

1959-1963 DANDENONG ROAD & 75 BEDDOE AVENUE, CLAYTON

Acoustic Report for Town Planning Application

For

THREE BUTTER GROUP PTY LTD C/- METAXAS

DOC. REF: V1491-01-P ACOUSTIC REPORT (R0) 7 AUGUST 2023

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Project 1959-1963 Dandenong Road & 75 Beddoe Avenue, Clayton

Subject Acoustic Report for Town Planning Application

Client Three Butter Group Pty Ltd c/- Metaxas

Document Reference V1491-01-P Acoustic Report (r0).docx

Date of Issue 7 August 2023

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1 Introduction

Enfield Acoustics has been engaged by Three Butter Group Pty Ltd c/- Metaxas to assess potential noise impacts relating to the proposed student accommodation development at 1959-1963 Dandenong Road & 75 Beddoe Avenue, Clayton (Subject Land).

This acoustic report has been prepared in response to Item 3 of Council's RFI dated 15 May 2023, as follows:

3) An Acoustic assessment of the development detailing relevant construction techniques to contain noise sources to existing dwellings and protect future residents from external and internal noise impacts. This is also to include assessment of noise impacts associated with the outdoor communal terrace areas facing existing dwellings.

Based on our review of the development plans and Council's RFI above, our assessment will focus on the following noise impacts:

- Traffic noise impacts to on-site sensitive uses
- Mechanical plant noise impacts to on-site and off-site sensitive uses
- Patron noise impacts from outdoor communal terraces to existing off-site sensitive uses

Our assessment is based on Plans prepared by Metaxas dated 3 August 2023 (plot date).

2 Site Inspection

A site inspection was carried out by our office on 14 June 2023 to:

- Identify surrounding off-site sensitive uses
- Measure peak traffic noise levels

Existing sensitive uses surrounding the Subject Land are summarised as follows:

Tag		Direction	Туре
R1	1957 Dandenong Road	West	Double-storey
R2	74 Marshall Avenue	North	Single-storey
R3	73 Beddoe Avenue	North	Single-storey
R4	74 & 76 Beddoe Avenue	East	Single-storey

Refer below for a site map showing locations of sensitive uses relative to the Subject Land:





It is understood that a 4-storey student accommodation development had been approved at Receiver R3, however our instructions is that the permit has lapsed.

The results of our attended noise measurements are discussed in the sections to follow.

3 Assessment

3.1 Planning Scheme Clause 58.04 (Traffic Noise)

Clause 58.04 of the planning scheme, otherwise referred to as Standard D16, requires that internal noise levels in apartment buildings meet the following:



Standard D16

Noise sources, such as mechanical plants should not be located near bedrooms of immediately adjacent existing dwellings.

The layout of new dwellings and buildings should minimise noise transmission within the site.

Noise sensitive rooms (such as living areas and bedrooms) should be located to avoid noise impacts from mechanical plants, lifts, building services, non-residential uses, car parking, communal areas and other dwellings.

New dwellings should be designed and constructed to include acoustic attenuation measures to reduce noise levels from off-site noise sources.

Buildings within a noise influence area specified in Table D5 should be designed and constructed to achieve the following noise

- Not greater than 35dB(A) for bedrooms, assessed as an LAeq,8h from 10pm to 6am.
- Not greater than 40dB(A) for living areas, assessed LAeq,16h from 6am to 10pm.

Buildings, or part of a building screened from a noise source by an existing solid structure, or the natural topography of the land, do not need to meet the specified noise level requirements.

Noise levels should be assessed in unfurnished rooms with a finished floor and the windows closed.

Table D5 Noise influence area	
Noise source	Noise influence area
Zone interface	
Industry	300 metres from the Industrial 1, 2 and 3 zone boundary
Roads	
Freeways, tollways and other roads carrying 40,000 Annual Average Daily Traffic Volume	300 metres from the nearest trafficable lane
Railways	
Railway servicing passengers in Victoria	80 metres from the centre of the nearest track
Railway servicing freight outside Metropolitan Melbourne	80 metres from the centre of the nearest track
Railway servicing freight in Metropolitan Melbourne	135 metres from the centre of the nearest track

Enfield Acoustics confirms that the Subject Land:

- Is not within 300m of any Industrial 1,2 or 3 zones
- Is adjacent to a road that carries >40,000 AADT based on Vicroads traffic data (Princes Highway at 45,000 AADT)
- Is not within 80m of a rail corridor

To this end, Clause 58.04 of the planning scheme is only triggered with respect to road traffic noise. It is important to note that the performance requirement of Standard D16 relates to internal noise levels only and relies on construction design to mitigate noise emissions.

The target noise criteria are summarised below for clarity:

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Location	Noise Target
Bedrooms Between 10pm to 6am	35 dB(A) L _{eq-8hr}
Living areas Between 6am to 10pm	40 dB(A) L _{eq-16hr}

Road traffic noise measurements were conducted between 5.30pm to 6.30pm, reflective of when higher traffic volumes would occur during peak hours.

Noise measurements were conducted at a location representative of the worst affected façade of the development (position T1 and T2) and at a location setback from Princes Highway (position T3).

The results of our attended noise monitoring are presented below

Location	Measured Noise Level
T1 Measurement on site boundary, approximately 5m from façade	67 dB(A) L _{eq}
T2 Measurement in line with worst affected façade	65 dB(A) L _{eq}
T3 Measurement setback from Princes Highway	61 dB(A) L _{eq}

It is noted that while the Planning Scheme considers long-term average noise emissions, our assessment considers the more onerous peak traffic noise levels, resulting in a conservative assessment. In our experience, designing to peak traffic noise levels often results in a better acoustic outcome and overall amenity for future occupants.

A correction of -4dB(A) was applied to the measured noise level to estimate 'Night' period noise levels (Refer "A re-examination of the relationship between $L_{10(18hour)}$ noise level parameter and other road traffic noise level parameters Brown, R & Brown, H-2016). We note that data from previous long-term unattended noise monitoring conducted by our office correlates well with the findings in the research paper.

Based on the measured noise levels, desktop modelling was conducted to predict incident noise levels at the various facades of the development. The glazing required to comply with the requirements of Clause 58.04 are summarised below:

Location	Acoustic Performance Requirement	Glazing Construction
Refer to Markups in Appendix A	≥Rw33	Double glazed construction with: 6.38mm laminated glass 12mm airgap 6mm glass

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Where not indicated	Glazing specification by others Minimum forms of glazing construction comply with Standard D16 (e.g 6mm glass or any double glazed construction)
Notes:	The glazing construction nominated above is indicative only. Any other glazing system achieving the nominated performance requirement ($R_{\rm w}$) is acceptable, subject to certification by suppliers.

Refer to Appendix A for Plan markups of recommended glazing.

All operable windows must be installed with acoustic bulb seals and sliding doors must be installed with pile seals to perimeter.

We note that no specific acoustic controls are required for the façade as standard forms of façade construction such as masonry or lightweight cladding would comfortably surpass the performance requirements of the windows and doors.

On this basis, Enfield Acoustics is satisfied that the proposed development will comply with Clause 58.04 of the planning scheme, providing that the glazing construction above is installed and/or the nominated performance requirements are achieved.

3.2 Mechanical Plant Noise Impacts

Noise from any base building and commercial mechanical plant installed on the Subject Land must comply with the *Environment Protection Regulations 2021* and *Publication 1826: Noise Limit and Assessment Protocol for the Control of Noise from Commercial, Industrial and Trade Premises and Entertainment Venues* (Noise Protocol).

Base building plant must comply with the Noise Protocol when measured:

- within dwellings (on-site)
- on balconies and private roof top terraces (on-site)
- adjacent off-site dwellings

Based on our review of the plans, relevant base building mechanical plant for the development is likely to consist of:

- Carpark exhaust fans
- Kitchen exhaust fans (from restaurant, potentially)
- Hot water units on the rooftop

Individual air-conditioning units are not assessed under the Noise Protocol.

Our view is that there is sufficient opportunity for noise mitigation and any issues regarding mechanical plant noise can be dealt with during detailed design when plant equipment and specifications have developed, such as:

Installation of duct silencers, enclosures and acoustic louvres

1959-1963 Dandenong Road & 75 Beddoe Avenue, Clayton



- Selection of quieter equipment
- Acoustic plant screening
- Localised rooftop terrace screening

Based on the type of development proposed being primarily residential, any base building services are unlikely to result in material noise impacts in practice. Further, the requirement for the development to control noise emissions at on-site dwellings mean that noise emissions at off-site dwellings will also comply with the Noise Protocol.

The Plans indicate that mechanical plant would be installed within the roof of the development on Level 5 and Level 7. The positioning of mechanical plant on the rooftop is acoustically effective given that the development is 7-storeys high, meaning that:

- Mechanical plant would have limited line-of-sight to any sensitive uses.
- Any acoustic screening installed (if required) would be effective at this location.

With respect to the Level 5 mechanical plant deck, it is noted that there are no balconies or external areas on Level 6 & 7 overlooking that plant deck, which limits the risk of any adverse onsite mechanical plant impacts.

Further, the ambient noise environment is already elevated due to proximity to the Princes Highway, meaning that any noise impacts from mechanical plant would be tempered at on-site and off-site sensitive uses.

Regardless, it is recommended that any base building mechanical plant is reviewed once plant specifications are known, noting that compliance with the Noise Protocol is a statutory requirement, regardless of planning controls.

3.3 External Communal Terraces

The Plans indicate several external communal terraces located on Level 3 and Level 4. There is also a central courtyard which is located in the centre of the development, meaning that off-site sensitive uses would be adequately shielded from this area by the built form of the proposed development.

Voice noise from patrons and/or crowds is not covered under the Noise Protocol and is not subject to any legislative noise limits. There is however a requirement for developers to minimise noise impacts from external communal areas where reasonably practical under the *Environment Protection Act 2017* (EP Act) and the *General Environment Duty* (GED).

In practice, outdoor communal areas close to residential interfaces could result in adverse noise impacts where late night use is permitted (post-10pm), commensurate with when sleep disturbance impacts could occur.

We consider it reasonable to prohibit the use of communal areas overlooking existing off-site sensitive uses. The use of 'inner' communal areas (such as the central courtyard) would only affect on-site sensitive uses and noise impacts from these areas would be a matter for the building management to control.

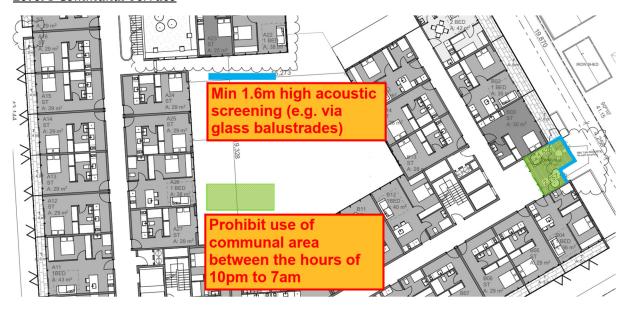
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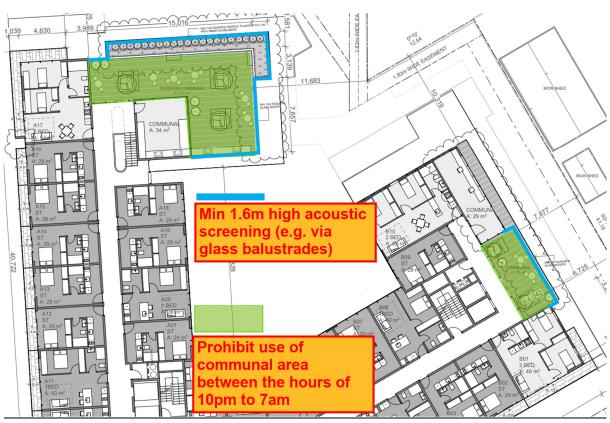
We also consider it appropriate to install acoustic glass balustrading to assist with minimising noise impacts to off-site sensitive uses.

A summary of our recommendations is presented in the markups below:

Level 3 Communal Terrace



Level 4 Communal Terraces



1959-1963 Dandenong Road & 75 Beddoe Avenue, Clayton



Overall, we are satisfied that the proposed mitigation and controls above would help minimise noise impacts from external communal terraces and as a result, assist the developer in complying with the GED obligations under the EP Act.

3.4 Domestic Air Conditioning

All outdoor air-conditioning units will need to be installed and used in compliance with the Environment Protection Regulations 2021, which prohibits the use of such equipment at night if it is audible within an adjoining residence.

It is likely that air conditioning units will be located on balconies and/or the rooftop of the development. This is considered typical for multi-storey residential apartments and is accepted as standard practice.

In reality, air-conditioning units are sometimes used during the night period but rarely result in noise complaints. Under the Environment Protection Regulations 2021, an objective assessment is not typically required because all air-conditioning units emit similar types of noise and rely on prohibited use at night in the event of a noise complaint.

Overall, the risk of adverse noise impacts from domestic air condensers is low. Regardless, all domestic plant use is controlled by the Environment Protection Regulations 2021 which is enforceable regardless of the planning permit.

3.5 Other Noise Impacts

Council's RFI also refers to the relevant construction techniques to protect future residents from internal noise impacts. Our interpretation of this is that Council is minded with potential noise impacts between dwellings.

This is a matter that will inherently be resolved via compliance with the *National Construction Code*, (NCC). Such matters are normally resolved at building permit stage and are not normally matters overseen by Council or planning permits.

If Council is referring to noise impacts from other internal uses (e.g., games rooms, convenience shop, central courtyard), these are internal issues that would be resolved via:

- Architectural treatment by the developer to ensure project quality objectives are achieved.
- Future commercial tenants for the restaurant/convenience shop, noting that the developer can draft suitable lease agreements to ensure that future operators are reminded of their obligations to comply with the Noise Protocol. It is also our experience that floor/ceiling partitions when constructed to NCC compliance are usually sufficient in addressing any airborne noise impacts that might occur within dwellings situated directly above small-scale convenience shops or restaurants.
- Building management, by ensuring that suitable controls are adopted to minimise noise impacts during sensitive hours (e.g. by restricting hours for the use of games rooms, courtyards etc).

1959-1963 Dandenong Road & 75 Beddoe Avenue, Clayton



4 Recommendations and Conclusion

Enfield Acoustics has assessed potential noise impacts from the proposed student accommodation development at 1959-1963 Dandenong Road & 75 Beddoe Avenue, Clayton and is satisfied that a planning permit can be approved.

Traffic noise impacts can be mitigated to comply with the requirements of Clause 58.04 via moderate forms of laminated double glazing (refer Appendix A).

With regards to mechanical plant noise impacts, the development presents as low-risk given the type of development being primarily residential. There are sufficient opportunities to mitigate mechanical plant noise, which can be determined during later stages once all requirements are known.

All base building and commercial mechanical plant, and commercial noise impacts must comply with the Noise Protocol, regardless of planning controls.

With respect to noise from external communal areas, it is recommended that the developer adopt the mitigation and controls in Section 3.3 to minimise any off-site noise impacts, which would also assist the developer in satisfying their GED obligations.

Apart from the above, there are no other noise impacts that would not otherwise be resolved by:

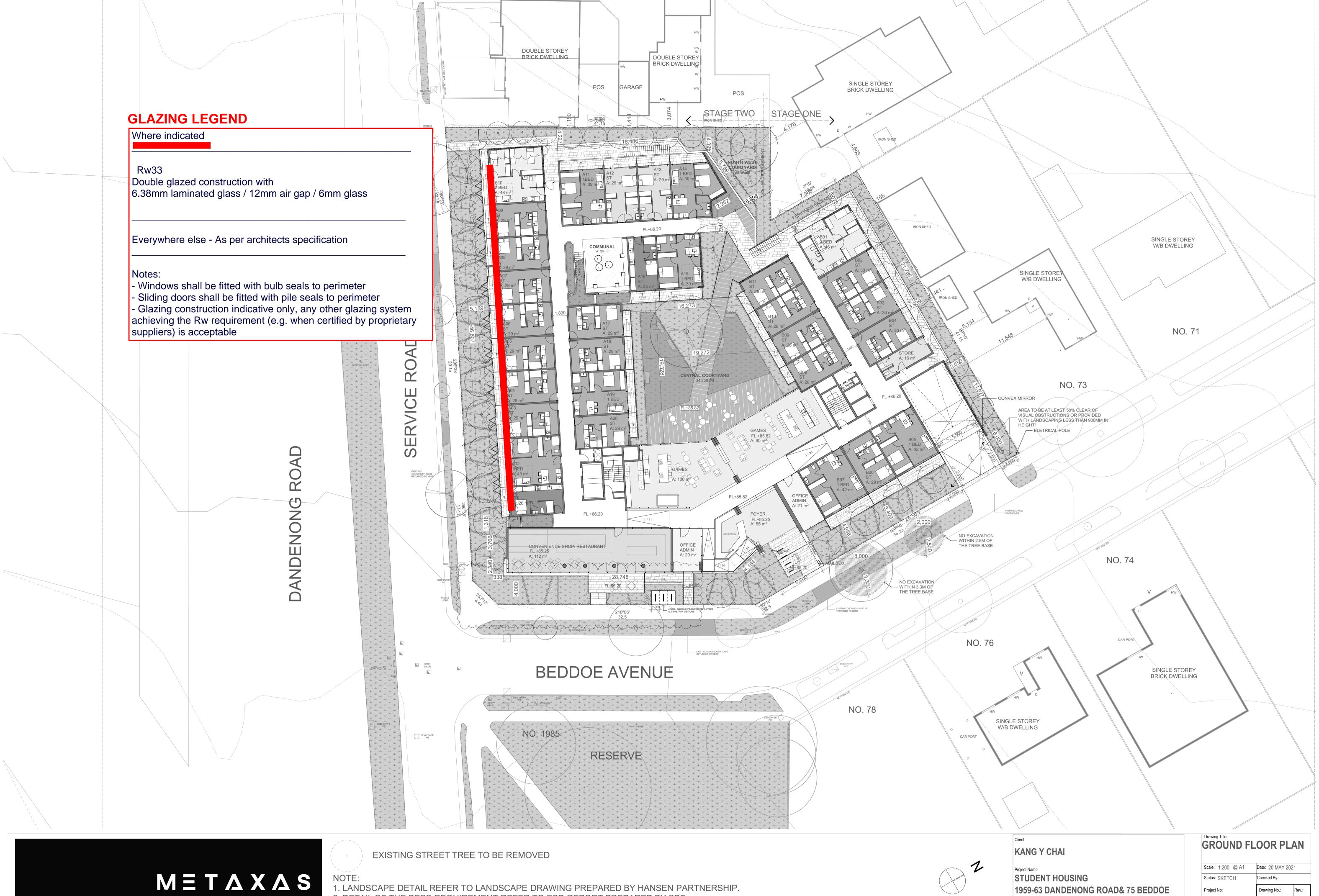
- The National Construction Code
- Architectural treatment by the developer
- Management controls by the building manager

Overall, the siting of a student accommodation development on the Subject Land appears to be appropriate, noting that noise impacts can be adequately mitigated, controlled and/or conditioned on the permit such as to not result in adverse noise impacts at all on-site and off-site sensitive uses.

On this basis, Enfield Acoustics is satisfied that a planning permit can be approved.



Appendix A – Glazing Markups



METAXAS ARCHITECTS PTY LTD: ABN 180 791 78626: 114 CARDIGAN STREET, CARLTON VIC 3053: AUSTRALIA

2. DETAIL OF THE BESS REQUIREMENT REFER TO ESD REPORT PREPARED BY SBE. EXTENT OF DOUBLE GLAZING REFERED TO IN ENFIELD ACOUSTICS REPORT

1959-63 DANDENONG ROAD& 75 BEDDOE

AVE, CLAYTON

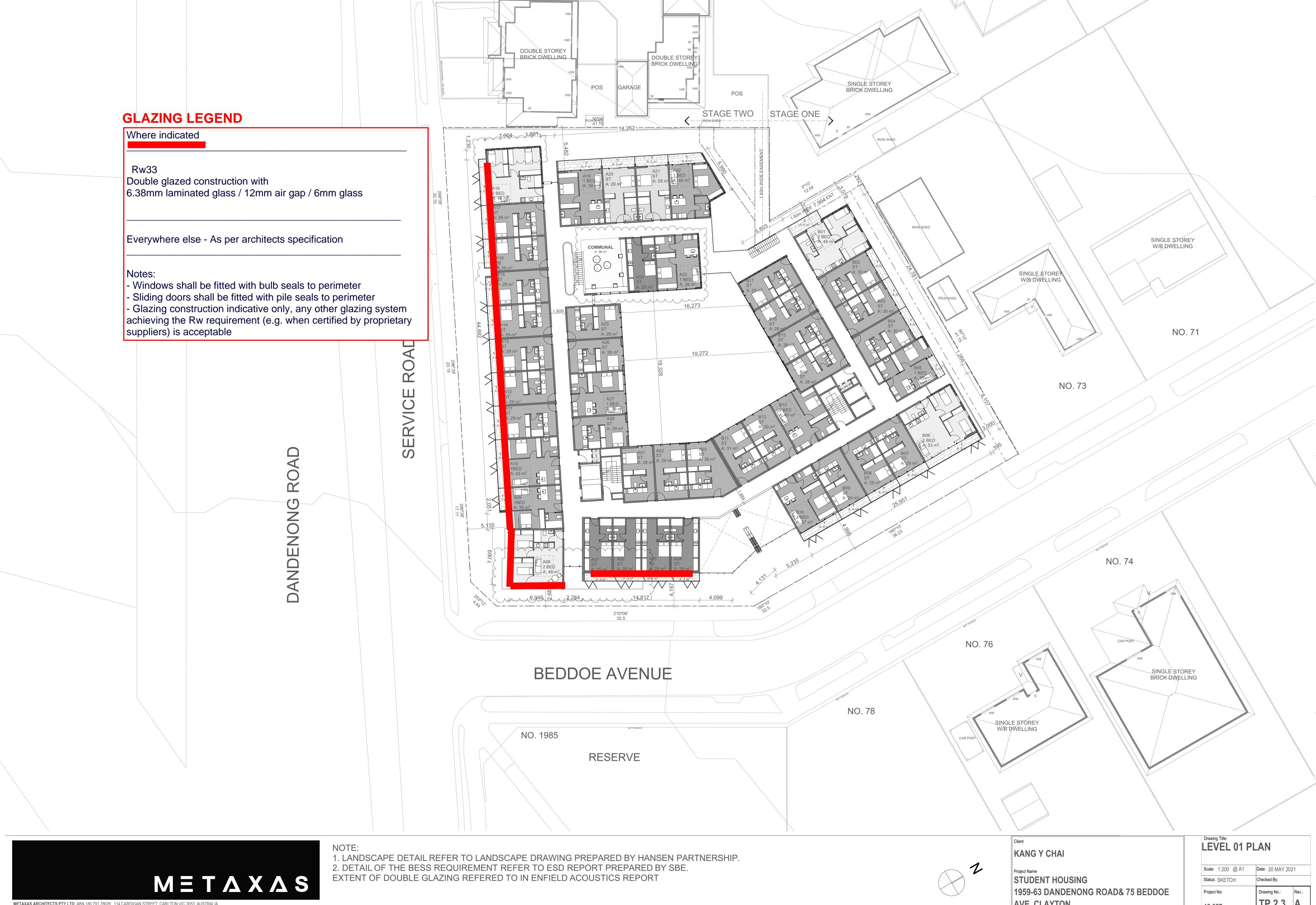
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TP.2.2 A

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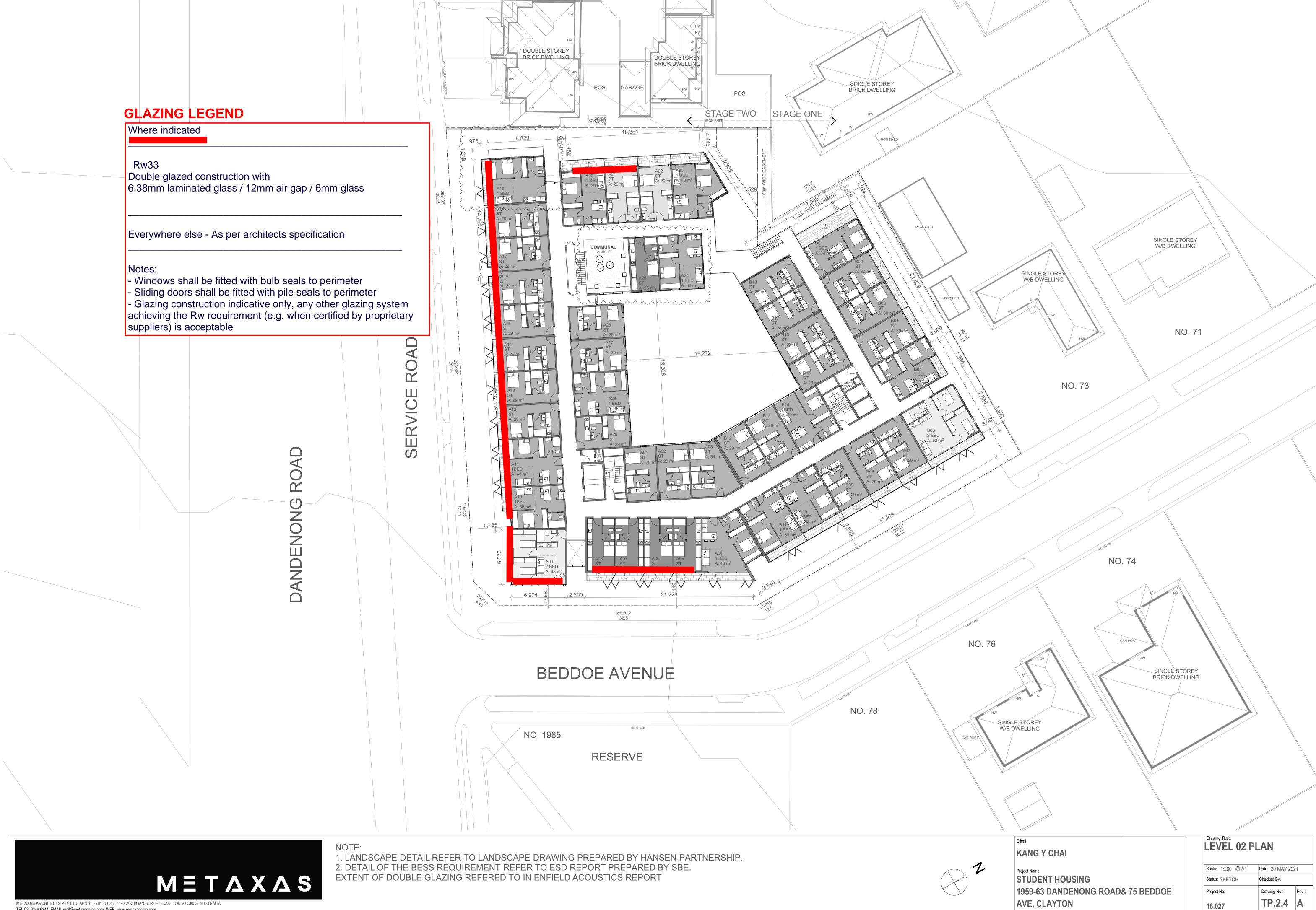
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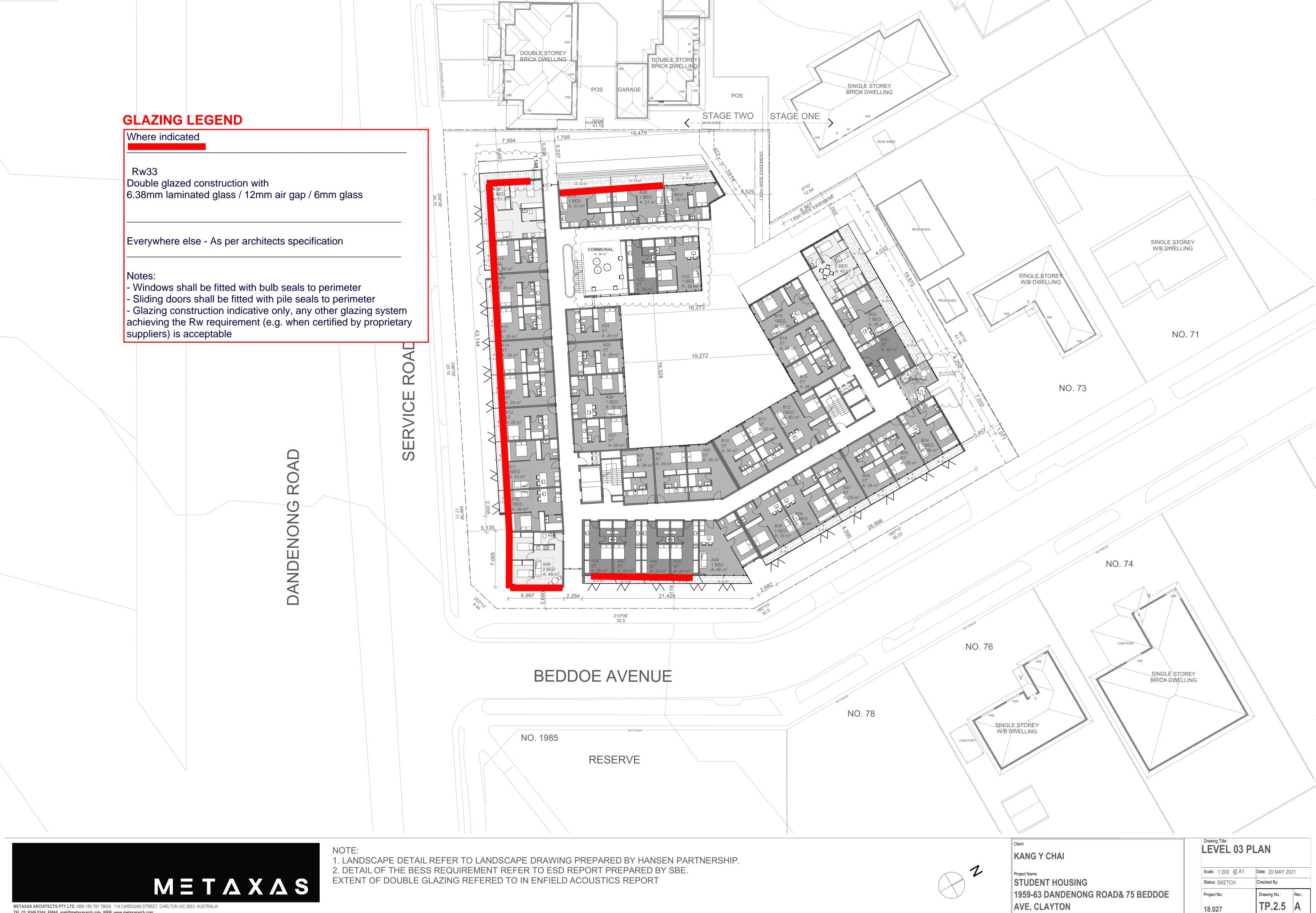
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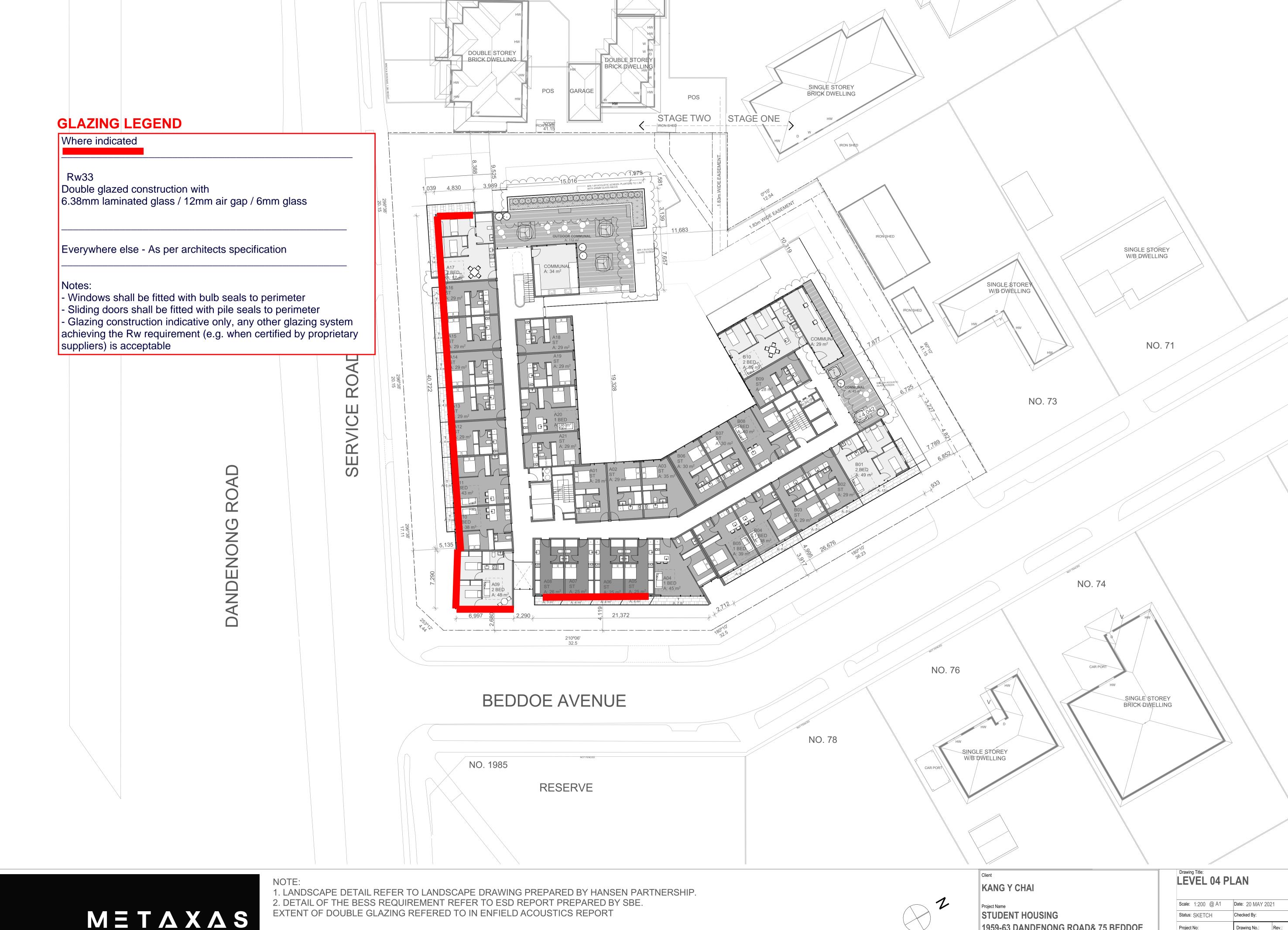
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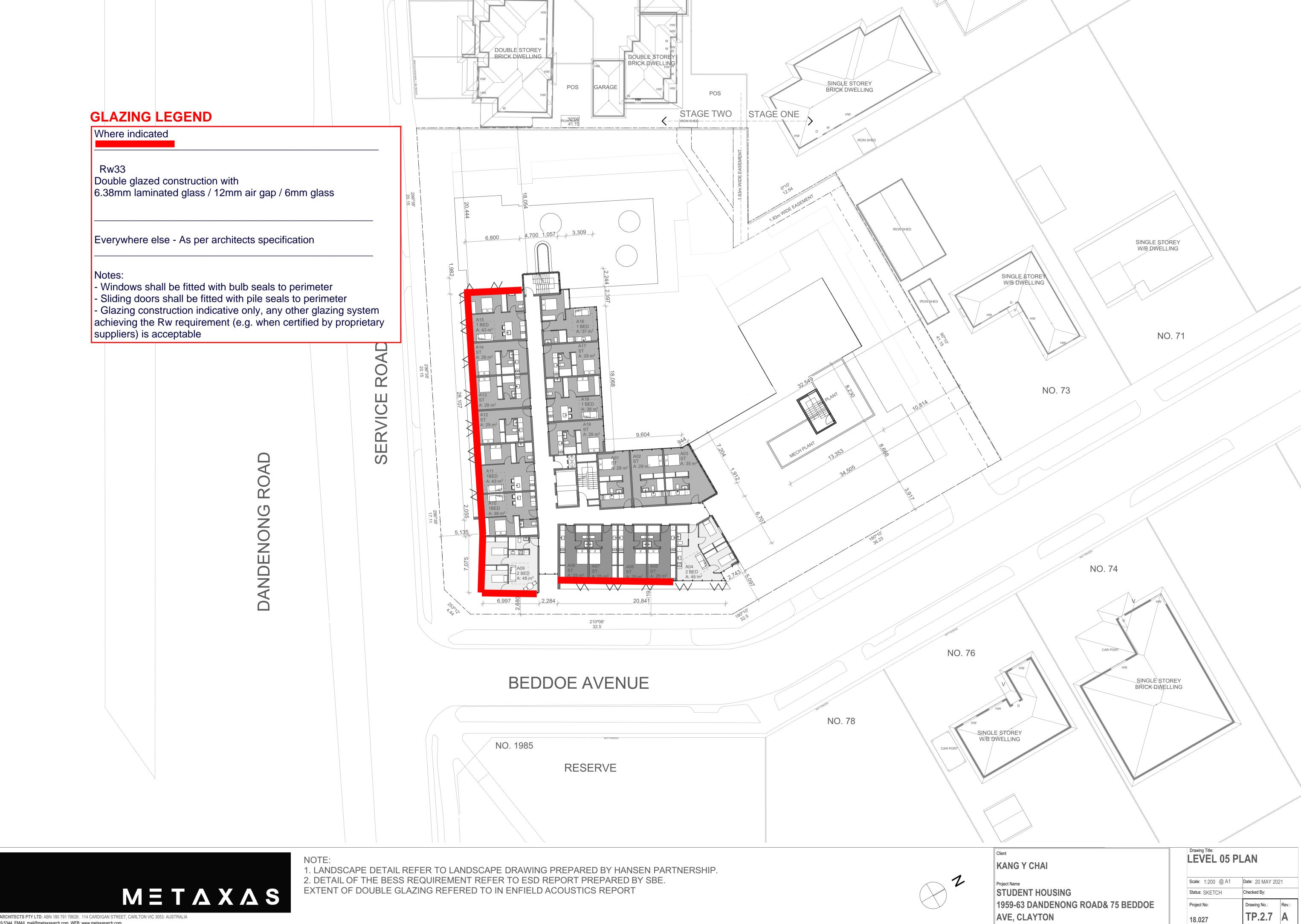


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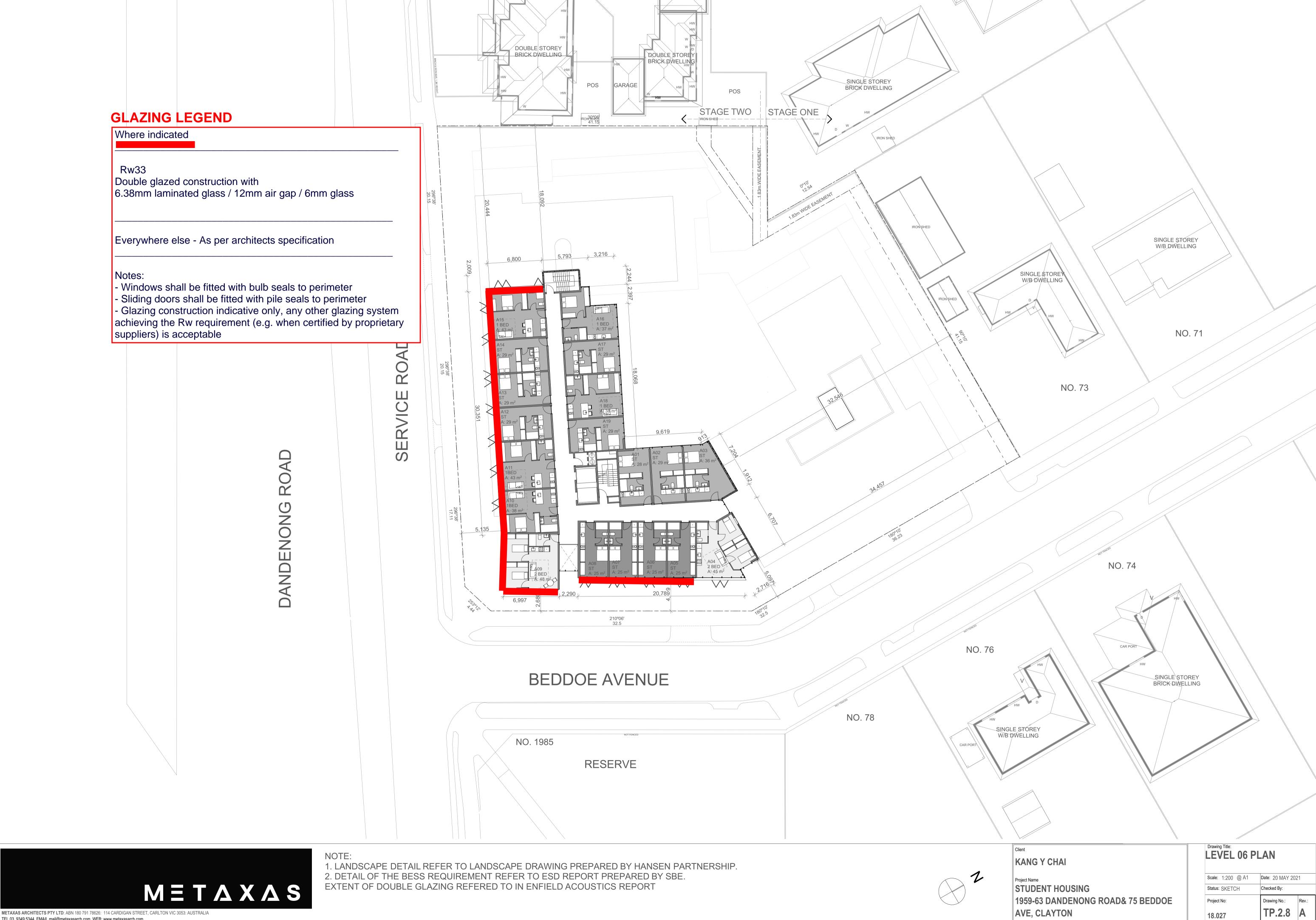
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