



NCC 2019 Amendment 1 Section J Deemed-to-Satisfy (DTS) Assessment

Northern Beaches Essential Services Accommodation

To be built at 16 Wyatt Avenue, Belrose NSW 2085

Attention: Northern Beaches Essential Services Accommodation

Document Control

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1. Executive Summary

The following tables provides a quick reference summary of the building fabric performance requirements for the development. The appendix at the end of this report shows the conditioned area mark-up and locations of required insulations.

Please Note: Information in this table shall not relieve the reader of reviewing the performance requirements in the main body of this report.

Part J1 Building Fabric Performance Requirements

Fabric Element	Required Total System R-Value	Notes
External Walls	R1.40	With thermal bridging calculated in accordance with AS/NZS 4859.2. See insulation options in body of report.
Internal Walls	R1.40	With thermal bridging calculated in accordance with AS/NZS 4859.2. See insulation options in body of report.
External Floors	R2.00	R3.25 Required to floors with in slab heating/cooling system
Roofs/ceilings	R3.20	NCC Section J 2019 DTS provisions now limit external roof colour to a maximum solar absorptance of 0.45. Roof suppliers to confirm the actual solar absorptance before project construction.)
Floors to unconditioned Spaces	R2.00	R3.25 Required to floors with in slab heating/cooling system.

Part J1.5 Glazing Performance Requirements

Level/Location Orientation		Maximum Total System U-Value	Maximum Total System SHGC
All	All	5.60	0.35



2. Introduction

Efficient Living has been engaged by Northern Beaches Essential Service Accommodation to determine what measures are required for the proposal to meet the 2019 National Construction Code (NCC) Amendment 1 Section J requirements via *Deemed-to-Satisfy Provisions*.

Architectural Documents

Documents prepared by: Platform Architects: Project No. WAB2

Drawing Reference: A1.01-A1.13[DA03],A3.01-A3.06[DA03,A2.01-A2.05[DA03].

Received: 06/07/2021

Project Address & NCC Climate Zone

The project is located at 16 Wyatt Avenue, Belrose NSW 2085, therefore being located within NCC Climate Zone 5.

Building Classes

The proposal dictates the following NCC classes are applicable:

- Class 3: Boarding House
- Class 7a: Carpark

Climate Zone Characteristics

Climate zone 5 - Temperate

Thermal treatment of the building envelope is beneficial in both hotter and colder weather. In summer, limiting heat gain can reduce the desire of occupants to run any cooling services installed. In winter, the building fabric can reduce the heat loss to the outside and can also promote solar heat gains through good orientation and treatment of glazing to offset the conductive heat losses.

Section J Part	Comment
Part J1 - Building Fabric	Performance requirements outlined in this report will achieve compliance with DTS provisions.
Part J3 - Building Sealing	DTS Compliance to be documented by Architect
Part J5 - Air Conditioning and Ventilation Systems	DTS Compliance to be documented by Services engineer
Part J6 - Artificial lighting and Power	DTS Compliance to be documented by Electrical Engineer
Part J7 - Hot Water Supply	DTS compliance to be documented by Hydraulics Engineer
Part J8 – Access for Maintenance and Facilities for Monitoring	DTS Compliance to be documented by Electrical engineer







Disclaimer

This report has been prepared in accordance with the agreed scope of works between Efficient Living and our client. Efficient Living has acted diligently and employed all reasonable care in the preparation of this report. The information contained within is based upon the documents and information, accepted in good faith as being true and accurate, provided by the Client, architects and consultants. Should subsequent amendments occur to the documents referenced this report may require an update or else non-compliance with the NCC Section J may result.



3. Section J DTS Requirement Breakdown: Parts J1-J8

Envelope for the purpose of the Section J report means the parts of the building fabric that separate a conditioned space or habitable room from-

- (a) the exterior of the building; or
- (b) a non-conditioned space including
- (i) the floor of a rooftop plant room, lift machine room or the like; and
- (ii) the floor above a carpark or warehouse; and
- (iii) the common wall with a carpark, warehouse or the like

3.1. J1 Building Fabric

The following requirements must be implemented in design:

J1.2 Thermal Construction

Insulation must be installed in compliance with AS/NZS 4859.1:

- adjoining insulation must abut / overlap and butt up against studs, joists, noggins, etc where the insulation must be against the member;
- it must form a continuous barrier & must not interfere with services or fittings.

Reflective insulation must be installed with:

- the necessary airspace to achieve the required R-Value between the reflective side of the insulation and the building lining or cladding;
- the reflective insulation closely fitted against any penetration, door or window opening;
- the reflective insulation adequately supported by framing members;
- each adjoining sheet must either overlap not less than 50mm or be taped together.

Bulk insulation must be installed so that:

- it maintains its position and thickness, other than where it is compressed between cladding and supporting members, water pipes, electrical cabling or the like.
- in a ceiling, where there is no bulk insulation or reflective insulation in the wall beneath, it overlaps the wall by not less than 50mm.

The required Total R-Value and Total System U-Value, including allowance for thermal bridging, must be:

- calculated in accordance with AS/NZS 4859.2 for a roof or floor; or
- determined in accordance with Specification J1.5a for wall-glazing construction; or
- determined in accordance with Specification J1.6 or Section 3.5 of CIBSE Guide A for soil or subfloor spaces.



J1.3 Roof & Ceiling

Insulation should be applied to areas highlighted in Appendix B, according to the values contained in the following table/s:

Thermal Bridging assumed at 12%. (Areas where insulation cannot be installed due to metal frame members such as joists, studs, noggings, top plate and bottom plate). The following additional insulation products R values are required to be installed to achieve total system R value.

Concrete roof with suspended ceiling - Required R3.70 Total System

	•	· .		
Insulation Advice	Minimum R3.0	08 uninterrupted r	igid board insulations to	o be installed
	under concrete	e soffit.		

Metal roof with suspended ceiling - Required R3.70 Total System

The Insulation provider / installer is responsible to ensure the type and location of insulation is fit for purpose in that; the total system values are achieved and condensation risk is mitigated.

J_{1.4} Roof Lights

There are no roof lights proposed to conditioned space.

J1.5 Walls and Glazing

External Walls

Insulation should be applied to areas highlighted in Appendix B, according to the values contained in the following table/s:

Thermal Bridging assumed at 12% steel frame area. (areas where insulation cannot be installed due to framework)

Indicative Build-up of brick veneer external walls - Required R1.40 Total System

Insulation Advice	on Advice Minimum R2.20 Bulk insulation is required to be installed.			
Indicative Build-up of clad stud framed external walls - Required R1.40 Total System				
Insulation Advice	Minimum R2.00 Bulk insulation with R0.2 thermal break are required to			
insulation Advice	be installed.			

Internal Walls

Insulation should be applied to areas highlighted in Appendix B, according to the values contained in the following table/s:

Indicative Build-up of concrete internal walls - Required 1.40 Total System

	Minimum R2.00 Bulk insulation is required to be installed.
Insulation Advice	Or
	Minimum R1.00 Rigid board insulation is required to be installed.



Glazing Requirements

The table below contains a summary of the glazing performance requirements to be achieved for the development. Please note the below performance requirements are total system values, including the frame and glass.

Part J1.5 Total System Glazing Performance Requirements

Level/Location		Orientation	Maximum Required Total System U-Value	Maximum Required Total System SHGC
	All	All	5.60	0.35

All awnings and shading structures to be installed as per plans and elevations referenced. Should there be any changes to the glazing or shading configuration, the new layouts will need to be re-assessed to verify compliance with Section J.

J1.6 Floors

Insulation should be applied to areas highlighted in Appendix B, according to the values contained in the following table/s:

Indicative Build-up of Suspended Concrete floor - Required 2.00 Total System

Insulation Advice	Minimum R1.70 uninterrupted rigid board insulation to be installed under
insulation Advice	concrete soffit.



3.2. J3 Building Sealing

The following requirements relating to building sealing must be achieved in design. The below requirements shall be verified, if required, by the architect or builder.

J Part	Requirement
J3.2 - Chimneys & Flues	Any new chimney or flue of an open solid fuel burning appliance, located within conditioned areas indicated in the project reference, must be fitted with a sealing device such as a self-closing damper or the like
J3.3 - Roof Lights	No Roof Lights
J3.4 - Windows and Doors	The window supplier must provide verification that all glazing is sealed to comply with AS 2047 or BCA J3.4.
	A seal to restrict air infiltration must be fitted to each edge of a door, openable window or the like forming part of:
	(i) the envelope of a conditioned space; or
	(ii) the external fabric of a habitable room or public area in climate zones 4, 5, 6, 7 or 8.
	All doors forming part of the buildings thermal envelope must have a draft protection device installed to the bottom edge. All other edges of a window or door forming part of the building's thermal envelope.
	The above requirements do not apply to a window complying with AS 2047 or any fire or smoke door, roller shutter doors/grilles or security doors installed for out of hours security.
	An entrance to a building, if leading to a conditioned space must have an airlock, self- closing door, revolving door or the like, other than:
	(i) where the conditioned space has a floor area of not more than 50 m2; or
	(ii) where a café, restaurant, open front shop or the like has—
	 (A) a 3 m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and (B) at all other entrances to the café, restaurant, open front shop or the like, self-closing doors.
	A loading dock entrance, if leading to a conditioned space, must be fitted with a rapid roller door or the like.
J3.5 - Exhaust Fans	Any exhaust fans, located within conditioned areas indicated in the project reference, must be fitted with a sealing device such as a self-closing damper or the like.
J3.6	Construction forming elements of the envelope or external fabric must be enclosed by
Roof, Walls & Floors	internal lining systems that are close fitting at ceiling, wall and floor junctions or sealed by caulking, skirting, architraves, cornices or the like.
J3.7	An evaporative cooler must be fitted with a self-closing damper or the like when serving—
Evaporative	(a) a heated space; or
Coolers (b) a habitable room or a public area of a building in climate zones 4, 5, 6, 7 or 8	

3.3. J5 Air Conditioning and Ventilation Systems

The project mechanical engineer shall be responsible for ensuring compliance with NCC Section J5 parts J5.1-J5.12.



3.4. J6 Artificial Lighting and Power

The project electrical engineer shall be responsible for ensuring the design complies with NCC Section J6. A summary of the requirements has been provided below for reference:

J Part	Requirements					
J6.2 Interior Artificial Lighting	The design illumination power load must not exceed the sum of the allowances obtained by multiplying the area of each space by the maximum illumination power density in Table J6.2a					
	Allowable maximum illumination power density					
	Space	Maximum W/m²	Space	Maximum W/m²		
	Stairways	2 W/m²	Storage/service/cleaners room and the like	1.5 W/m ²		
	Entry lobby from outside the building	9 W/m²	Office	4.5 W/m²		
	Sole occupancy unit of a Class 3 building	5 W/m²	Corridors	5 W/m²		
	Control room, switch room or the like - intermittent monitoring	3 W/m²	Lift cars	3 W/m²		
	Kitchen and food preparation areas	4 W/m²	Plant areas	2 W/m²		
	Toilet, locker room, staff room or the like	3 W/m²	Communal lounge areas	4.5 W/m²		
	Carpark - general	2 W/m²	Carpark – entry zone (first 15m of travel)	11.5 W/m²		
	If lighting will not comply with the W/m² detailed above an ABCB Lighting calculator can be completed and adjustment factors through the use of control devices or the like considered in order to ensure compliance.					
	No loss of insulation through ceiling penetrations has been completed in regards to the ceiling where roof is above. It is therefore assumed that any lighting installed will not impact on the ceiling/roof insulation. If ceiling/roof insulation is impacted by the installation on new lighting a loss of insulation calculation will need to be completed.					
	These requirements to not apply for: 1. Emergency lighting in accordance with Part E4 2. Signage and display lighting within cabinets and display cases that are fixed in place. 3. A heater where the heater also emits light, such as in bathrooms. 4. Lighting of performances such as theatrical or sporting. 5. Lighting installed solely for indoor plant growth on green walls or the like					
J6.3	Artificial lighting of a room or space is to be individually switched or operated or both.					
Interior Artificial Lighting and Power Control	These switches or devices must be located in a visible position-					
	in the room or space being switched; or					
	in an adjacent room or space from where the lighting being switched is visible					
	Sole-occupancy units, except for those rooms specifically for people with a disability or the aged, are to have an occupant sensing device such as a card reader, motion detector in accordance with Specification J6 or the like installed to cut power to lighting, air-conditioner					



	and exhaust fans when these rooms are unoccupied. This requirement is only applicable to sole-occupancy units. Further advice can be given on suitable devices if desired.
	Other than a space where a sudden loss of light would result in an unsafe situation, any non-residential building that exceeds 250m² will require 95% of light fittings to be controlled by either a time switch in accordance with Specification J6 , a security card reader or motion detector in accordance with Specification J6 .
	Other than in a single functional space, lighting controls or switches within each room, cannot operate lighting for an area of more than: (a) 250m² for a space of less than 2000m²; or (b) 1000m² for a space of more than 2000m²;
	Artificial lighting in a fire isolated stairway must be controlled by a motion detector.
	Artificial lighting in a foyer, corridor and other circulation spaces with more than 250W within a single zone and adjacent to windows must be controlled by a daylight sensor and lighting controls in accordance with Specification J6 .
	Artificial lighting for daytime travel in the first 19m of a car park entry must be controlled by a daylight sensor.
	These requirements do not apply to emergency lighting in accordance with Part E4, or areas with 24 hour occupancy
J6.4 Interior decorative and display lighting	If installing lighting for the display of art work / photographs or the like, it must be controlled by a manual switch and operated separately from other artificial lighting. This display lighting can be combined on one switch if the operating times for the display lighting are the same in a number of areas.
	If the display lighting exceeds 1kW in total then it must have a time switch in accordance with Specification J6.
	Any window display lighting to be separately switched from other display lighting.
J6.5 Artificial lighting around the perimeter of a building	If installing artificial lighting around the perimeter of the building, it is to be controlled by a daylight sensor or time switch with pre-programmable times. If total perimeter lighting load exceeds 100W it must: - use LED luminaires for 90% of the total lighting load; or - be controlled by a motion detector in accordance with Specification J6* Lighting that is used for decorative purposes, such as façade lighting or signage lighting must have a separate time switch in accordance with Specification J6. *these requirements do not apply to emergency lighting in accordance with Part E4
J6.6	Any boiling water or chilled water storage unit must be controlled by a time switch in
Boiling water and chilled water storage units	accordance with Specification J6.
J6.7	Lifts must –
Lifts	 (a) be configured to ensure artificial lighting and ventilation in the car are turned off when it is unused for 15 minutes; and (b) achieve the idle and standby performance level in Table 6.7a; and (c) achieve - (i) the energy efficiency class in Table 6.7b; or (ii) if a dedicated goods lift, energy efficiency class D in accordance with ISO 25745-2
J6.8 Escalators and moving walkways	Escalators and moving walkways must have the ability to slow to between 0.2m/s and 0.05m/s when unused for more than 15 minutes.

9 July 2021

16 Wyatt Avenue, Belrose

3.5. J7 Heated Water Supply and Swimming/Spa Pool Plant

The project hydraulic engineer shall be responsible for ensuring the design complies with NCC Section J6. A summary of the requirements has been provided below for reference:

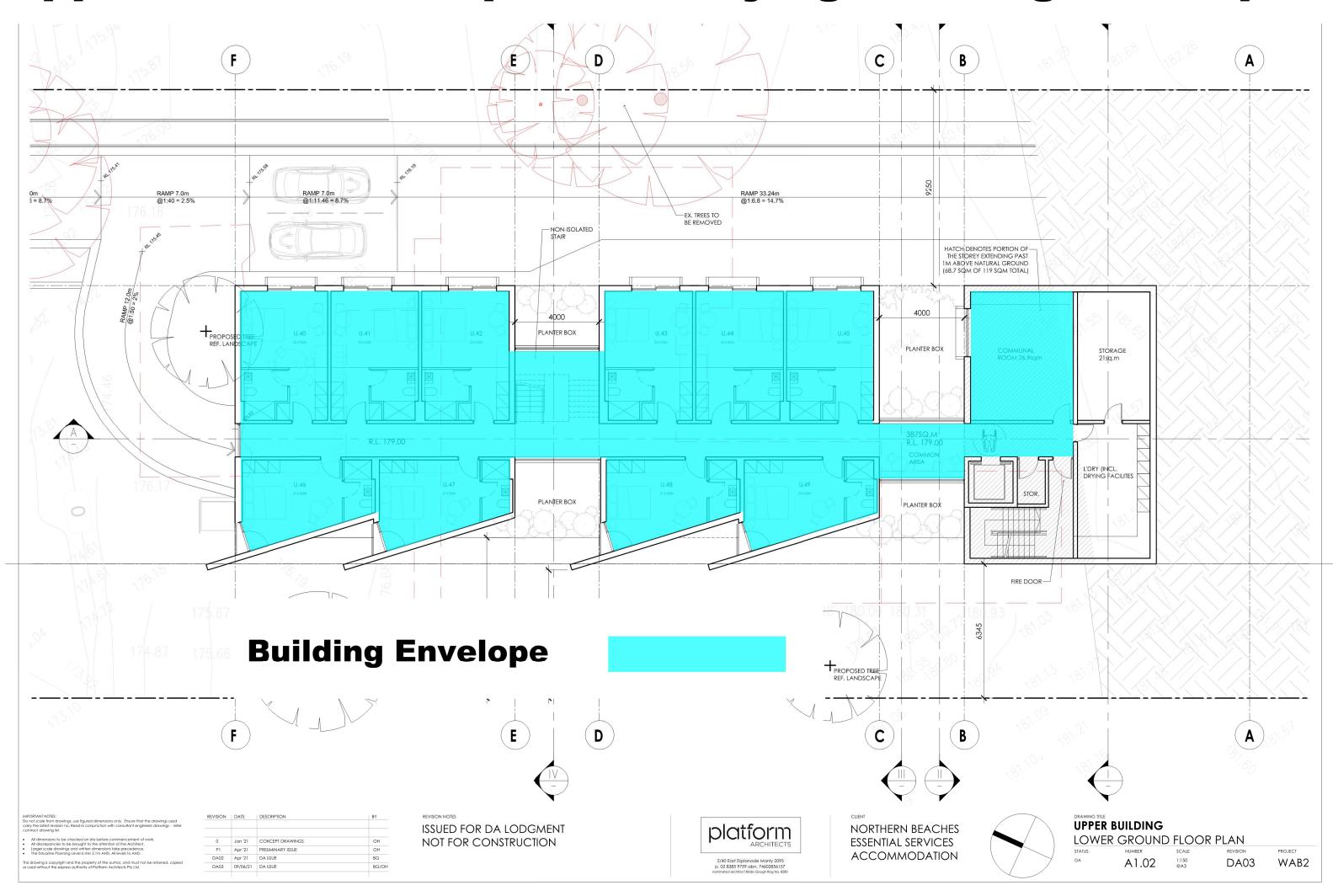
J Part	Requirements
J7.2 Hot water Supply	Any new heated water supply system for food preparation must be designed and installed in accordance with Part B2 of NCC Volume Three - Plumbing Code of Australia.
J7.3 Swimming Pool Heating and Plumbing	No Swimming Pool
J7.4 Spa Pool Heating and Pumping	No proposed spa

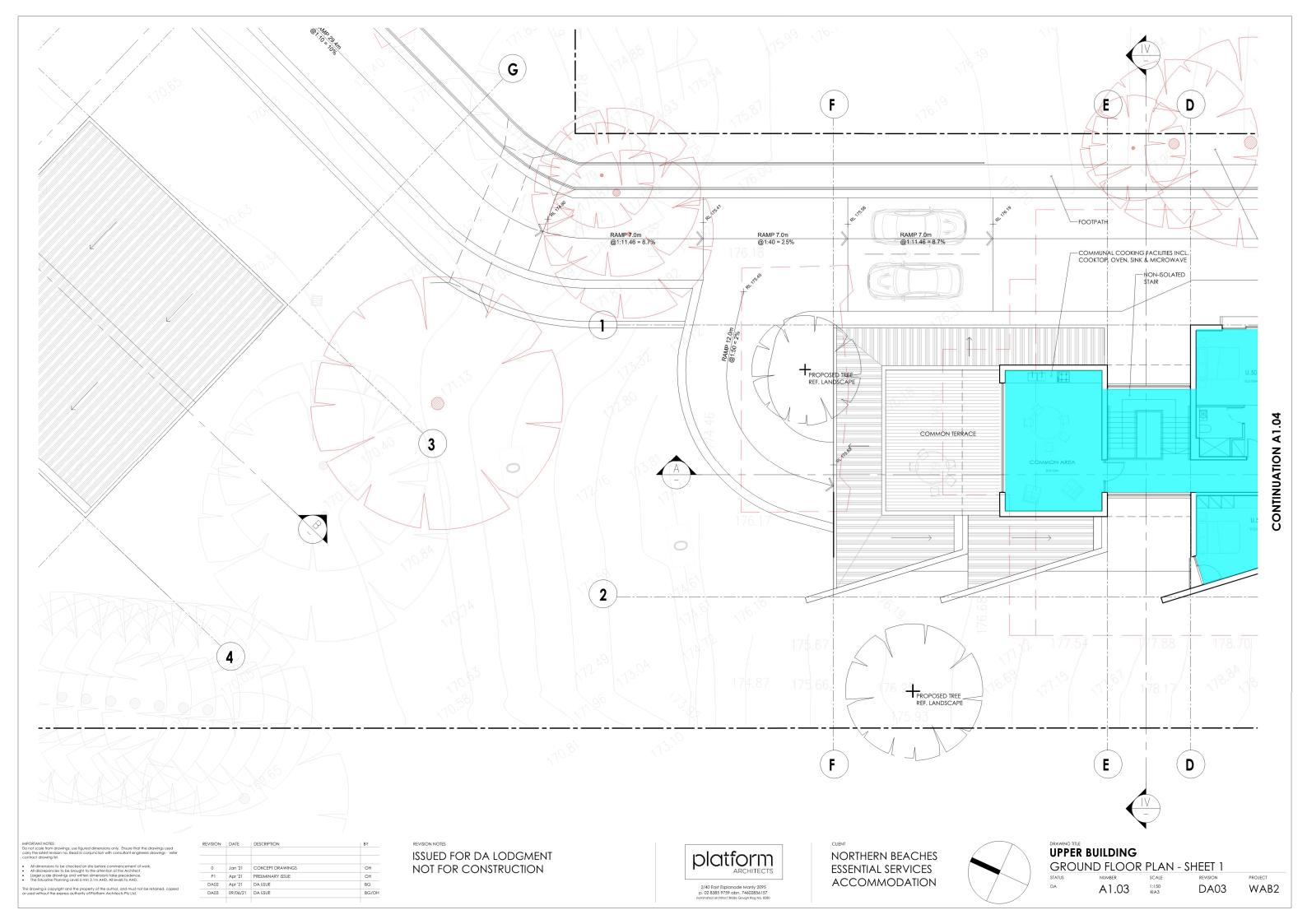
3.6. J8 Facilities for Energy Monitoring

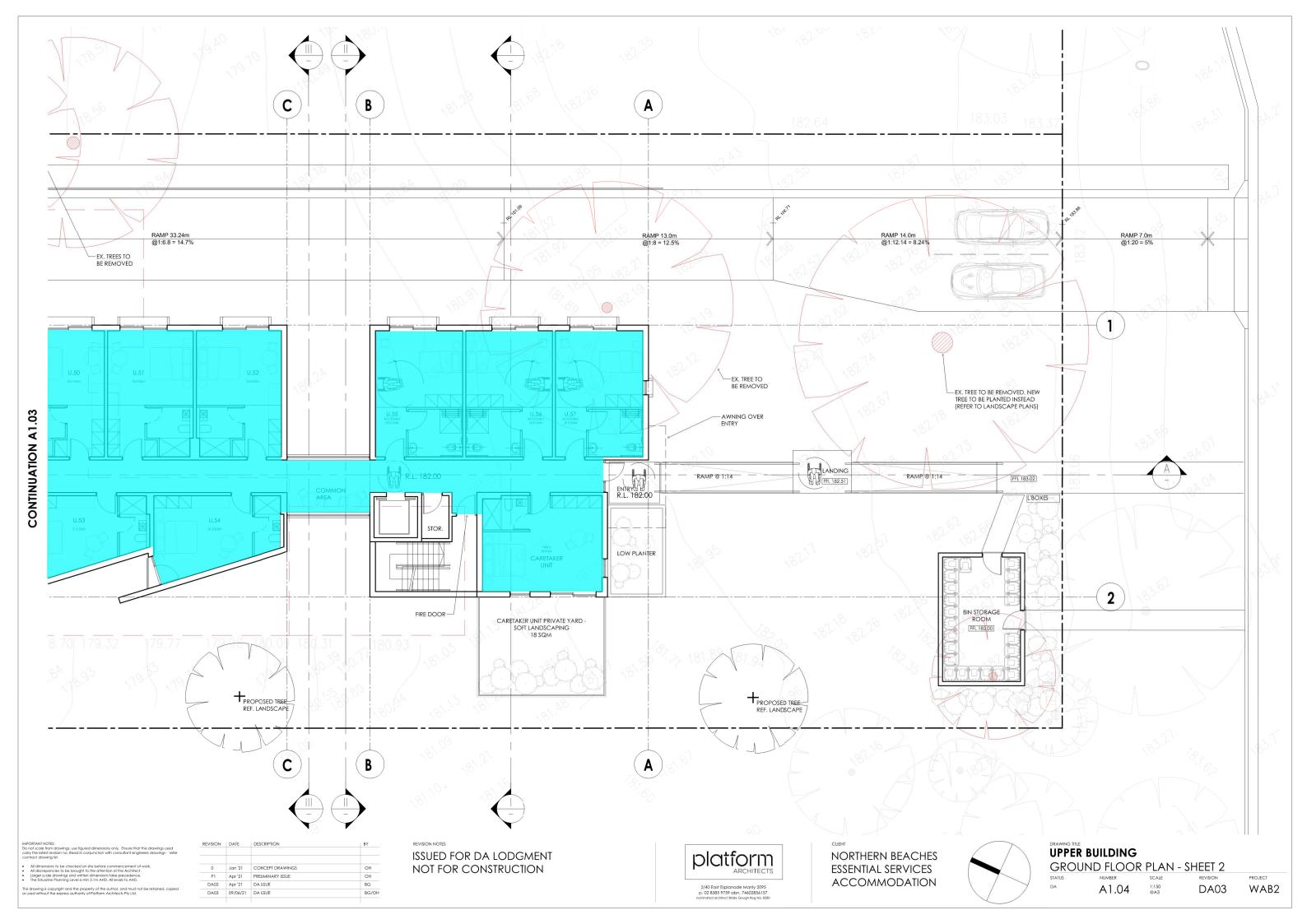
The project electrical engineer shall be responsible for ensuring the design complies with NCC Section J8. A summary of the requirements has been provided below for reference:

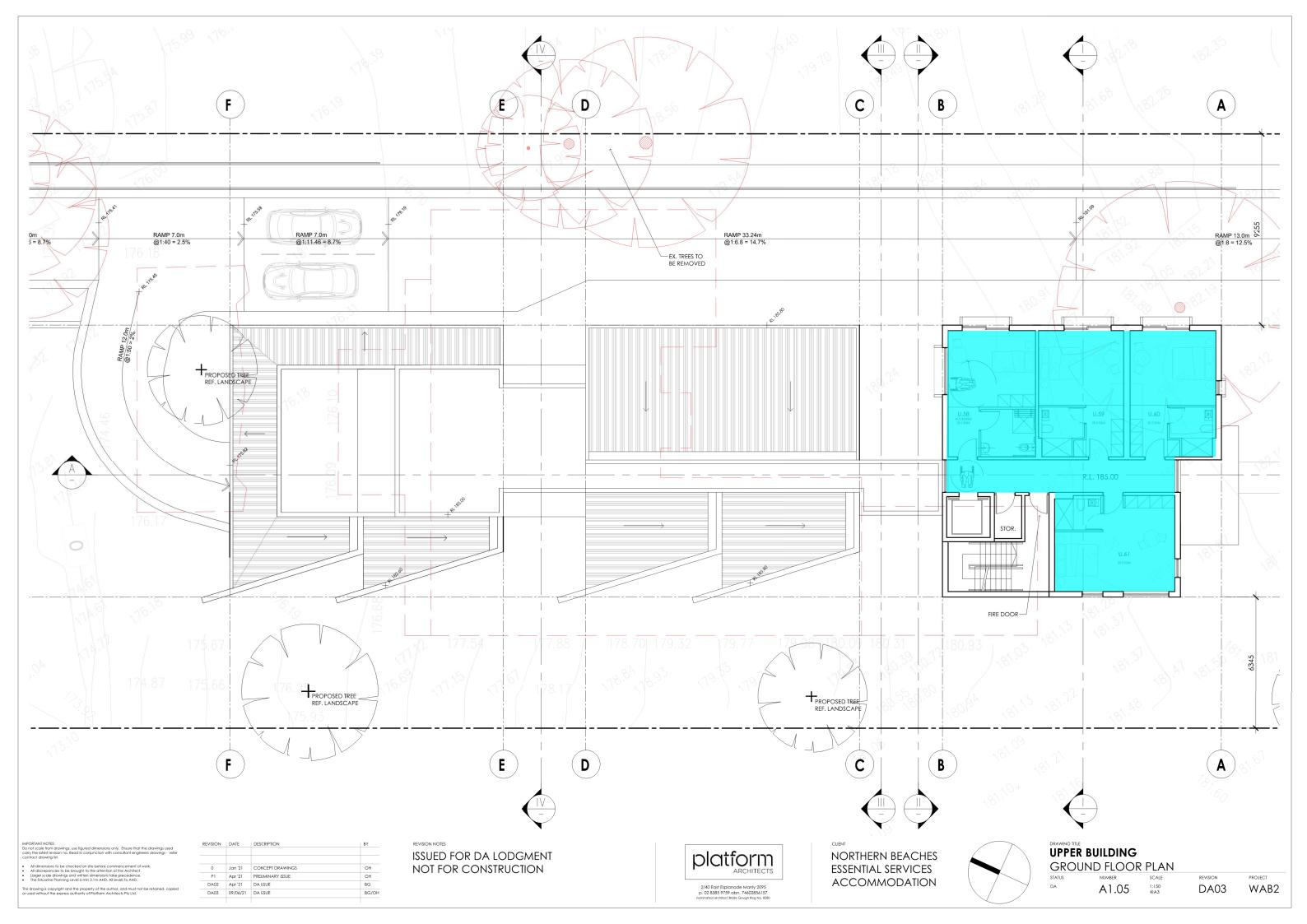
J Part	Requirements
J8.3	The developments floor area for each classification of each building is over 500m² but under
Facilities for Energy Monitoring	2500m², therefore must have the facility to record the consumption of gas and electricity.

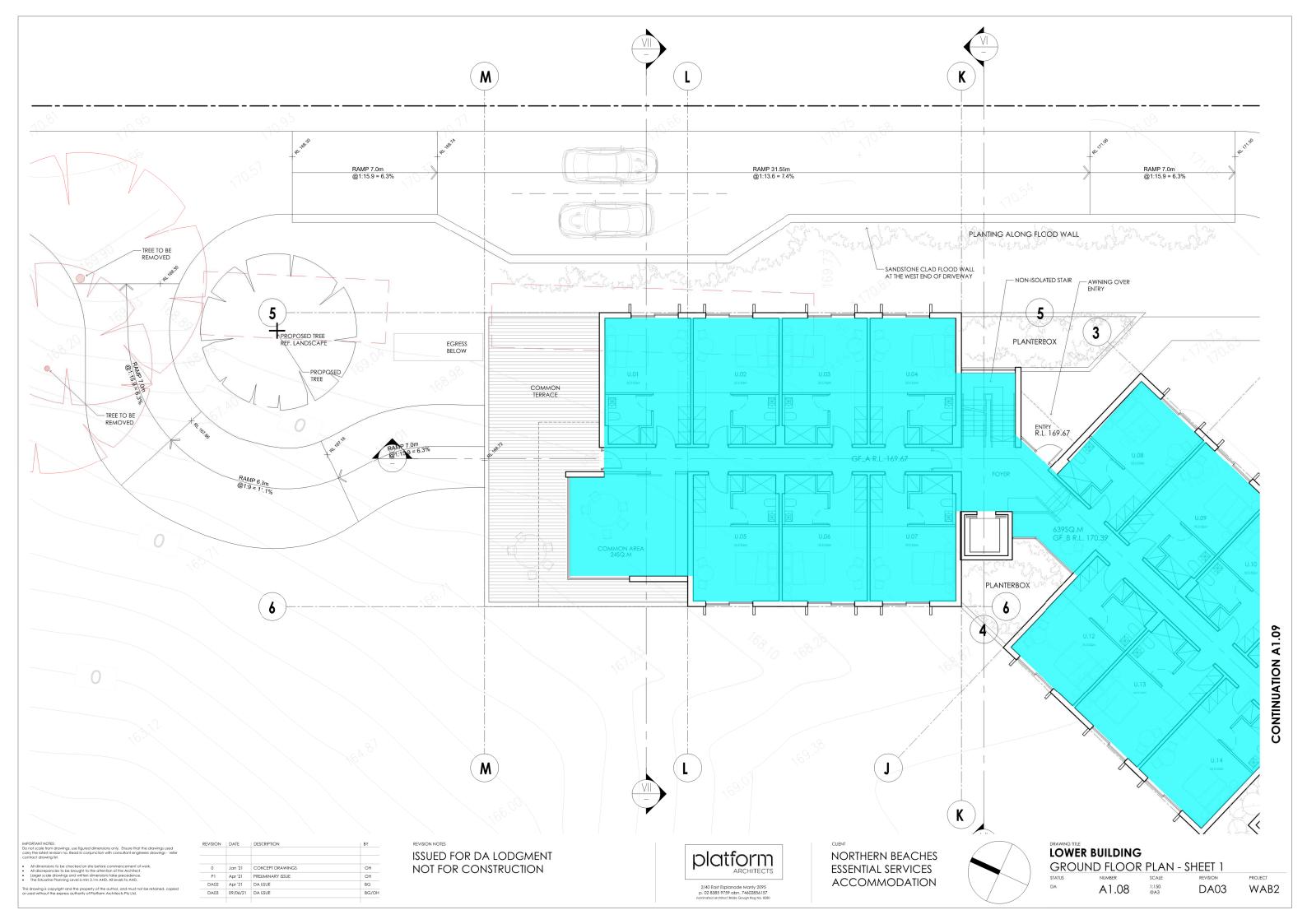
Appendix A - Markups Indentifying Building Envelope



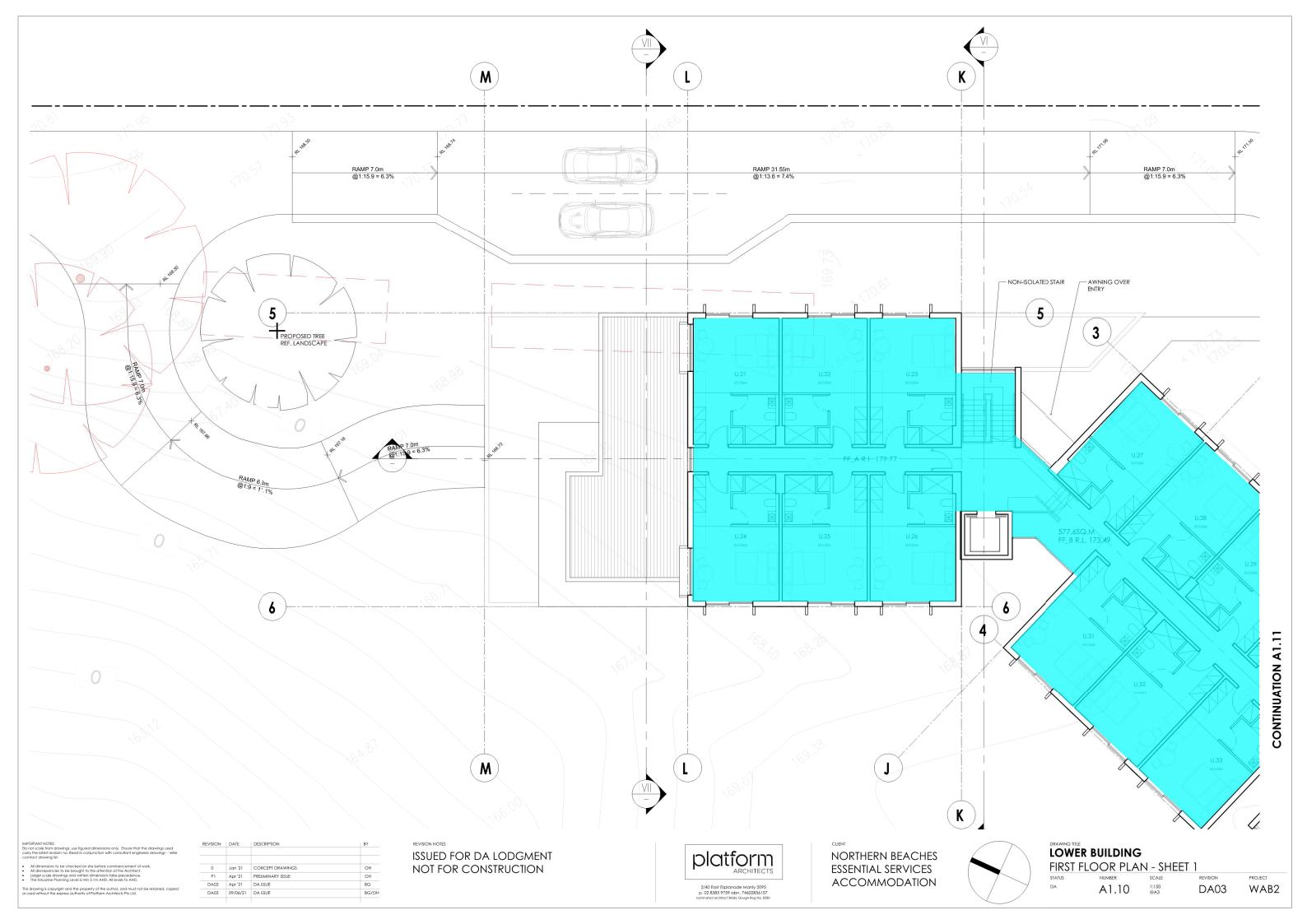














Appendix B - Markups Indentifying Locations of Required Insulations

