGHT PLANE

19.8m HEIGHT PLANE

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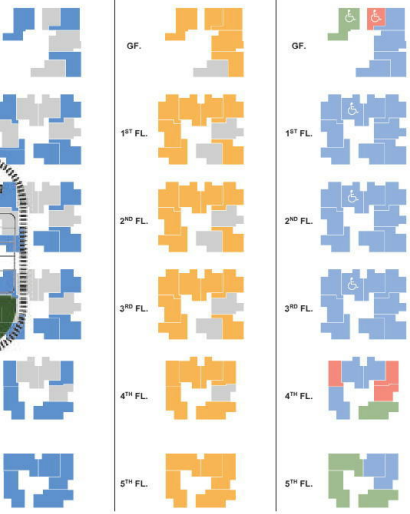
CROSS VENTILATED UNITS
Control 60 %
Proposed 60% 27/45

2h SOLAR ACCESS TO LIVING RM
Control 70 %
Proposed 82 % 37/45

UNIT MIX - TOTAL 45
Proposed 1BR x 4
2BR x 36
3 BR x 5



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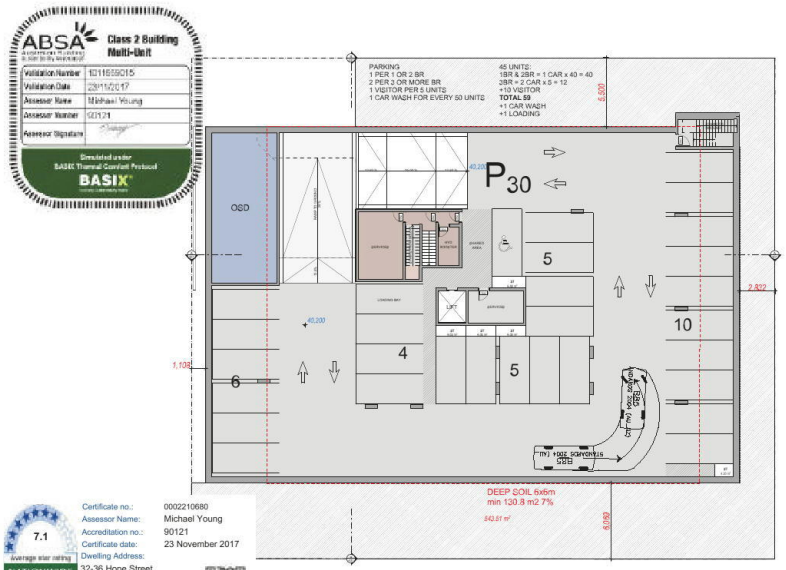
BASIX

PARKING
1 PER 1 OR 2 BR
2 PER 2 OR MORE BR
1 VISITOR PER 5 UNITS
1 CAR WASH FOR EVERY 50 UNITS

45 UNITS:
1BR & 2BR = 1 CAR x 40 = 40
3BR = 2 CAR x 5 = 12
+10 VISITOR
TOTAL 59
+1 CAR WASH
+1 LOADING



BASEMENT 1 FLOOR PLAN
1:200

7.1 Average star rating
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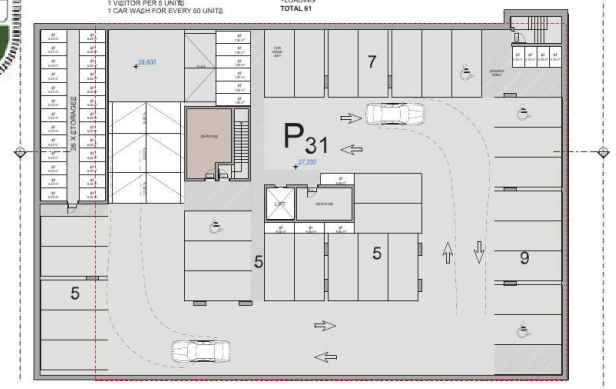
2 PER 2 OR MORE BR
1 VISITOR PER 5 UNITS
1 CAR WASH FOR EVERY 50 UNITS

45 UNITS:
1BR & 2BR = 1 CAR x 40 = 40
3BR = 2 CAR x 5 = 10
+9 VISITOR
+CAR WASH
+LOADING
TOTAL 61



BASEMENT 2 FLOOR PLAN
1:200

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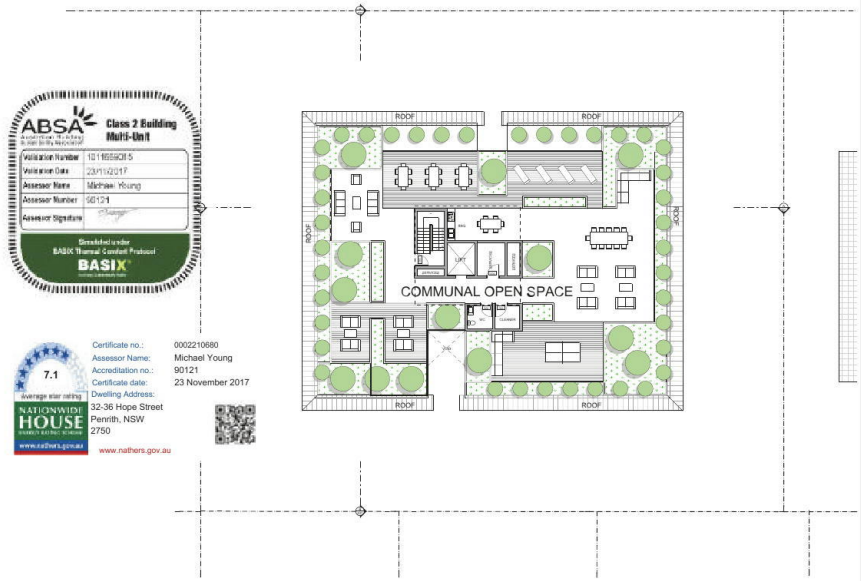

ROOFTOP PLAN
1:200

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WEST ELEVATION
1:200

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EAST ELEVATION
1:200

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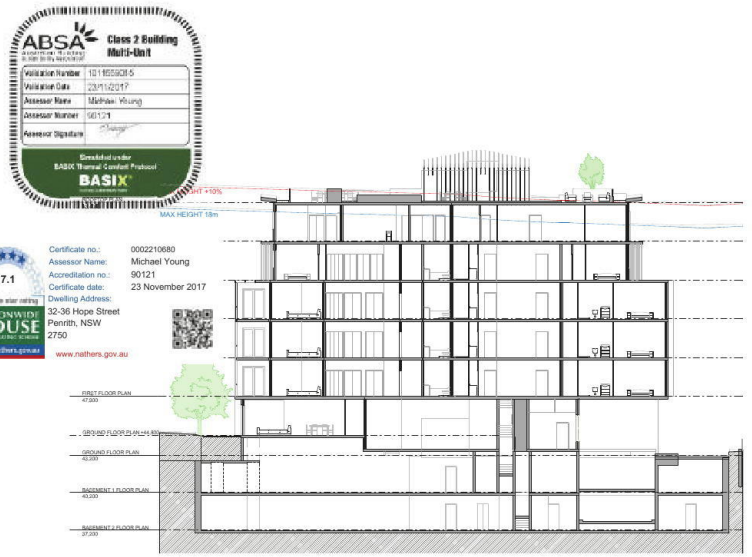

SECTION A
1:200

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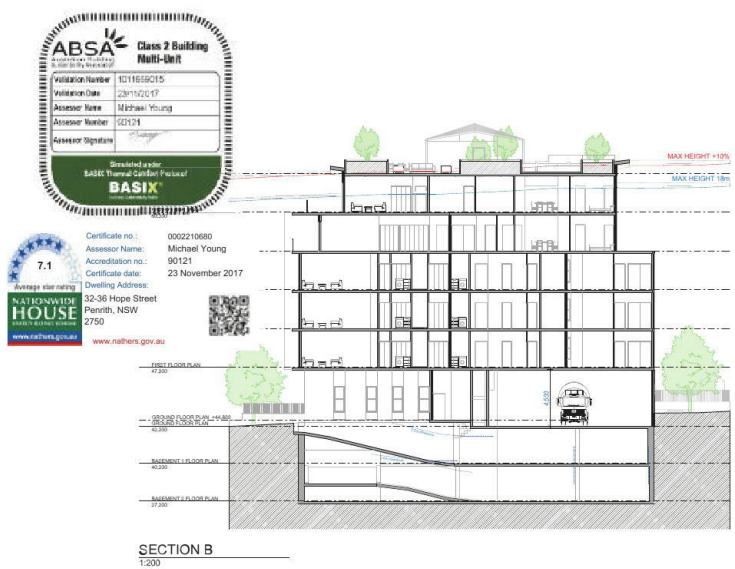

SECTION B
1:200

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