WLPP No.	Item No. 2
DA No.	DA-2018/1630
Proposal	Residential - demolition of existing structures, tree removal and construction of multi dwelling housing - 10 units with associated carparking and infrastructure
Property	35 Yellagong Street, WEST WOLLONGONG NSW 2500
Applicant	Design Workshop Australia
Responsible Team	Development Assessment and Certification - City Wide Team (BM)

ASSESSMENT REPORT AND RECOMMENDATION

Executive Summary

Reason for consideration by Local Planning Panel

The proposal has been referred to Wollongong Local Planning Panel (WLPP) for **advice** pursuant to clause 2.19(1) (c) of the Environmental Assessment Act 1979. Pursuant to clause 2 of Wollongong City Council Submissions Policy, the application is the subject of 2 or more unique submissions by way of objection and contravenes a development standard imposed by Local Environmental Plan by up to 10%.

Proposal

The proposal is for demolition of existing structures, tree removal and construction of multi dwelling housing - 10 units with associated carparking and infrastructure

Permissibility

The site is zoned R2 Low Density Residential pursuant to Wollongong Local Environmental Plan (WLEP) 2009. The proposal is categorised as a multi dwelling development and is permissible in the zone with development consent.

Consultation

The proposal was exhibited in accordance with Appendix 1 of the Wollongong Development Control Plan 2009 notified between the 11 January and 18 February 2019. 5 submissions were received during this period.
Upon submission of additional information and amended plans, the proposal was re exhibited between the 14 June and 27 June 2019. 4 submissions were received during this period.
The submissions received are discussed at section 1.5 of the assessment report

Internal

Details of the proposal were referred to Council's Stormwater, Traffic, Landscape, Environment, Recreation, Property and SCAT division for assessment. Satisfactory referral advice, comments and/or recommended conditions were provided in each instance.

External

Details of the proposal were referred to Natural Resources Access Regulator (NRAR). Advice provided satisfactory comments subject to conditions.

Main Issues

The main issues are,

- Exception sought to the development standard for site width and variation request to development controls related to side setback and number of storeys
- Traffic, Parking and Noise Management

Recommendation

It is recommended that DA-2018/1630 be **approved by way of Deferred Commencement** (for creation of easement for drainage) and subject to conditions contained in Attachment 5.

1 APPLICATION OVERVIEW

1.1 PLANNING CONTROLS

The following planning controls apply to the development:

State Environmental Planning Policies:

- SEPP No. 55 – Remediation of Land
- SEPP (Building Sustainability Index: BASIX) 2004

Local Environmental Planning Policies:

- Wollongong Local Environmental Plan (WLEP) 2009

Development Control Plans:

- Wollongong Development Control Plan 2009

Other policies

- Wollongong City-Wide Development Contributions Plan 2018
- Biodiversity Conservation Act 2016

1.2 DETAILED DESCRIPTION OF PROPOSAL

The proposal comprises a multi dwelling development comprising 10 units as detailed below:

Site preparation

- Demolition of existing dwelling and structures
- Earthworks for the preparation of the building works.

Works / Construction / building details

- Construction of four (4) x three (3) bedroom double storey dwellings (Type 1);
- Construction of five (5) x three (3) bedroom triple storey dwellings (Type 2);
- Construction of one (1) x three (3) bedroom double storey adaptable housing dwelling (Type 3);
- On-site parking for a total of twenty two (22) cars, including twenty (20) resident parking spaces in the form of double garages for each dwelling, and two (2) visitor parking spaces;
- The provision of an external landscaped communal open space area; and
- Removal of selected trees, with the provision of associated supplementary replacement plantings/landscaping and stormwater drainage.

Landscaped areas are provided in the form of a deep soil zone at the rear northern part and south eastern corner of the site and perimeter landscaping.

Access for vehicles is via a driveway off Yellagong Street along the south eastern side boundary.

Bin Storage collection area located towards the eastern boundary of the site and adjacent to the internal driveway.

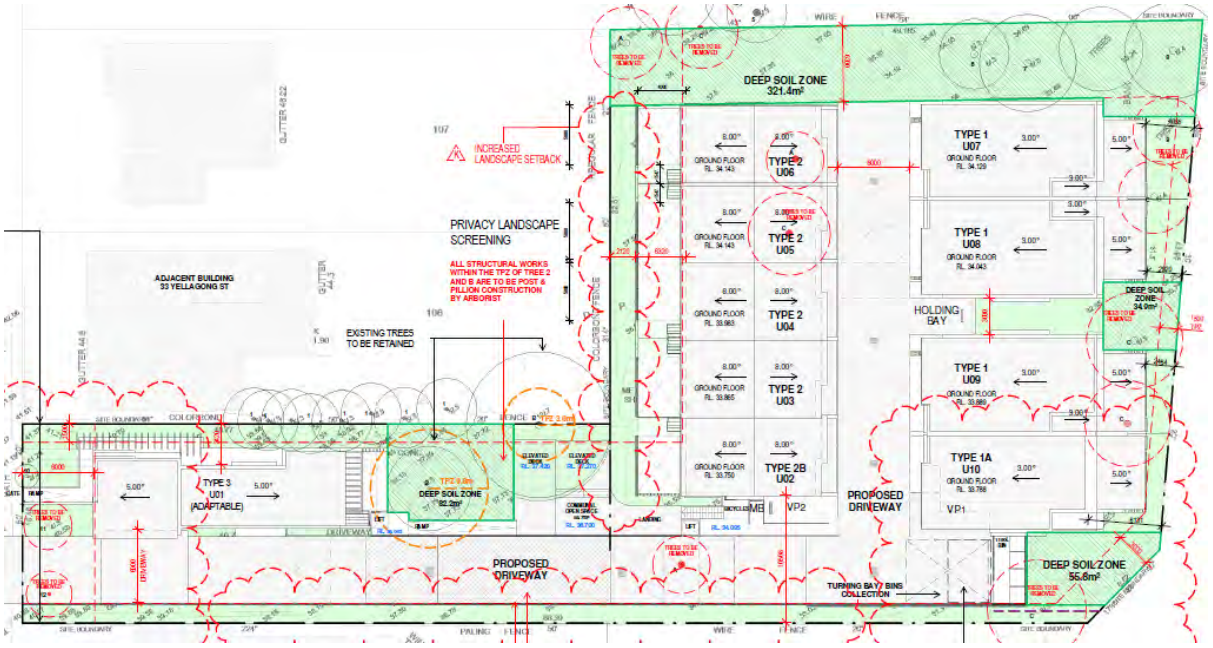


Figure 1: Site Plan

The development is Integrated as it requires approval under the Water Management Act 2000 pursuant to Section 4.47 of the EPA Act 1979.

1.3 BACKGROUND

Application Number	Description	Decision	Decision Date
BA-1963/1696	Dwelling	Approved	12-Aug-1963
PL-2013/61	7 townhouses	None	16-Aug-2013
DA-2013/949	Residential - eight attached townhouses, alterations to existing dwelling, demolition of existing outbuildings	Approved	25-Jun-2014
DA-2013/949/A	Residential - eight attached townhouses, alterations to existing dwelling, demolition of existing outbuildings Modification A - various internal reconfigurations and addition and deletion of skylights	Approved	11-Nov-2014
PL-2016/39	Residential - multi dwelling housing	None	24-May-2016
DA-2016/1215	Residential - demolition of existing dwelling, tree removal and construction of a 15 unit multi dwelling housing development and associated car parking and infrastructure.	Rejected	30-Mar-2017
PL-2018/57	Multi Dwelling - 11 dwellings and alterations to the existing dwelling	None	18-Apr-2018
DE-2018/88	Multi dwelling housing - eleven (11) units	None	08-Aug-2018
DA-2018/1630	Residential - demolition of existing structures, tree removal and construction of multi dwelling housing - 10 units with associated carparking and infrastructure - Re-notified due to amended plans		

A Pre-lodgement meeting (PL-2018/57) and subsequent voluntary Design Review (DE-2018/88) was held for multi dwelling development comprising 11 units. The proposal submitted with the current development application was later amended reducing to 10 units involving building layout and design changes and responding to Design Review Panel (DRP) comments. A copy of DRP comments is provided at Attachment 4.

Customer service actions

There are no outstanding customer service requests of relevance to the development.

1.4 SITE DESCRIPTION

The site is located at 35 Yellagong Street, WEST WOLLONGONG NSW 2500 and the title reference is Lot 105 DP 25391.

The site is a battle-axe allotment with 16.5m street frontage continuing up to 49m into the site. The south eastern boundary is approximately 88.4m long. A slightly splayed 44m long eastern side boundary and the upper north-west boundary (49m) adjoins council reserves. The western side boundary (32.6m) is common with the rear boundaries of two adjoining lots along Yellagong street. The site has moderate fall towards the east with approximate 6.5m fall within the wider portion.

Adjoining developments are single storey dwellings. The locality is characterised by low density residential developments.

Property constraints

- There are no constraints identified with the property.

There are no restrictions on the Title.

Figure 2: Aerial photograph

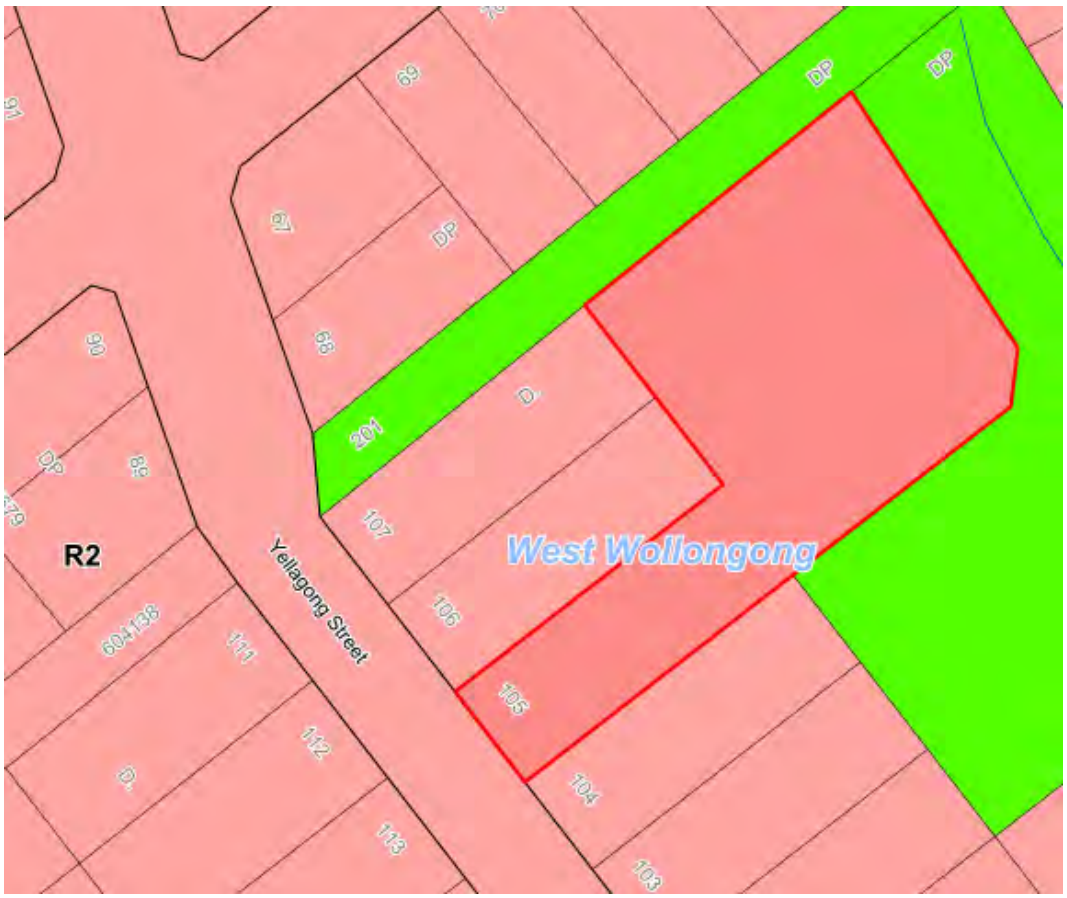


Figure 3: WLEP 2009 zoning map

1.5 SUBMISSIONS

The application was notified in accordance with WDCP 2009 Appendix 1: Public Notification and Advertising. This included a notice in The Advertiser. Five (5) submissions were received and the issues identified are discussed below.

Table 1: Submissions

Concern	Comment
1. Site width Does not comply with LEP, development in-appropriate for the zone	Applicant has submitted Cl.4.6 variation in this regard which is considered capable of support as detailed in Section 3.1.3 of this report. Multi dwelling housing development is permissible with consent in R2 Low Density Residential zone and complies with the maximum floor space ratio and height as required under WLEP 2009.
2. Non-compliances with Setback and Number of storeys	While viewed from the street Unit 01 facing the street is sited in isolation from rest of the unit complex. Remaining units are located to the rear wider part of the lot. A merit assessment has been undertaken treating the front unit as a single dwelling though it forms part of the overall multi dwelling development. Comparing to similar dwellings along the street this unit can be regarded compliant in meeting the necessary

Concern	Comment
	side setback. The unit satisfies the objectives for the development control and is regarded of no adverse impacts to the neighbours in terms of overlooking or overshadowing. Five units within the complex constitute 3 storeys. These dwellings comply with the maximum height and setback requirements and are located towards the rear part of the site. They are not considered to cause adverse amenity impacts to the neighbours. Variation requests to Council's DCP controls are capable of support as detailed in Section 3.3.1
3. Traffic & Noise & Safety	Council's Traffic Engineer has reviewed the submitted Traffic Impact Assessment and indicated no objections. Site distance and manoeuvring within the site is considered satisfactory. Comments provided did not raise significant safety concerns and were found satisfactory subject to conditions of consent. Additional conditions are recommended for waste collection arrangements. The submitted Acoustic study report was reviewed by Council's Environmental officer. Appropriate conditions are included with the consent to provide acoustic fencing satisfying the recommendations within the report.
4. Stacked parking, insufficient parking	Council's Traffic Engineer has reviewed the plans and found the proposal to be satisfactory in terms of the parking arrangements and council's DCP controls. Number of car parking provided meets the requirement of Chapter E3 of WDCP 2009, which requires 2 per dwelling and 0.2 per dwelling for visitor's parking. As 10 dwellings are proposed 2 visitor's spaces are required and provided.
5. Impact on trees, Tree removal and environmental, insufficient landscaping	Council's Landscape and Environment officers have provided satisfactory comments on the proposal subject to conditions of consent. No significant issues were raised. In total 13 trees are identified to be removed. Council's landscape officer has recommended conditions requiring 6 compensatory plantings. Consideration of the proposal with regard to the Biodiversity Conservation Act 2016 is provided at Section 2 below. Council's Environmental officer has recommended conditions about tree removal and fauna protection in this regard.
6. Over development and not	The proposed multi-dwelling housing development is permissible in the R2 zone and complies with maximum

Concern	Comment
appropriate for the zone	floor space ratio and height as required under WLEP 2009. The proposal is not considered to be an overdevelopment of the site. It also complies with the DCP in relation to parking, manoeuvring and landscaping provisions required for such a proposal.

Table 2: Number of concerns raised in submissions

Concern 1 2 3 4 5 6

Frequency *4 1 5 4 2 3*

1.6 CONSULTATION

1.6.1 INTERNAL CONSULTATION

Stormwater Engineer

Council's Stormwater Engineer has reviewed the application and provided a satisfactory referral subject to conditions.

Landscape Architect

Council's Landscape Officer raised initial concerns about submitted information in relation to impact to trees to be retained, area for landscaping and width of landscape beds.

Additional information submitted by the applicant has been reviewed and is satisfactory subject to conditions.

Traffic Engineer

Initial concerns were raised related to driveway width, stacked parking and manoeuvring of vehicles including waste services. Additional information including amendments to the plans were subsequently submitted. Upon review of the additional information a satisfactory referral was provided subject to conditions.

Environment Officer

Council's environment officer raised concerns with the initial submission and requested additional information on acoustic fencing requirements and car park noise assessment report. Updated documents were submitted by the applicant and were considered satisfactory subject to conditions.

Safe Community Action Team (SCAT) Officer

No concerns were raised subject to conditions.

Property Officer

Council's Property Officer has reviewed the proposal and given comments on the requirement for an easement along adjoining Council land. An in-principle agreement has been provided on condition which is incorporated as a deferred commencement condition to be satisfied prior to the operation of the development consent.

Recreation Officer

Council's Recreation officer has reviewed the proposal and has raised no objections.

1.6.2 EXTERNAL CONSULTATION

Natural Resources Access Regulator (NRAR)

NRAR has issued General Terms of Approval for works in support of the proposal which are incorporated into the conditions at Attachment 5.

2 OTHER LEGISLATION

2.1 NSW BIODIVERSITY CONSERVATION ACT 2016

Section 1.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) provides that Act has effect subject to the provisions of Part 7 of the *Biodiversity Conservation Act 2016* (BC Act).

Part 7 of the BC Act relates to Biodiversity assessment and approvals under the EP&A Act where it contains additional requirements with respect to assessments, consents and approvals under this Act.

Clause 7.2 of the Biodiversity Conservation Regulation 2017 provides the minimum lot size and area threshold criteria for when the clearing of native vegetation triggers entry of a proposed development into the NSW Biodiversity offsets scheme. For the subject site, entry into the offset scheme would be triggered by clearing of an area greater than 0.25 hectares based upon the minimum lot size of the WLEP 2009 R2 zoned land (i.e. less than 1 hectare minimum lot size).

An approximate area of 0.0163 hectares of native vegetation (163sqm consisting of 13 trees) is proposed to be cleared for the development. The minimum subdivision lot size for the land under WLEP 2009 is 449sqm. Therefore the proposal does not trigger the requirement for a biodiversity offset scheme.

The site is not identified as being of high biodiversity value on the Biodiversity Values Map.

Council's Environmental Assessment Officer has considered whether the development site would potentially provide suitable habitat for any threatened species and the test of significance and has concluded that the proposed development is not expected to likely significantly affect threatened species or ecological communities, or their habitats. The development proposed would not be considered a key threatened process.

The development would therefore not be considered to result in adverse impacts on biodiversity and is consistent with the provisions of the *Biodiversity Conservation Act 2016*. Notwithstanding, conditions are recommended as provided at Attachment 5 which require consideration of fauna during the tree removal works.

3 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 – 4.15 EVALUATION

3.1 SECTION 4.15(1)(A)(1) ANY ENVIRONMENTAL PLANNING INSTRUMENT

3.1.1 STATE ENVIRONMENTAL PLANNING POLICY NO. 55 – REMEDIATION OF LAND

7 Contamination and remediation to be considered in determining development application

(1) 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.

(2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subclause (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.

(3) The applicant for development consent must carry out the investigation required by subclause (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.

(4) The land concerned is:

(a) land that is within an investigation area,

(b) land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,

(c) to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital—land:
(i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and

(ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).

A desktop audit of previous land uses does not indicate any historic use that would contribute to the contamination of the site. There are no significant earthworks proposed and the proposal does not comprise a change of use. Council's Environment Officer has reviewed the proposal and no concerns are raised in regard to contamination as relates to the intended use of the land and the requirements of clause 7.

3.1.2 STATE ENVIRONMENTAL PLANNING POLICY (BUILDING SUSTAINABILITY INDEX: BASIX) 2004

The proposal is BASIX affected development to which this policy applies. In accordance with Schedule 1, Part 1, 2A of the Environmental Planning and Assessment Regulation 2000, a BASIX Certificate has been submitted in support of the application demonstrating that the proposed scheme achieves the BASIX targets.

The BASIX certificate was issued no earlier than 3 months before the date on which the development application was lodged.

3.1.3 WOLLONGONG LOCAL ENVIRONMENTAL PLAN 2009

Part 2 Permitted or prohibited development

Clause 2.2 – zoning of land to which Plan applies

The zoning map identifies the land as being zoned R2 Low Density Residential

Clause 2.3 – Zone objectives and land use table

The objectives of the zone are as follows:

• *To provide for the housing needs of the community within a low density residential environment.*

• *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*

The proposal is satisfactory with regard to the above objectives.

The land use table permits the following uses in the zone.

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Boat launching ramps; Child care centres; Community facilities; Dual occupancies; Dwelling houses; Environmental facilities; Exhibition homes; Exhibition villages; Group homes; Health consulting rooms; Home-based child care; Hospitals; Hostels; Information and education facilities; Jetties; ***Multi dwelling housing;*** *Neighbourhood shops; Places of public worship; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Residential flat buildings; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Shop top housing; Signage; Veterinary hospitals*

The proposal is categorised as a multi dwelling housing as described below and is permissible in the zone with development consent.

Clause 1.4 Definitions

Multi dwelling housing *means 3 or more dwellings (whether attached or detached) on one lot of land, each with access at ground level, but does not include a residential flat building.*

Clause 2.7 Demolition requires development consent

The application proposes demolition of existing building and standard conditions are to apply with regard to the demolition.

Part 4 Principal development standards

Clause 4.3 Height of buildings

The proposed building height of maximum 8.89m (U02) does not exceed the maximum of 9 permitted for the site. A condition is included for a survey to be undertaken ensuring the maximum height limit for all 3 storey units.

Clause 4.4 Floor space ratio

Maximum FSR permitted for the zone: 0.5:1

Site area:	3117 m²
GFA of Units:	
Unit 01	156.8 m²
Unit 02	136.9 m²
Unit 3 to 5	144.7 m²
Unit 6	140.9 m²
Unit 7 to 9	148.3 m²

Unit 10	131.1 m²
Total GFA	1445 m²
FSR:	1445 m²/3117 m² = 0.46:1

**areas confirmed via software Trapeze and 360sqm of GFA excluded for car parking purposes.

Clause 4.6 Exceptions to development standards

Clause 7.14 of the LEP states, "*Development consent must not be granted for development for the purposes of multi dwelling housing unless the site area on which the development is to be carried out has a dimension of at least 18 metres.*"

The subject site is a battle axe allotment having a site width of 16.46m. This width continues for approximately 49m into the site and broadens to 49m thereafter.

The design layout displays one of the units which is the adaptable 2 storey dwelling to be located near the street front and the remaining units to the rear area of the site (see Figure 1). With the proposed development the site when viewed from the street will appear to contain a new two storey dwelling as the rest of the development will be sparingly visible being located at the rear down slope portion and mostly hidden behind the neighbouring dwellings to the west along the street.

Proposal meets the required development standards and controls in terms FSR, height, landscaping, communal open spaces and parking. No adverse impacts are expected to the neighbouring dwellings and the overall locality.
The variation to the development standard with 8.5% departure is considered satisfactory to be supported.

Assessment of the development departure is provided below. The applicants Cl.4.6 Departure Request statement is provided at Attachment 2.

WLEP 2009 clause 4.6 proposed development departure assessment	
Development departure	Clause 7.14 – Minimum Site Width
Is the planning control in question a development standard	Yes
4.6 (3) Written request submitted by applicant contains a justification:	
that compliance with the development standard is unreasonable or unnecessary in the circumstances of the case, and	Yes. The applicant has submitted a Clause 4.6 Statement with the following justification: • The building potential is already limited by the shape of the allotment. Adopting the site width would mean a large part of the subject site would be excluded from any built form. • The proposed departure sought only relates to the front part of the site, with the other part exceeding the minimum 18 metres site with requirement. • Strict application and compliance with the control would effectively prohibit a multi dwelling housing development being undertaken on the subject site,

	despite it being a permitted form of development within the R2 Low Density Residential zone. • The reduced site width does not result in any undue privacy or overlooking impacts to adjoining properties, by virtue of the proposed architectural interface treatment to these edges (restricted window treatments and dwelling orientations to these boundaries, etc.).
that there are sufficient environmental planning grounds to justify contravening the development standard.	Yes It is requested that Council give consideration to: The front portion of the site which fails to meet the minimum site width requirement (is 802.75m^2 and) essentially contains only 1 x dwelling with a gross floor area of 156.5m^2. The proposed departure sought only relates to front part of the site, with the other part exceeding the minimum 18 metres site with requirement. Effectively, WDCP 2009 Chapter B1 provides that dwelling houses may be permitted on residential land with no requirements for minimum site width, and therefore it is reasonable to suggest that this part of the site can contain 1 x dwelling unit as proposed. The development as proposed is consistent with the objectives for site width outlined in the DCP as it allows for the orderly and economic use of the land. The objection is considered to be well founded and compliance with the standard is unreasonable in the circumstances of the case.
4.6 (4) (a) Consent authority is satisfied that:	
the applicant's written request has adequately addressed the matters required to be demonstrated by subclause (3), and	The applicant's written request adequately addresses the matters required to be demonstrated under subclause 3. The departure to the site width is requested to improve the housing demand in the locality and orderly development of the site providing additional dwellings. The resulting departure to the development standard is considered acceptable as the site mainly displays only one dwelling at the front while exhibiting almost similar appearance as the existing development on site (except for a double storey dwelling and the driveway swap). The width at the street boundary technically satisfies the objectives with regard to a single dwelling requirement. The proposed density of the site is considered appropriate for the location and will not detrimentally affect the visual appearance of the area. The overall height and form of the development is consistent with expected future desired character strategies for the area. The proposal satisfies the objectives and development controls in relation to minimum site width contained within Clause 5.1 of Chapter B1 of the DCP. Though no specific objectives are outlined under Cl.7.14 development standard in the LEP it is

	considered that the proposed development will not result in adverse environmental or amenity impacts in the locality. The Clause 4.6 Statement has provided reasonable justification that the development achieves the objectives of Clause 5.1 of Chapter B1 of the DCP, the objectives of the R2 zone and has sufficient planning grounds to justify the variation.
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	There are no objectives specified for Clause 7.14 within the LEP. However the following objectives for the development control for Site width (Cl. 5.1.1 of Chapter B1 of the DCP) to be considered are: *(a) To allow for development of sites which are of sufficient size to accommodate the required building envelope, car parking and landscaping requirements; and* *(b) To encourage amalgamation of allotments to provide for improved design outcomes.* With regard to the above, it is considered that the proposal will have no detrimental impact on the surrounding dwellings. The extent of the development, density and intensity, and bulk and scale are located within the broader area of the site to the rear and behind the single dwellings along the street. No significant adverse impacts are expected to the surrounding dwellings or the locality with the proposed development. The objectives of the R2 Low Density Residential zone are: • *To provide for the housing needs of the community within a low density residential environment.* • *To enable other land uses that provide facilities or services to meet the day to day needs of residents.* The development is consistent with the above objectives as outlined below: • The variation is the result of the unique shape of the site and an allotment intended for low density residential housing. • The overall shape and site dimensions are considered satisfactory to accommodate the multi dwelling development without detrimental impacts to the surrounding developments. Given that the development is consistent with the objectives of the zone, the proposed departure to the site width is considered to be in the public interest and capable of support.
the concurrence of the Secretary has been obtained.	Yes. This application is within the 10% concurrence delegated to Council. However under Council's submission policy the application will be reported to the Wollongong Local Planning Panel for advice.

Part 7 Local provisions – general

Clause 7.1 Public utility infrastructure

The development site is already serviced by electricity, water and sewage services.

A condition will be imposed within the development consent requiring approval from the relevant authorities for the connection of electricity, water and sewage to service the site prior to Construction Certificate.

Clause 7.4 Riparian Lands

Riparian Land corresponding to a Category 3 watercourse has been mapped as occurring beyond the north eastern boundary of the subject lot. The proposal has been considered by NRAR and Council's Environmental officer. A GTA issued by NRAR will be attached with other recommended conditions if the consent is issued.

Clause 7.6 Earthworks

The proposal comprises earthworks related to the construction of the buildings and related infrastructure and landscaping. The earthworks are not expected to have a detrimental impact on environmental functions and processes, neighbouring uses or features surrounding land.

Clause 7.14 Site Width

The proposal does not comply with the required minimum site width of 18m. The requested departure to the development standard as detailed previously is capable of support.

3.2 SECTION 4.15(1)(A)(II) ANY PROPOSED INSTRUMENT

N/A

3.3 SECTION 4.15(1)(A)(III) ANY DEVELOPMENT CONTROL PLAN

3.3.1 WOLLONGONG DEVELOPMENT CONTROL PLAN 2009

CHAPTER A1 – INTRODUCTION

8 Variations to development controls in the DCP

Clause 5.2 Number of Storeys

(a) The control being varied; and (b) The extent of the proposed variation and the unique circumstances as to why the variation is requested; and

The control being varied is:

R2 Low Density Residential Zone Max 3 storeys

Unit 02 – Unit 06 (Type 2) comprises 3 storeys

Five out of 10 units in the unit complex are 3 storeys comprising a ground level tandem garage, Level 1 living / kitchen / dining area and Level 2 bedrooms.

The applicant has outlined following reasons for a variation request to the development control:

The dwellings have been designed to respond to the topography of the site (i.e. the private open space is provided from Level 1 to a rear level courtyard). There is therefore no overshadowing or overlooking to adjacent dwellings. The ground level does not provide any habitable space and the overall height of the development is less than the height prescribed in

the LEP.
(See Variation statement submitted by applicant at Attachment 3)

(c) Demonstrate how the objectives are met with the proposed variations; and

The objectives of Clause 5.2 are:

The objectives of this control are:
(a) To encourage buildings which integrate within the existing streetscape and the desired future
character for the area.
(b) To minimise the potential impacts of overshadowing and overlooking on adjacent dwellings and open space areas.
The proposed variation is consistent with the above objectives as there will not be adverse impact to any privacy, overshadowing or daylight access for the subject property or the adjoining property.

These units are not highly visible from the street. No part of the basement floor is visible from the adjoining lots and will generally appear to be of 2 storeys when viewed from the neighbouring lots.

No overlooking impacts are expected as the dwellings maintain adequate setback distances, POS located at ground level and upper bedroom windows are fitted with privacy screens. Overall, the impact from this variation is assessed minimal and hence supported.

(a) Demonstrate that the development will not have additional adverse impacts as a result of the variation

It is considered that the proposed development will not have an adverse impact due to the proposed variation as the relevant objectives under Chapter B1 controls will be met. The 3 storey dwellings do not present undue visual impacts on to the streetscape or cause adverse amenity impacts to the neighbouring dwellings. For these reasons, the variation is capable of support.

Clause 5.4 Side Setbacks

(a) The control being varied; and (b) The extent of the proposed variation and the unique circumstances as to why the variation is requested; and

The control being varied is:

R2 Low Density Residential Zone 0.8 x ceiling height 1.0 x ceiling height

Encroachment- Level 1 of Unit 01 (Type 3)

On level 1, parts of north western facade encroach into the required varying setback of 3.7 to 3.84m (due to the natural slope on ground).

The applicant has outlined following reasons for variation to the development control:

In terms of the side setback control, all building lines to the respective boundaries achieve a minimum 1.5m setback at ground level. At the upper level the majority of setbacks are completely compliant with the 0.8 x ceiling height calculation, apart from Unit 01 (upper level) to the western boundary setback of 2.7metres instead of the variable 3.7 to 3.84 metres calculable – due to topographic profile). In this regard, the wall encroaching within this setback is less than 8 metres in length and incorporates no window openings at this edge from any primary living areas.
(See Variation statement submitted by applicant in Attachment 3)

(c) Demonstrate how the objectives are met with the proposed variations; and The objectives of Clause 5.4 are: *(a) To provide adequate setbacks from boundaries and adjoining dwellings to retain privacy levels, views, sunlight and daylight access and to minimise overlooking.* *(b) To provide appropriate separation between buildings to achieve the desired urban form.* *(c) To optimise the use of land at the rear of the property and surveillance of the street at the front of the property.* *(d) To minimise overshadowing of adjacent properties and private or shared open space.* The proposed variation is consistent with the above objectives as there will not be adverse impact to privacy, overshadowing or daylight access for the subject property or the adjoining properties. Unit 01 is the only dwelling located within the access handle portion of the site which is isolated from rest of the complex. If assessed exclusively as a single storey dwelling this dwelling complies with the minimum 900mm setback for single dwellings. Overall, the impact from this variation is assessed as minimal and capable of support.
(b) Demonstrate that the development will not have additional adverse impacts as a result of the variation The non-compliance is to a blank wall (to an internal void area) setback at 2m and to another facade above garage setback at 2.7m from this side boundary. The windows belong to an ensuite facing the side boundary at a reduced setback. It is considered that the proposed development will not have an adverse impact due to the proposed variation as the relevant objectives under Chapter B1 controls will be met. There are no impacts associated with the encroachments into the side setbacks. The encroachments are considered minor and will not impact on privacy or solar access to the adjoining sites. For these reasons, the variation request is capable of support.

CHAPTER A2 – ECOLOGICALLY SUSTAINABLE DEVELOPMENT

The proposal is considered to be capable of satisfying the development controls to improve the sustainability of development throughout Wollongong.

CHAPTER B1 – RESIDENTIAL DEVELOPMENT

4.0 General Residential controls

Controls/objectives	*Comment*	*Compliance*
4.1 Maximum Number of Storeys • R2 max height of 9m or two storey • R3 max height of 13m or 3 storeys • Battle axe allotments - 1 storey • Ancillary structures – 1 storey • Built form that has a positive impact on the visual amenity of the area and	R2 zone – Units 2 - 6 are of 3 storeys	No (Variation capable of support, See section A1 above)

addresses site constraints and overlooking of neighbouring properties • In R2 Low Density Residential zones, where development occurs within the 8m rear setback the development is limited to single storey		
4.2 Front Setbacks		
• 1. Infill 6m min but less dependent on street character • Garages and carports 5.5m min • Greenfield sites 4m min • 2. Corner allotments • Infill setback 6m min • Secondary buildings setback 3m min except garages 5.5m min	Front building line of min 6m is maintained	Yes
4.9 Fences		
• Fences must be constructed to allow natural flow of stormwater or runoff. • Fences within front and secondary building lines should be mainly constructed of transparent fence materials. • Any fence or related retaining wall within the front setback from the primary road frontage must be a max 1.2m in height	2.1m acoustic fencing adjacent to and along the side boundaries at 33 and 37 Yellagong Street is provided in accordance with the noise assessment report. 1.2m fencing proposed within the front building line	Yes
4.11 Storage Facilities		
• Studio/1 bedroom- 6m3 storage volume to 3m2 storage area • 2 bedroom- 8m3 storage volume to 4m2 storage area • 3 bedroom- 10m3 storage volume to 5m2 storage area	Storage is located via cupboards, and space within garages. This is considered to be adequate.	
4.12 Site Facilities		
• letterboxes in an accessible location • air-con, satellite dishes and other ancillary structures to be located away from street frontage, not in a place where they are a skyline feature and adequately setback	Suitable conditions recommended	
4.13 Fire Brigade Servicing		
• All dwellings located within 60m of a fire hydrant	Suitable conditions recommended	
4.14 Services		

• Encourage early consideration of servicing requirements	Suitable conditions recommended	
4.15 Development near the coastline	NA	
4.16 View sharing		
• To protect and enhance view sharing, significant view corridors • A range of view sharing measures to be considered for building design	No adverse view impacts anticipated from the proposed development.	
4.17. Retaining walls		
• To ensure well designed retaining walls that are structurally sound	retaining walls within the site proposed	To be conditioned
4.18 Swimming pools and spas	NA	
4.19 Development near railway corridors and major roads	NA	

5.0 Attached dwellings and multi -dwelling housing

Controls/objectives	*Comment*	*Compliance*
5.1 Minimum Site Width Requirement Minimum 18m	A minimum site width of 16.5m at the street front.	No (Submitted Cl.4.6 variation capable of support, refer Section 3.2.3)
5.2 Number of Storeys R2 zone – 2 storeys	The application proposes 3 storeys for Units 2 -6 and height below 9m.	No (Variation capable of support. See section A1)
5.3 Front Setbacks 6m min required to facade	6m from the street frontage	Yes
5.4 Side and Rear Setbacks R2 low density residential zone requires a minimum side/rear setback of 0.8 x ceiling height Where balconies or windows of	Min 5.3m setback required for units, which is more critical along north-eastern boundary. 6m or more provided along side and rear boundaries for all units except U01.	Complies for all units except for U01.

living areas face the rear boundary at first floor level or above, a minimum 1.0m x ceiling height is required	Unit 01- Min 2m to 2.7m	Variation capable of support (see section A1 under 3.4.1 of this report)
5.5 Building Character and Form	Proposal is considered to fit sympathetically with the existing street character. The proposed development mostly displays a two storey dwelling which is considered to be consistent with the existing streetscape. The bulk and scale of the overall development on to the streetscape is assessed minimal in this case as majority of the units are set behind the access-handle portion of this battle-axe lot.	Yes
5.6 Access / Driveway Requirements	The proposal is considered to meet the design requirements of driveways by providing only one access point to the site, locating the driveway in a position which does not adversely impact on any services within the road reserve, with sufficient landscaping and being of appropriate dimensions.	Yes
5.7 Car Parking Requirements	Refer chapter E3	
Car parking to be located behind front setback	Car parking proposed behind front building line. Visitor car parking spaces are provided. All units are over 110sqm requiring 2 spaces. Double garages provided for each unit. Sufficient parking provisions are provided.	Yes
5.8 Landscaping Requirements		
Min. 30% of site area must be provided as landscaped area Min. 1.5m wide landscaping beds alongside & rear boundaries	A minimum of 30% of the total site area is to be provided as landscaped area. The minimum landscaping area is 3117sqm x 30%= 935sqm. The proposed landscape area is 974sqm (31%). The proposal incorporates a minimum 1.5m landscaped buffer along the side and rear property boundaries. Council's Landscape Architect has provided a satisfactory referral.	Yes

5.9 Deep Soil Planting	Sufficient DSZ is provided. Council's Landscape Architect has provided a satisfactory referral.	Yes
5.10 Communal Open Space Developments with more than 10 dwellings must incorporate communal open space. The minimum size of this open space is to be calculated at 5m2 per dwelling. Any area to be included in the communal open space calculations must have a minimum dimension of 5 metres. Where a minimum of 15% of the site is provided as a deep soil zone, combined use of part of the deep soil zone as communal open space may occur. Areas of the communal open space should contain paving, children's playground equipment, barbeques, shade structures, swimming pools or the like, however these cannot be located within the deep soil zone. At least 50% of the communal open space area must receive at least 3 hours of direct sunlight between 9.00am and 3.00pm on June 21.	Provided and assessed to be satisfactory	Yes
5.11 Private Open Space Ground level POS with 4m x 5m minimum dimensions 70% of dwellings must receive minimum 3 hours direct sunlight to POS between 9am-3pm on June 21 Design private open spaces so that they act as direct extensions of the living areas of the dwellings they serve. Clearly define private open space through use of planting, fencing or	POS is provided on ground level with POS areas directly off living areas. Shadow diagrams have been lodged indicating that the POS of at least 70% of the dwellings can receive a minimum of three hours of sunlight on June 21 to 50% of the POS.	Yes

landscaping features. Screen private open space where appropriate to ensure privacy.		
5.12 Solar Access Requirements		
Windows to living rooms of adjoining dwellings must receive 3 hours of sunlight between 9.00am and 3.00pm on 21 June. At least 50% of the private open areas of adjoining residential properties must receive at least 3 hours of sunlight between 9.00am and 3.00pm on June 21. The primary balcony of at least 70% of the dwellings within a multi dwelling housing development shall receive a minimum of three hours of direct sunlight between 9.00am and 3.00pm on June 21. Windows to north facing living rooms for each of the subject dwellings in the development must receive at least 3 hours of sunlight between 9.00am and 3.00pm on 21 June. At least 50% of the private open space area for each of the subject dwellings in the development must receive at least 3 hours of sunlight between 9.00am and 3.00pm on 21 June.	Submitted shadow diagrams indicate that the proposed units are situated at adequate distances from neighbouring dwellings and do not cause any shadow impact on to the living rooms and POS. Shadow diagrams have been lodged indicating that at least 70% of the dwellings can receive a minimum of three hours of sunlight on June 21 to 50% of the POS.	Yes
5.13 Additional Control for Multi Dwelling Housing - Dwelling Mix and Layout	Development incorporates 3 types of dwellings presenting varying floor layouts.	Yes
5.14 Additional Control for Multi Dwelling Housing - Adaptable Housing If more than 6 dwellings at least 10% of all dwellings (at least one) must be adaptable	One (1) within the total 10 units is adaptable dwelling.	Yes
5.15 Additional Control for Multi Dwelling Housing – Crime Prevention through Environmental Design	The design of the proposal is considered to be satisfactory in regard to safety and crime prevention controls.	Yes

CHAPTER D1 – CHARACTER STATEMENTS

West Wollongong

West Wollongong is a low to medium density residential suburb which contains a variety of housing types, including detached dwelling-houses, dual occupancies, boarding-houses, townhouses and older style residential apartment buildings.

West Wollongong is likely to experience some change given its close proximity to Wollongong City Centre. West Wollongong will remain a low to medium density residential area with potential for some
additional medium density housing in the form of townhouses in short walking distance to existing bus
stops, situated on Crown Street and Mount Keira Road.
Any new development should preferably be of a face brick work and pitched roof tile construction. Any
new development must also be sympathetic with the prevailing streetscape character of the surrounding locality.

The proposal is considered to be consistent with the existing and desired future character for the locality. The proposal is not expected to have significant impact on the streetscape character while providing additional dwellings to the locality.

CHAPTER E1: ACCESS FOR PEOPLE WITH A DISABILITY

The proposal is assessed to be capable of compliant with the controls. Conditions recommended within the consent in this regard.

CHAPTER E2: CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN

The design and layout of the development provides casual surveillance opportunities to the street and throughout the site. A condition is included for the installation of an open form secure fencing along council boundaries. No concerns are raised regarding safety or security.

CHAPTER E3: CAR PARKING, ACCESS, SERVICING/LOADING FACILITIES AND TRAFFIC MANAGEMENT

The car parking rates under Chapter E3 for multi dwelling housing are as follows:

1 car parking space per dwelling (<70m2) or 1.5 car parking spaces per dwelling (70-110m2) or 2 car parking spaces per dwelling (>110m2), plus 0.2 car parking spaces per dwelling for visitors, 1 bicycle space per 3 dwellings (residents) and 1 bicycle space per 12 dwellings (visitors), 1 motorcycle
space per 15 dwellings, Large Rigid Vehicle (Waste Contractor), >10 dwellings – side loading waste collection vehicle
The development must provide a total of 20 residential parking spaces and 2 visitor car parking spaces,

Adequate parking is provided for the development as per the above requirement.

The application has been assessed by Council's Traffic officer. Vehicle access and manoeuvring has been demonstrated to comply with AS2890.1. Condition 82 has been recommended requiring that Waste collection for all units (except Unit 1) is to be carried out from within the site by a vehicle no larger than a Medium Rigid Vehicle (max 8.8 metres in length) from the designated loading/unloading facility enabling forward exit.

CHAPTER E6: LANDSCAPING

A landscape concept plan has been submitted as part of the application. The provisions of this chapter have been considered and found satisfactory by Council's Landscape Division.

CHAPTER E7: WASTE MANAGEMENT

Site Waste Minimisation and Management Plan provided. Standard conditions to apply.

CHAPTER E14 STORMWATER MANAGEMENT

The application has been reviewed by Council's Stormwater officer and found satisfactory. Appropriate conditions including deferred commencement condition for obtaining a drainage easement along Council land have been recommended.

CHAPTER E17 PRESERVATION AND MANAGEMENT OF TREES AND VEGETATION

Proposal involves removal of 13 trees located within the site. The submitted Arborist's report was reviewed by Council's Landscape officer and was given satisfactory comments and conditions in relation to the protection and retention of those trees to be retained and for tree replacement for those removed.

CHAPTER E18 THREATENED SPECIES OF WOLLONGONG DCP 2009

Council's Environmental officer has assessed the proposal under Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and NSW *Biodiversity Conservation Act 2016. The* impact of proposed tree removal is considered to be unlikely to significantly affect threatened species or ecological communities, or their habitats. Conditions about tree removal and fauna protection are included with the consent in this regard.

CHAPTER E19 EARTHWORKS

Proposal involves excavations related to basement constructions, infrastructure and other landscaping works. These are not considered major earthworks and not likely to impact neighbouring sites.

CHAPTER E21 DEMOLITION AND ASBESTOS MANAGEMENT

Demolition of existing dwelling house located on the property forms part of this application and a demolition plan has been prepared.

CHAPTER E22 SOIL EROSION AND SEDIMENT CONTROL

Conditions of consent are recommended in regard to appropriate sediment and erosion control measures to be in place during works.

3.3.2 WOLLONGONG CITY WIDE DEVELOPMENT CONTRIBUTIONS PLAN 2018

The estimated cost of works is >$100,000, $3,283,000.00 and a levy of 1% is applicable under this plan as the threshold value is $100,000.

3.4 SECTION 4.15(1)(A)(IIIA) ANY PLANNING AGREEMENT THAT HAS BEEN ENTERED INTO UNDER SECTION 7.4, OR ANY DRAFT PLANNING AGREEMENT THAT A DEVELOPER HAS OFFERED TO ENTER INTO UNDER SECTION 7.4

There are no planning agreements entered into or any draft agreement offered to enter into under S7.4 which affect the development.

3.5 SECTION 4.15(A)(IV) THE REGULATIONS (TO THE EXTENT THAT THEY PRESCRIBE MATTERS FOR THE PURPOSES OF THIS PARAGRAPH)

92 What additional matters must a consent authority take into consideration in determining a development application?

Conditions of consent are recommended with regard to demolition.

93 Fire safety and other considerations

N/A

94 Consent authority may require buildings to be upgraded

N/A

3.6 SECTION 4.15(1)(B) THE LIKELY IMPACTS OF DEVELOPMENT

Context and Setting:

The proposal has been assessed with regard to the amenity impacts from the development, the zoning, permissible height and FSR for the land, and existing and future character of the area, and is considered to be compatible with the local area. The development is not considered to adversely impact on the existing character of the locality as being located within a battle axe lot.

Access, Transport and Traffic:

Adequate car parking has been provided on site. There are no significant traffic impacts associated with the development.

Public Domain:

There is no likely impact on public domain.

Utilities:

The proposal is not envisaged to place an unreasonable demand on utilities supply.

Heritage:

No heritage items will be impacted by the proposal.

Other land resources:

The proposal is considered to contribute to orderly development of the site and is not envisaged to impact upon any valuable land resources.

Water:

The site is presently serviced by Sydney Water, which can be readily extended to meet the requirements of the proposed development.

The proposal is not envisaged to have unreasonable water consumption.

Soils:

There are no anticipated impacts on the soils. Erosion and sediment measures are to be conditioned.

Air and Microclimate:

The proposal is not expected to have negative impact on air or microclimate.

Flora and Fauna:

The proposal is not expected to have negative impact on the flora and fauna.

Waste:

A condition will be attached to any consent granted that an appropriate receptacle be in place for any waste generated during the construction.

Energy:

The proposal is not envisaged to have unreasonable energy consumption.

Noise and vibration:

A condition will be attached to any consent granted that nuisance be minimised during any construction, demolition, or works.

Natural hazards:

There are no natural hazards affecting the site that would prevent the proposal.

Technological hazards:

There are no technological hazards affecting the site that would prevent the proposal.

Safety, Security and Crime Prevention:

This application does not result in any greater opportunities for criminal or antisocial behaviour.

Social Impact:

There is not expected to be social impact associated with the proposed development.

Economic Impact:

The proposal is not expected to create negative economic impact.

Site Design and Internal Design:

Irrespective of the departure from the required site width as per the LEP and variations to the DCP controls in relation to the side setback and number of storeys, the proposal is considered to be satisfactorily designed. The proposal has also been reviewed by Council's Design Review Panel.

Construction:

Conditions of consent are recommended in relation to construction impacts such as hours of work, erosion and sedimentation controls, works in the road reserve, excavation, demolition and use of any crane, hoist, plant or scaffolding. A condition will be attached to any consent granted that all works are to be in compliance with the Building Code of Australia.

Cumulative Impacts:

The proposal is not expected to have negative cumulative impacts.

3.7 SECTION 4.15(1)(C) THE SUITABILITY OF THE SITE FOR DEVELOPMENT

Does the proposal fit in the locality?

The proposal is considered appropriate with regard to the zoning of the site and is not expected to have negative impacts on the amenity of the locality or adjoining developments.

Are the site attributes conducive to development?

There are no site constraints that would prevent the proposal.

3.8 SECTION 4.15(1)(D) ANY SUBMISSIONS MADE IN ACCORDANCE WITH THIS ACT OR THE REGULATIONS

Details of the proposal were publicly exhibited in accordance with Appendix 1 of the Wollongong Development Control Plan (WDCP) 2009. Five (5) submissions were received during the notification period. A detail discussion on submissions received is provided at section 1.5.

3.9 SECTION 4.15(1)(E) THE PUBLIC INTEREST

The application is not expected to have unreasonable impacts on the environment or the amenity of the locality. It is considered appropriate with consideration to the zoning and the character of the area and is therefore considered to be in the public interest.

4 CONCLUSION

This application has been assessed as satisfactory having regard to the Heads of Consideration under Section S4.15(1) of the Environmental Planning and Assessment Act 1979, the provisions of Wollongong Local Environmental Plan 2009 and all relevant Council DCPs, Codes and Policies.

Pursuant to clause 2.3 of WLEP 2009, Multi dwellings are permissible in the R2 Low Density Residential zone with development consent. The proposal is not considered to be inconsistent with the zone objectives. The departure request to the development standard regarding the site width and variation requests to the development controls for side setback and number of storeys are capable of support for reasons outlined in this report.

Some of the issues raised in submissions though technically unresolved, are considered to be adequately addressed either through design or by way of conditions. Any remaining issues are not considered to be sufficient to refuse the application.

All relevant internal and external referrals are satisfactory and there are no outstanding issues.

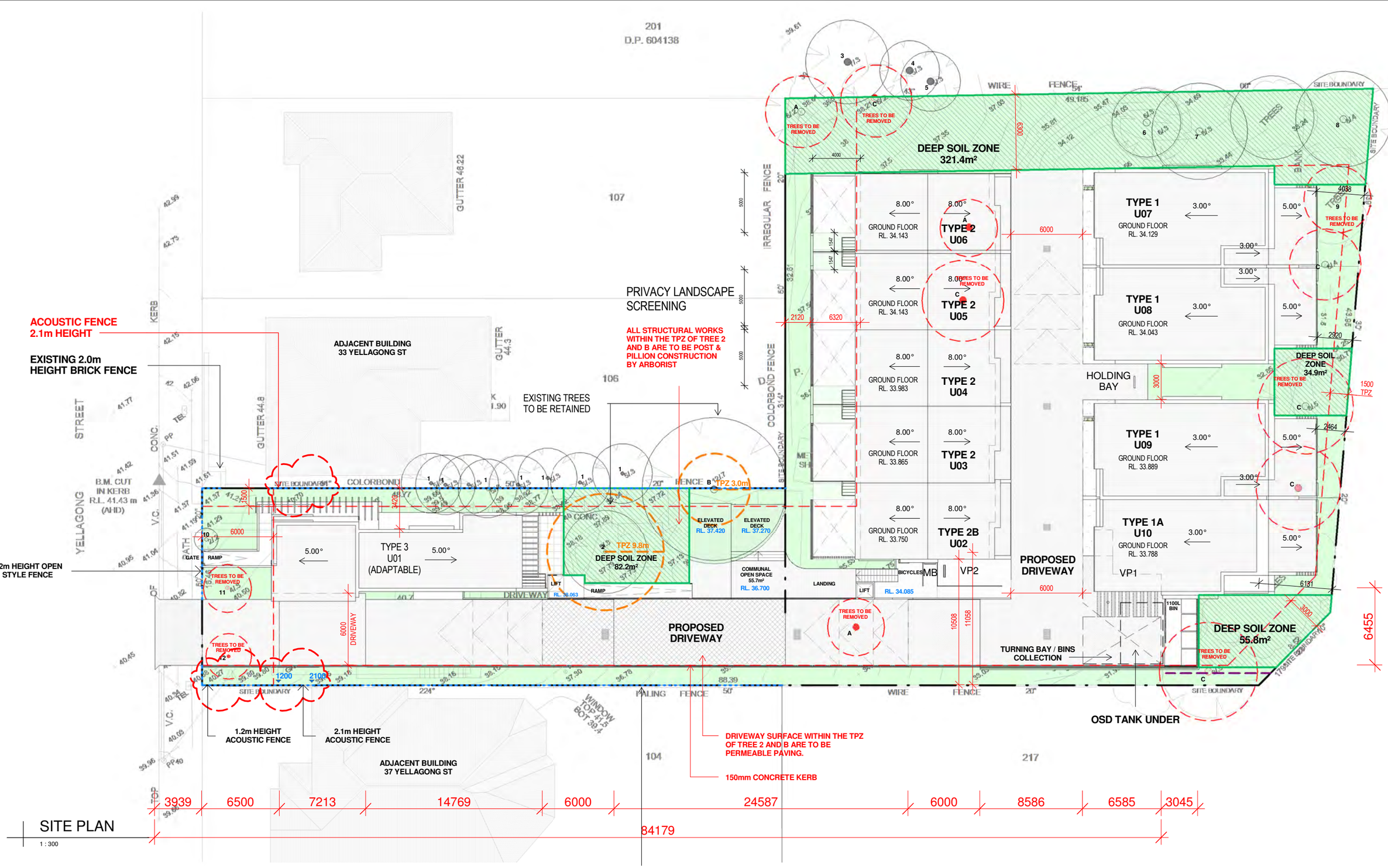
It is considered that the proposed development is not inconsistent with the existing and desired future character of the locality and is unlikely to result in significant adverse impacts on the amenity of the surrounding area.

5 RECOMMENDATION

It is recommended that DA-2018/1630 be **approved by way of Deferred Commencement** (for creation of easement for drainage) and subject to conditions contained in Attachment 5.

6 ATTACHMENTS

1. Architectural Plans and Documents
2. Statement of Exception to development standard - Applicant
3. Statements of Variation to development controls - Applicant
4. DRP: notes and submitted site plan
5. Conditions



SITE PLAN

1 : 300

A 2.1 metre privacy fence to be installed along the driveway adjacent to the existing dwellings 33 and 37 Yellagong Street. The fence needs to be of solid continuous construction (i.e. free of any gaps), and of lapped and capped timber, Colorbond aluminium, glass, masonry construction or a combination of either.

DISCLAIMER
Subject to: full site survey, measurements are preliminary, discussions and meetings with authorities, approval from authorities, relevant consultant information as per council DA requirements. Feasibility completed based on information provided by client. All parking and ramps to traffic engineers details.

ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
P	17.10.2019	COUNCIL

DISCLAIMER
All dimensions are in millimeters. Verify all dimensions on site prior to commencement of any work. Copyright of DWA.

Legend:

FB01	FACE BRICKWORK TYPE 1	R	ROOF	SLW	SLIDING WINDOW	P	POST
FB02	FACE BRICKWORK TYPE 2	DP	DOWNPIPES	FW	FIXED WINDOW	T	TIMBER FLOORS
FB03	FACE BRICKWORK TYPE 3	TB	TIMBER BATTENS	OB	OBSCURE WINDOW	CT	CERAMIC TILES
BL	BLOCKWORK	D	DOOR	AW	AWNING WINDOW	CPT	CARPET
CL01	CLADDING	GD	GARAGE DOOR	SK	SKYLIGHT	PC	POLISHED CONCRETE
CL02	CLADDING	SLD	SLIDING DOOR	WH	WINDOW HOOD	SP	FEATURE SCREENING
RW	RETAINING WALL	BFD	BI-FOLD DOOR	LV	LOUVRES	IWS	INTEGRAL WALL
				RWT	RAINWATER TANK		

DESIGN WORKSHOP AUSTRALIA

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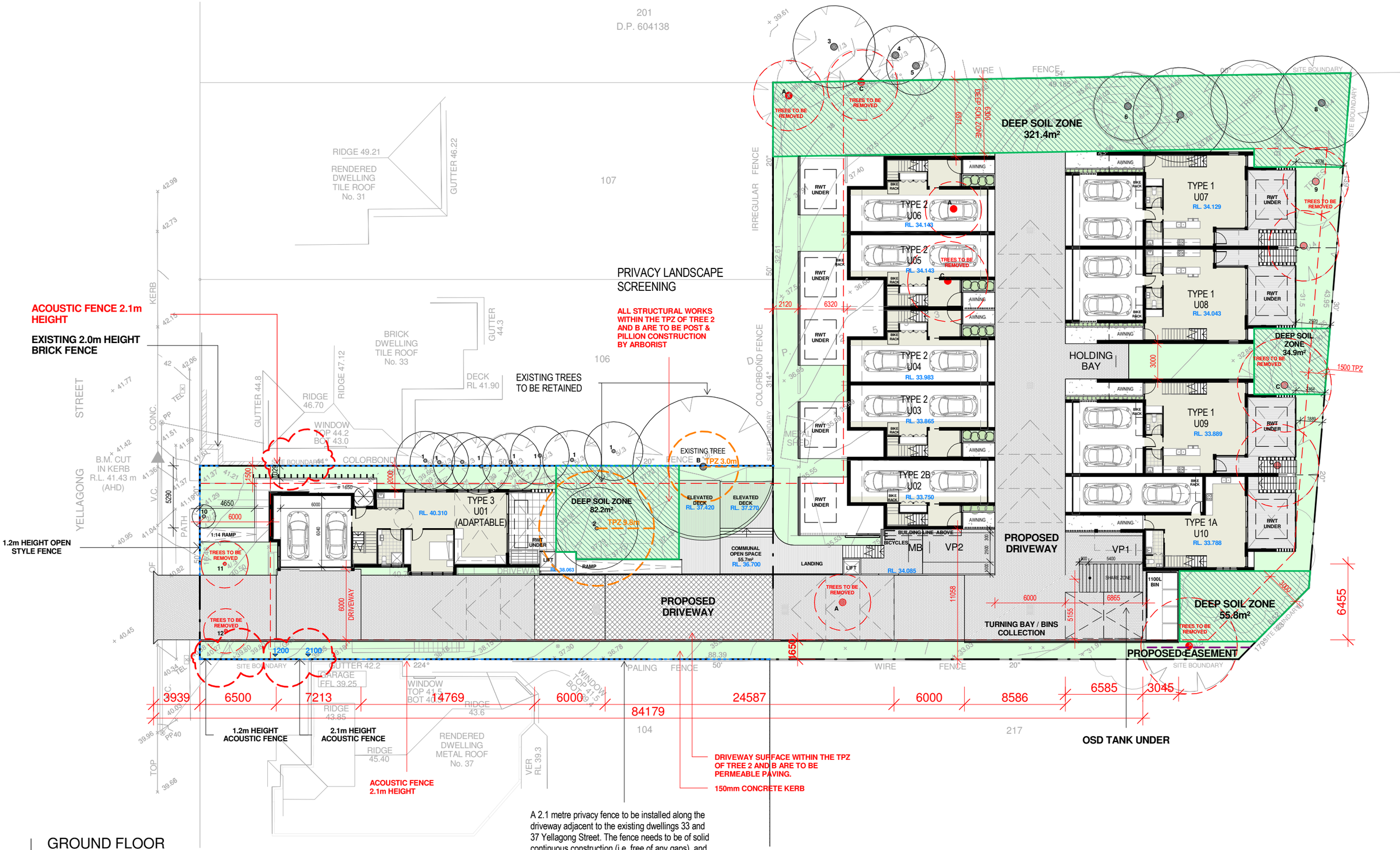
Web: www.designworkshop.com.au

Sydney
Level 10, 6 Mount
Olympus Boulevard,
Wolli Creek NSW 2205
Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	SITE PLAN

DATE:	12.04.2019	PROJECT No.	1912
DRAWN:	TN		
SCALE:	1 : 300	DWG No.	AI-06
QA:	RG	Rev.	P

A3



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GROUND FLOOR

1 : 300

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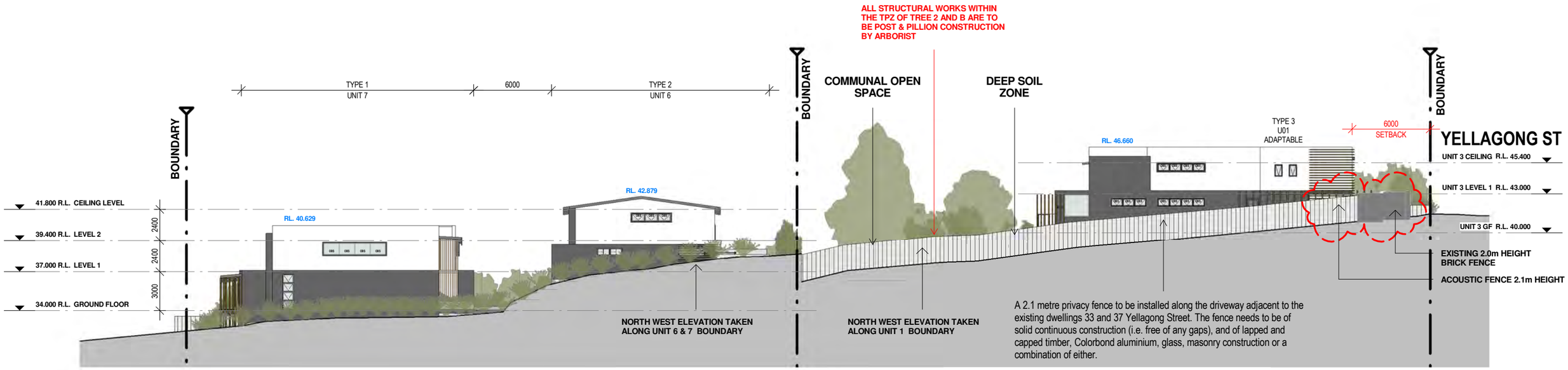
Sydney
Level 10, 6 Mount Olympus Boulevard,
Wolli Creek NSW 2205
Nominated Architect:
Robert Gizzi (Reg. 8286)

ADDITIONAL INFORMATION

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	GROUND FLOOR

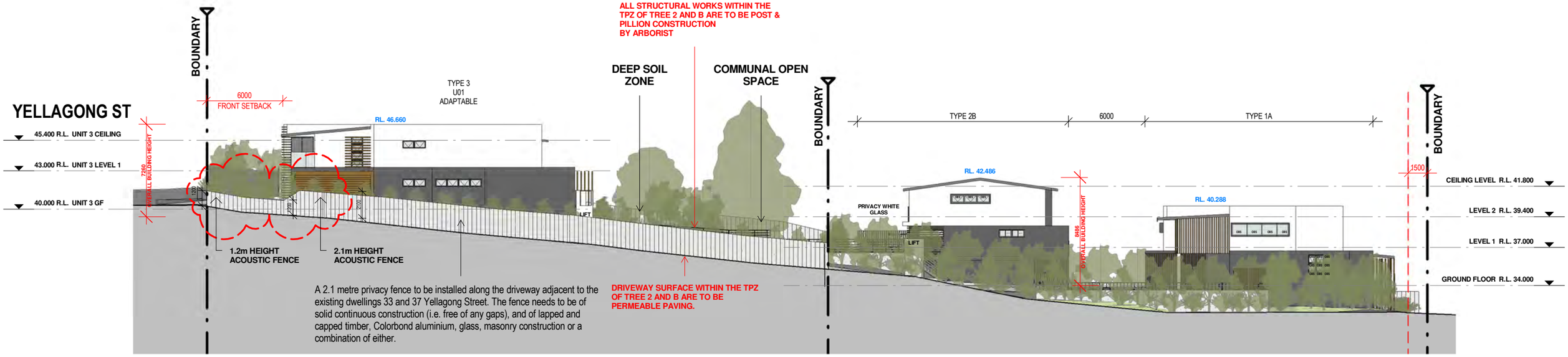
DATE:	12.04.2019
DRAWN:	TN
SCALE:	1 : 300
QA:	RG
PROJECT No.	1912
DWG No.	AI-07
Rev.	P

A3



NORTH ELEVATION

1 : 300



SOUTH ELEVATION

1 : 300

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REF.	DATE	AMENDMENT
P	17.10.2019	COUNCIL

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Nominated Architect:
Robert Gizzi (Reg. 8286)

ADDITIONAL INFORMATION

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	ELEVATIONS

DATE:	12.04.2019
DRAWN:	TN
SCALE:	1 : 300
QA:	RG

PROJECT No.	1912
DWG No.	AI-50
Rev.	P

A3

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201
D.P. 604138

107

106

104

217

RIDGE 49.21
RENDERED DWELLING TILE ROOF No. 31
GUTTER 46.22

BRICK DWELLING TILE ROOF No. 33
GUTTER 44.3
RIDGE 47.12
GUTTER 44.8
RIDGE 46.70
DECK RL 41.90

RENDERED DWELLING METAL ROOF No. 37
RIDGE 43.85
RIDGE 43.6
RIDGE 45.40
GUTTER 42.2
GARAGE FFL 39.25
WINDOW TOP 41.5 BOT 40.3

STREET
YELLAGONG
PATH
CONC.
KERB
B.M. CUT IN KERB R.L. 41.43 m (AHD)
RAMP
SITE BOUNDARY
COLORBOND
FENCE
PALING FENCE
WIRE FENCE
INTERLINK FENCE
COLORBOND FENCE
TREES
BANK
SITE BOUNDARY

GARAGE 6000 x 6000 DRIVEWAY TO BE 6m WIDE

EXISTING TREES TO BE RETAINED

ALL STRUCTURAL WORKS WITHIN THE TPZ OF TREE 2 AND B ARE TO BE POST & PILLION CONSTRUCTION BY ARBORIST

INCREASED LANDSCAPE SETBACK

TREES TO BE REMOVED

DEEP SOIL ZONE 321.4m²

DEEP SOIL ZONE 82.2m²
TPZ 9.8m

DEEP SOIL ZONE 34.9m²

DEEP SOIL ZONE 55.8m²

TYPE 3 U01 (ADAPTABLE)
VOID
BALC

TYPE 2 U06 RL. 36.743
TYPE 2 U05 RL. 36.743
TYPE 2 U04 RL. 36.583
TYPE 2 U03 RL. 36.465
TYPE 2B U02 RL. 36.350
TYPE 1 U07 RL. 37.129
TYPE 1 U08 RL. 37.043
TYPE 1 U09 RL. 36.889
TYPE 1A U10 RL. 36.788
BALCONY
AWNING
NON TRAFFIC ROOF
COURTYARD BELOW

HOLDING DAY

ELEVATED DECK RL. 37.270
ELEVATED DECK RL. 37.420
COMMUNAL OPEN SPACE 55.7m² RL. 36.700
LIFT RL. 36.063
LIFT RL. 34.085
RAMP
BICYCLES
MB
VP2

PROPOSED DRIVEWAY
DRIVEWAY
TURNING BAY / BINS COLLECTION
1100L BIN

OSD TANK UNDER

1:61.0
1:40.0

DRIVEWAY SURFACE WITHIN THE TPZ OF TREE 2 AND B ARE TO BE PERMEABLE PAVING.
150mm CONCRETE KERB

1500mm LANDSCAP WITH 150mm KERB

VISITOR & UNIT TYPE 1A DESIGN AMENDED

C AI-41
D AI-41
1 AI-43
F AI-42
E AI-42
2 AI-43
A AI-40
B AI-40

LEVEL 1

1 : 300

DISCLAIMER
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ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

DISCLAIMER
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Legend:

FB01	FACE BRICKWORK TYPE 1	R	ROOF	SLW	SLIDING WINDOW	P	POST
FB02	FACE BRICKWORK TYPE 2	DP	DOWNPIPES	FW	FIXED WINDOW	T	TIMBER FLOORS
FB03	FACE BRICKWORK TYPE 3	TB	TIMBER BATTENS	OB	OBSCURE WINDOW	CT	CERAMIC TILES
BL	BLOCKWORK	D	DOOR	AW	AWNING WINDOW	CPT	CARPET
CL01	CLADDING	GD	GARAGE DOOR	SK	SKYLIGHT	PC	POLISHED CONCRETE
CL02	CLADDING	SLD	SLIDING DOOR	WH	WINDOW HOOD	SP	FEATURE SCREENING
RW	RETAINING WALL	BFD	BI-FOLD DOOR	LV	LOUVRES	IWS	INTEGRAL WALL
				RWT	RAINWATER TANK		

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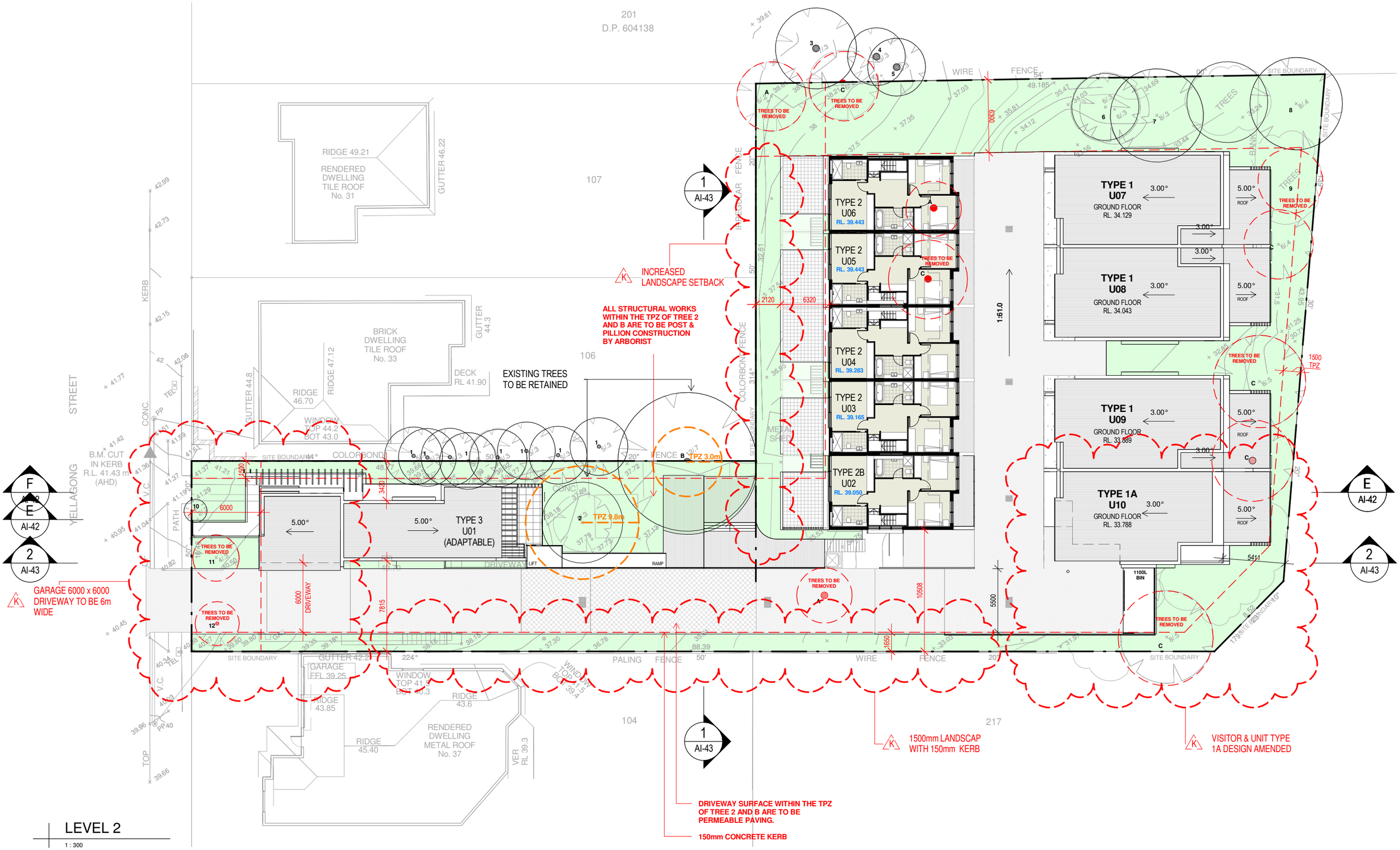
Web: www.designworkshop.com.au

Sydney
Level 10, 6 Mount Olympus Boulevard,
Wolli Creek NSW 2205
Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	LEVEL 1

DATE:	12.04.2019
DRAWN:	TN
SCALE:	1 : 300
QA:	RG
PROJECT No.	1912
DWG No.	AI-08
Rev.	L

A3



LEVEL 2

1 : 300

DISCLAIMER

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REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

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Legend:

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FB03	FACE BRICKWORK TYPE 3	TB	TIMBER BATTENS	OB	OBSCURE WINDOW	CT	CERAMIC TILES
BL	BLOCKWORK	D	DOOR	AW	AWNING WINDOW	CPT	CARPET
CL01	CLADDING	GD	GARAGE DOOR	SK	SKYLIGHT	PC	POLISHED CONCRETE
CL02	CLADDING	SLD	SLIDING DOOR	WH	WINDOW HOOD	SP	FEATURE SCREENING
RW	RETAINING WALL	BFD	BI-FOLD DOOR	LV	LOUVRES	IWS	INTEGRAL WALL
				RWT	RAINWATER TANK		

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Sydney
Level 10, 6 Mount Olympus Boulevard,
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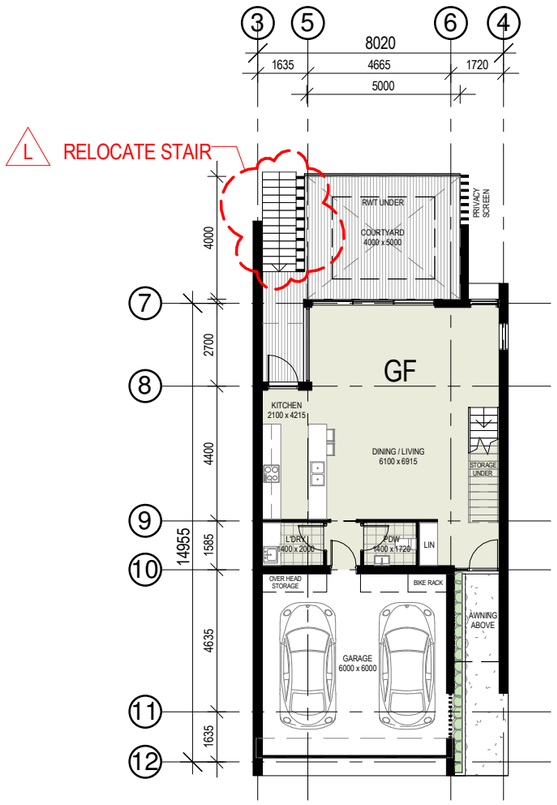
Nominated Architect:
Robert Gizzi (Reg. 8286)

ADDITIONAL INFORMATION

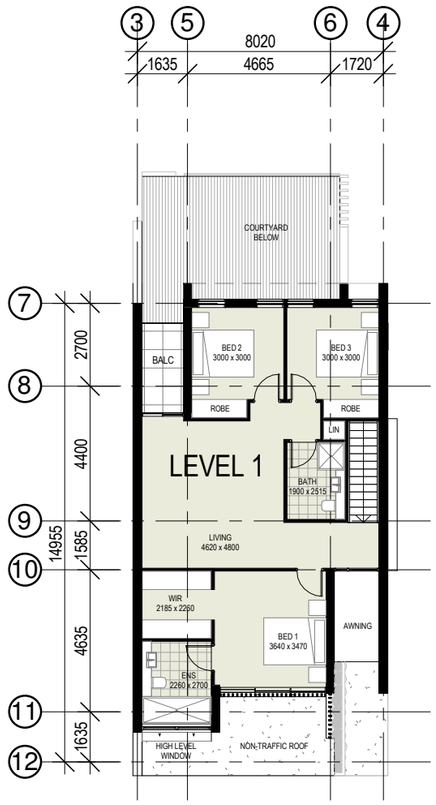
CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	LEVEL 2
DATE:	12.04.2019
DRAWN:	TN
SCALE:	1 : 300
QA:	RG
PROJECT No.	1912
DWG No.	AI-09
Rev.	L

A3



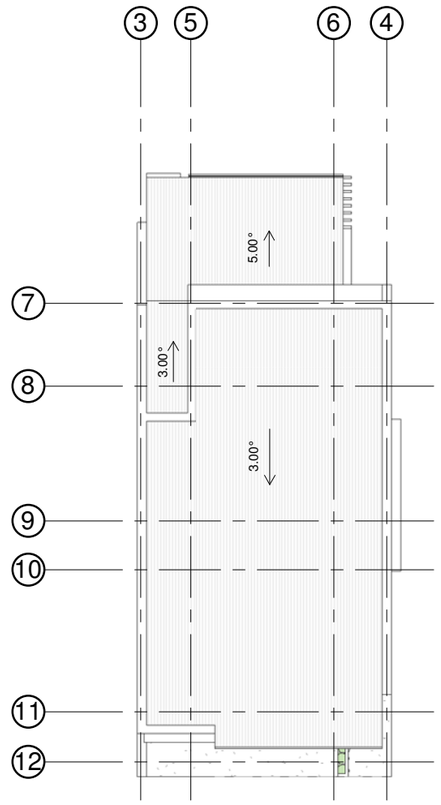
UNIT TYPE 1 GROUND FLOOR

1 : 200



UNIT TYPE 1 LEVEL 1

1 : 200



SITE PLAN / ROOF PLAN

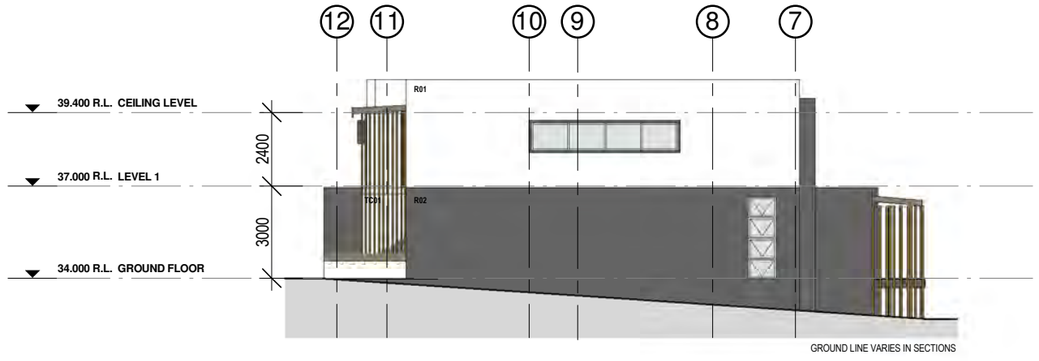
1 : 200

SOUTH ELEVATION

1 : 200

NORTH ELEVATION

1 : 200



EAST ELEVATION

1 : 200

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Sydney
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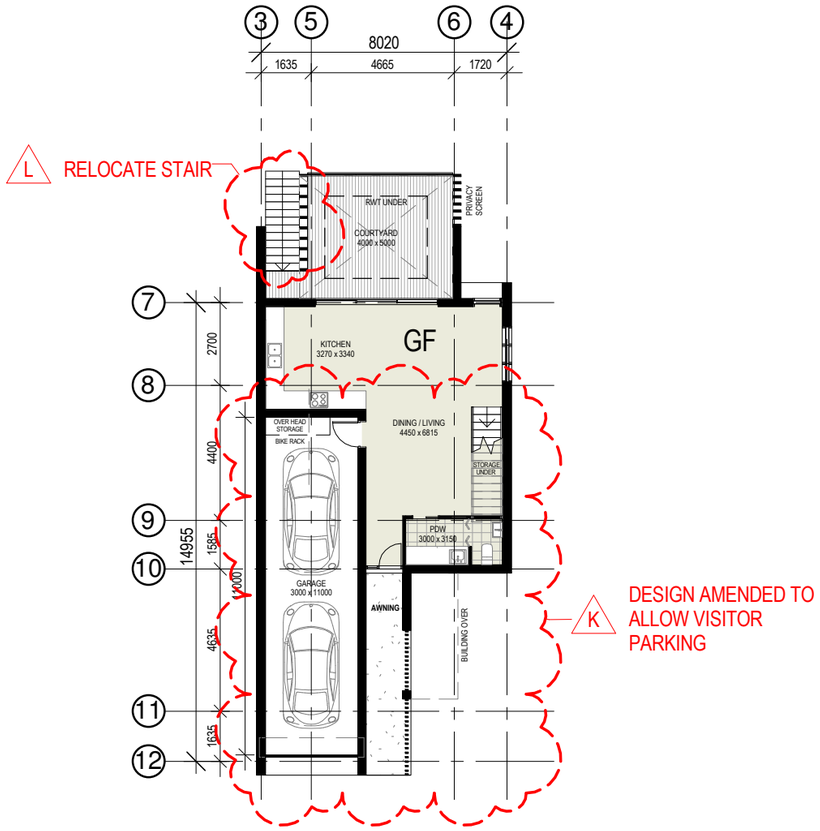
Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	UNIT TYPE 1

DATE:	12.04.2019
DRAWN:	TN
SCALE:	1 : 200
QA:	TN

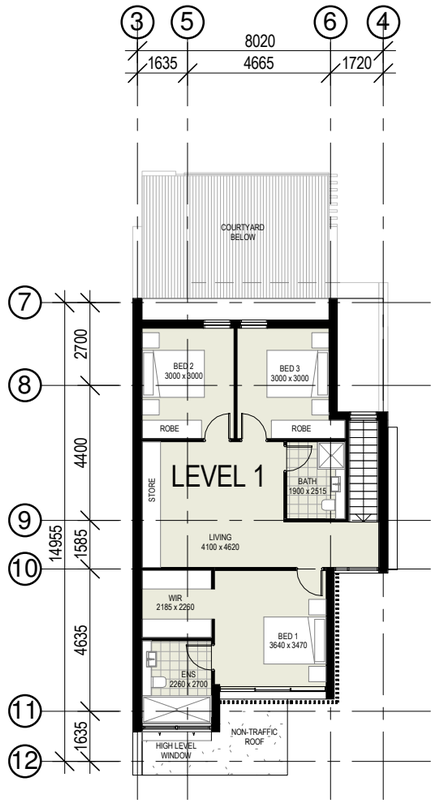
PROJECT No. 1912
DWG No. AI-10
Rev. L

A3



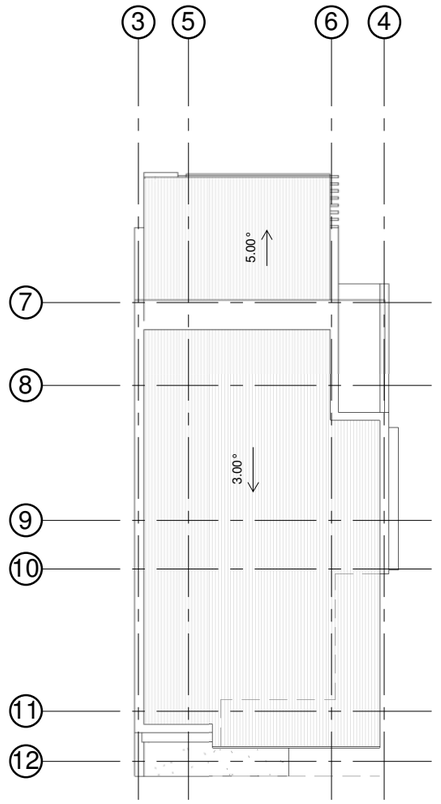
UNIT TYPE 1A GROUND FLOOR

1 : 200



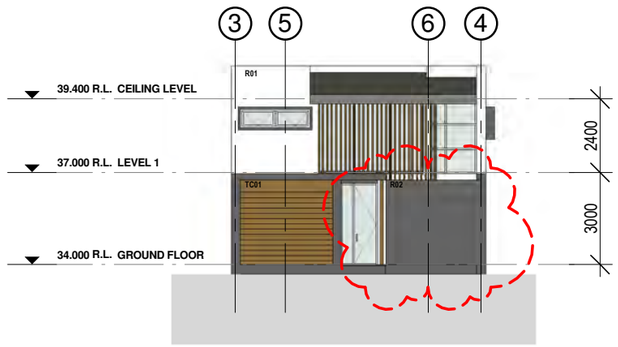
UNIT TYPE 1A LEVEL 1

1 : 200



SITE PLAN / ROOF PLAN

1 : 200

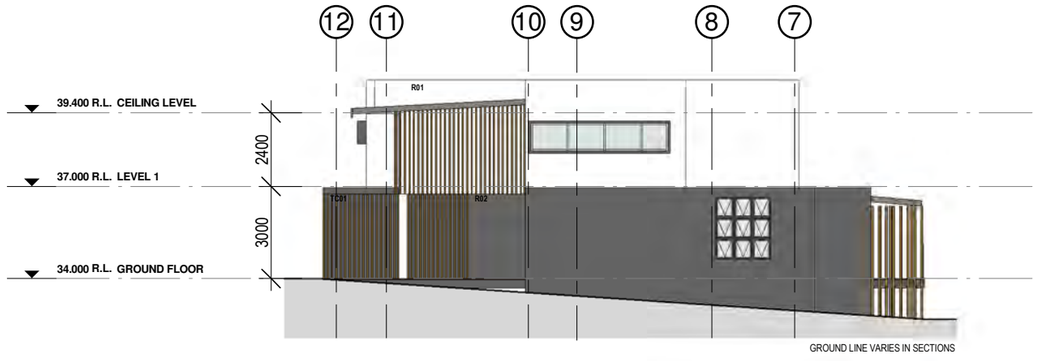


SOUTH ELEVATION

1 : 200

NORTH ELEVATION

1 : 200



EAST ELEVATION

1 : 200

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ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
L	17.07.2019	Revision 12

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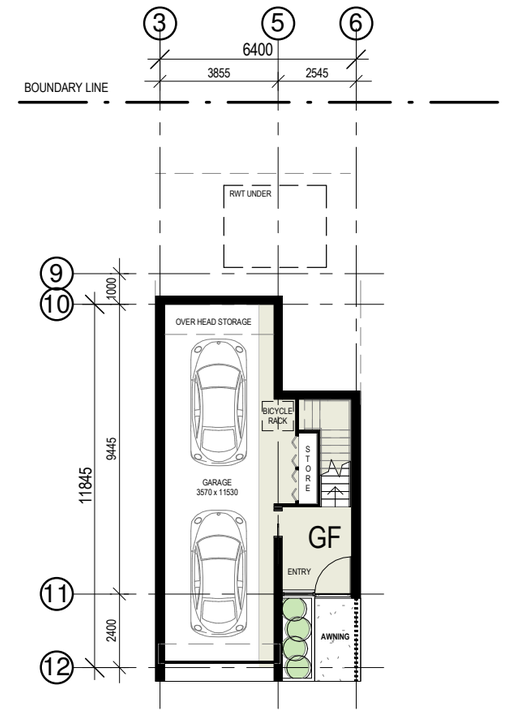
Sydney
Level 10, 6 Mount
Olympus Boulevard,
Wolli Creek NSW 2205

Nominated Architect:
Robert Gizzi (Reg. 8286)

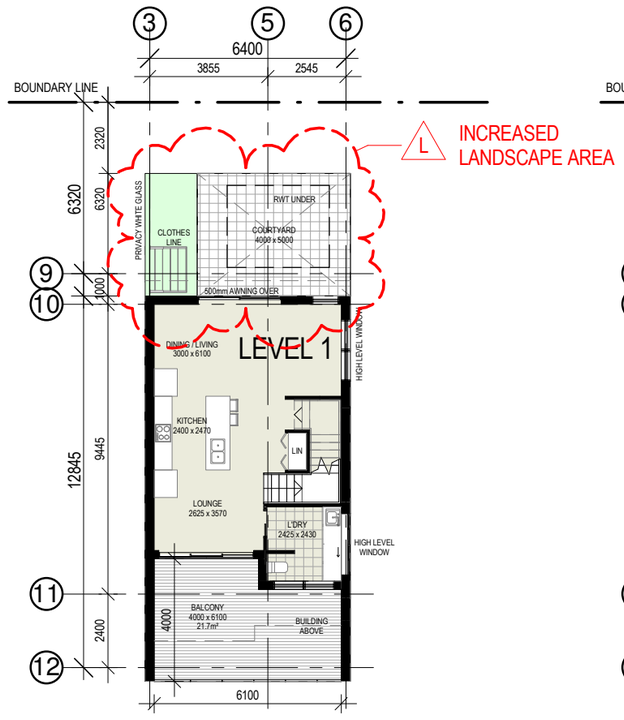
CLIENT:	ALY MEDIUM DENSITY	DATE: 12.04.2019	PROJECT No. 1912
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG	DRAWN: TN	
		SCALE: 1 : 200	DWG No. AI-11 Rev. L
DRAWING NAME:	UNIT TYPE 1A	QA: TN	

A3



UNIT TYPE 2 GROUND FLOOR

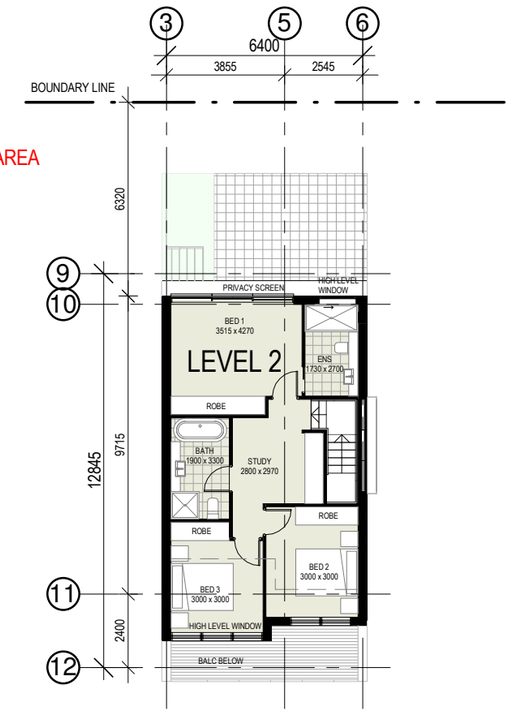
1 : 200



L INCREASED LANDSCAPE AREA

UNIT TYPE 2 LEVEL 1

1 : 200



UNIT TYPE 2 LEVEL 2

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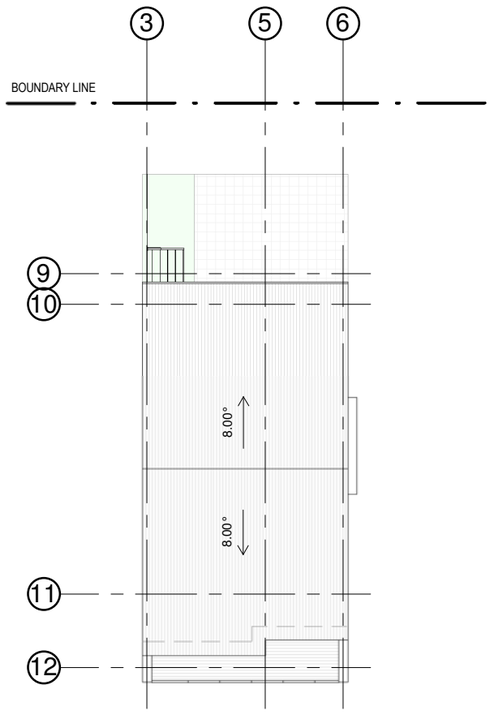
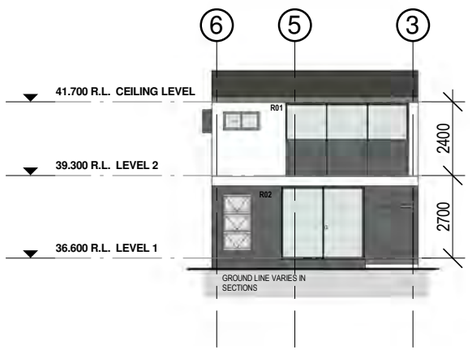


SITE PLAN / ROOF PLAN

1 : 200

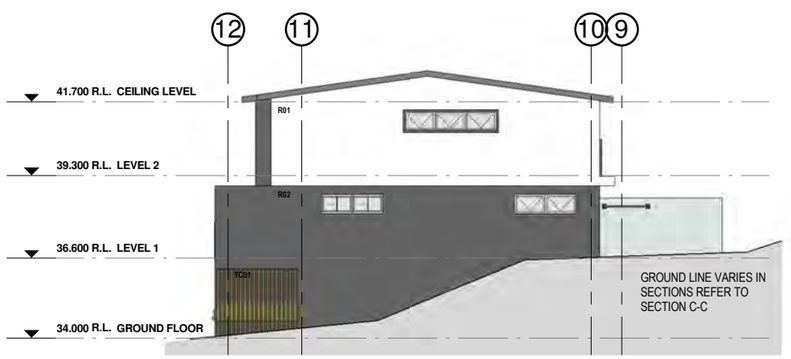
SOUTH ELEVATION

1 : 200



NORTH ELEVATION

1 : 200



EAST ELEVATION

1 : 200

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ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

Legend:

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BL	BLOCKWORK	D	DOOR	AW	AWNING WINDOW	CPT	CARPET
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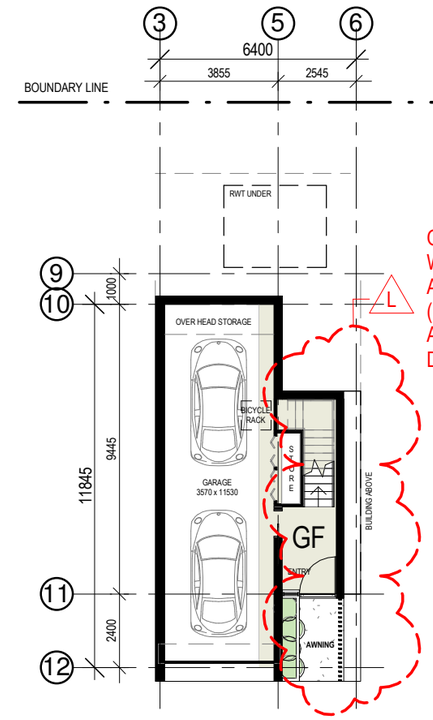
Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	UNIT TYPE 2 - FLOOR PLAN

DATE:	12.04.2019	PROJECT No.	1912
DRAWN:	TN		
SCALE:	1 : 200	DWG No.	AI-20
QA:	RG	Rev.	L

A3



UNIT TYPE 2B GROUND FLOOR

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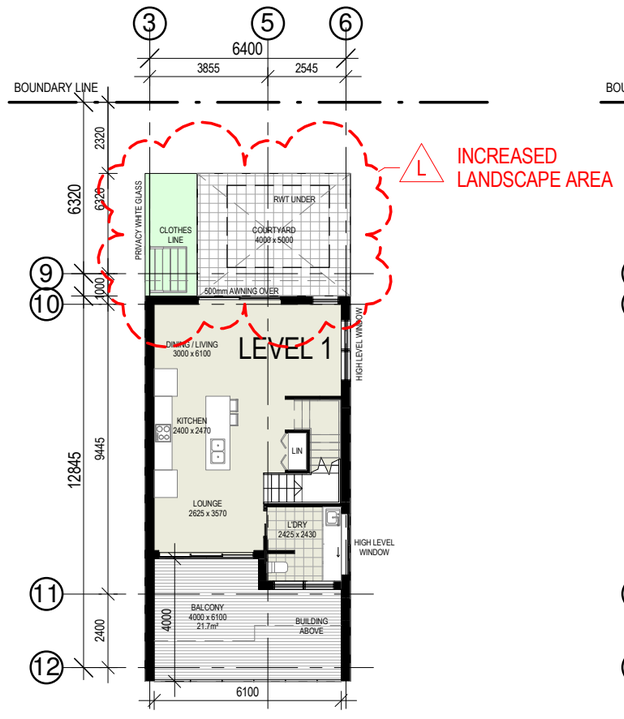
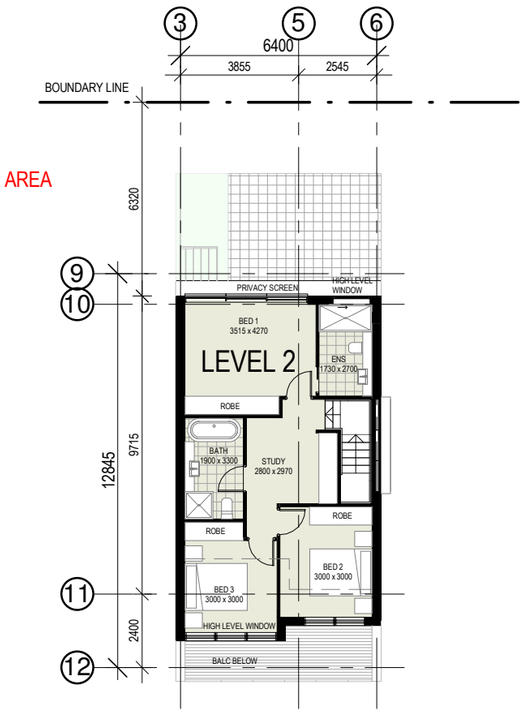


UNIT TYPE 2B LEVEL 1

1 : 200



UNIT TYPE 2B LEVEL 2

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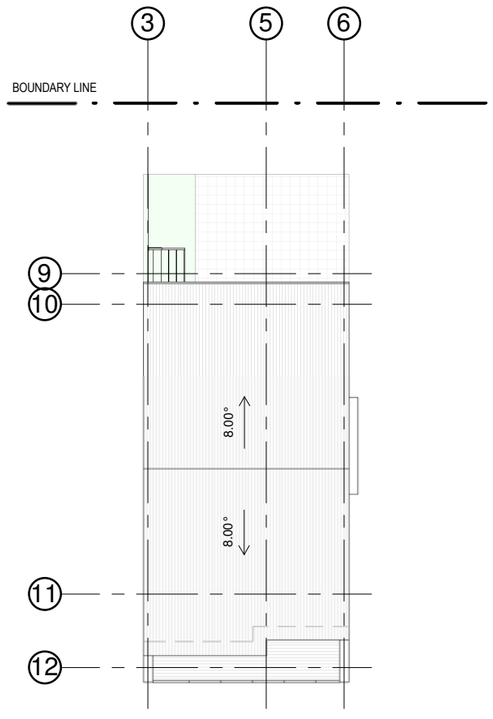
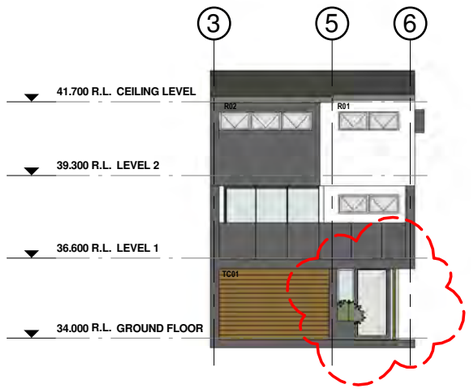


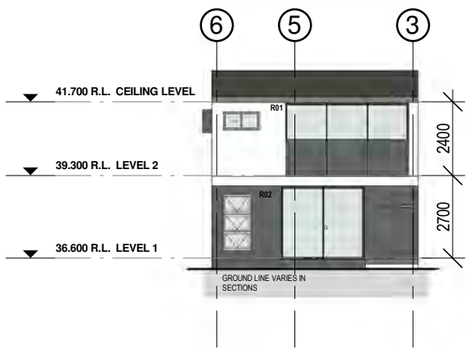
SITE PLAN / ROOF PLAN

1 : 200



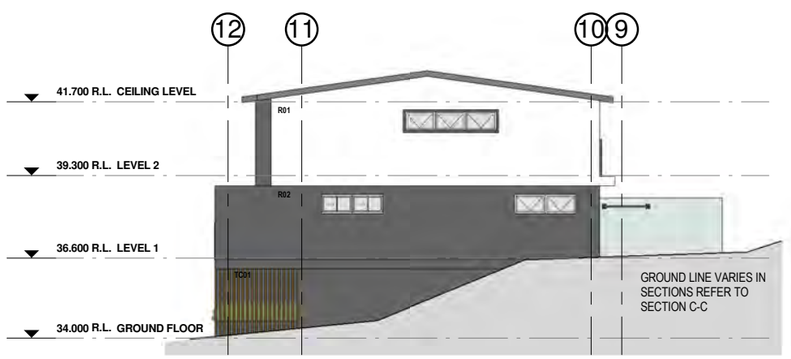
SOUTH ELEVATION

1 : 200



NORTH ELEVATION

1 : 200



EAST ELEVATION

1 : 200

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ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

Legend:

FB01	FACE BRICKWORK TYPE 1	R	ROOF	SLW	SLIDING WINDOW	P	POST
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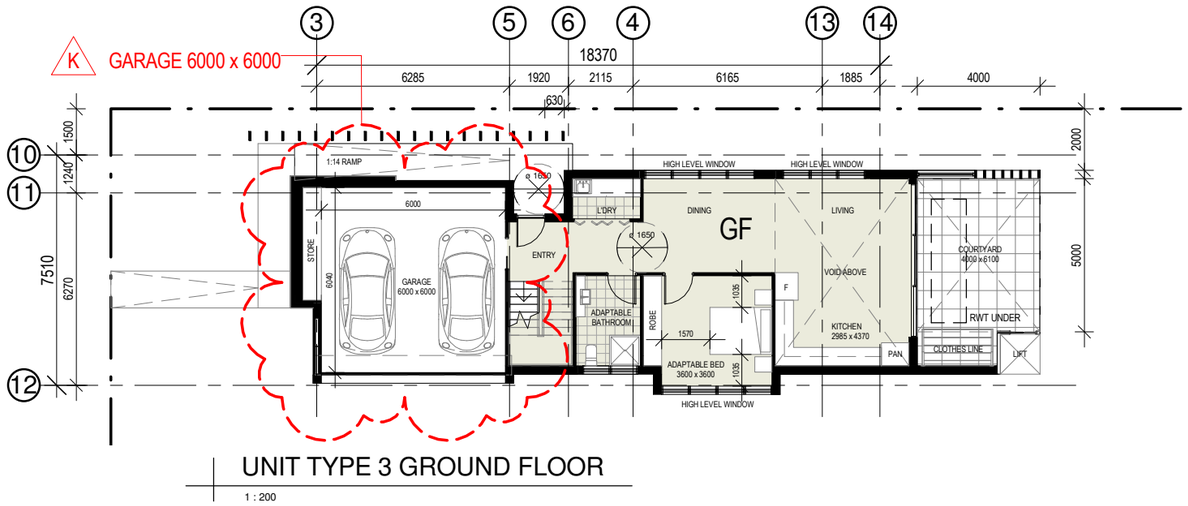
Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	UNIT TYPE 2 - FLOOR PLAN

DATE:	12.04.2019
DRAWN:	TN
SCALE:	1 : 200
QA:	RG

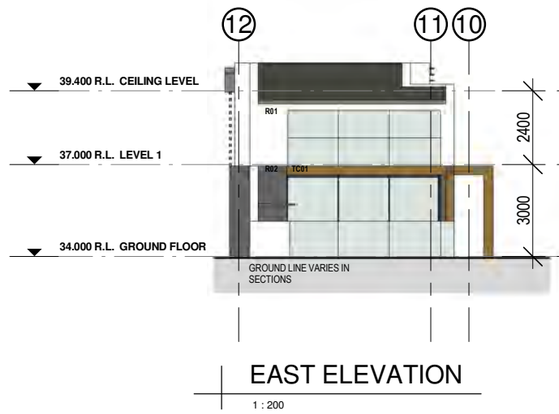
PROJECT No.	
1912	
DWG No.	Rev.
AI-21	L

A3



UNIT TYPE 3 GROUND FLOOR

1 : 200

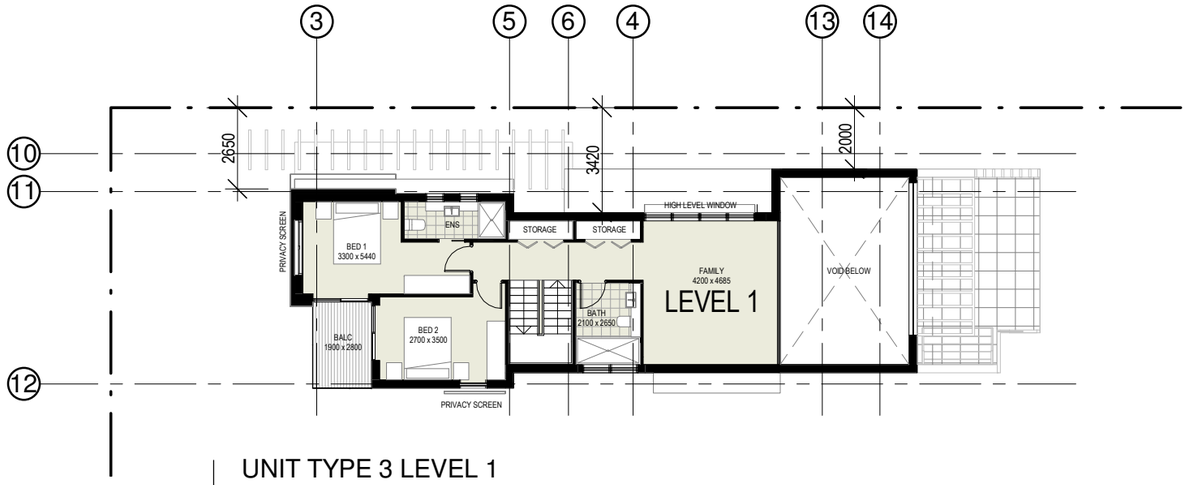


EAST ELEVATION

1 : 200

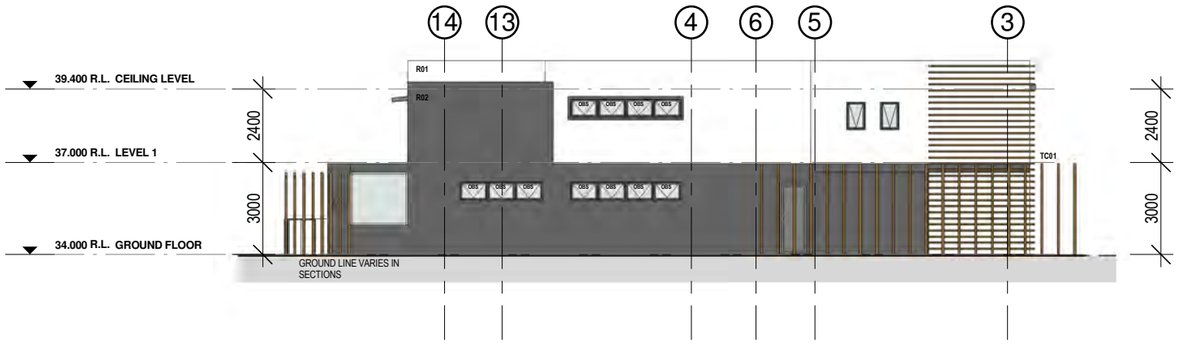
WEST ELEVATION

1 : 200



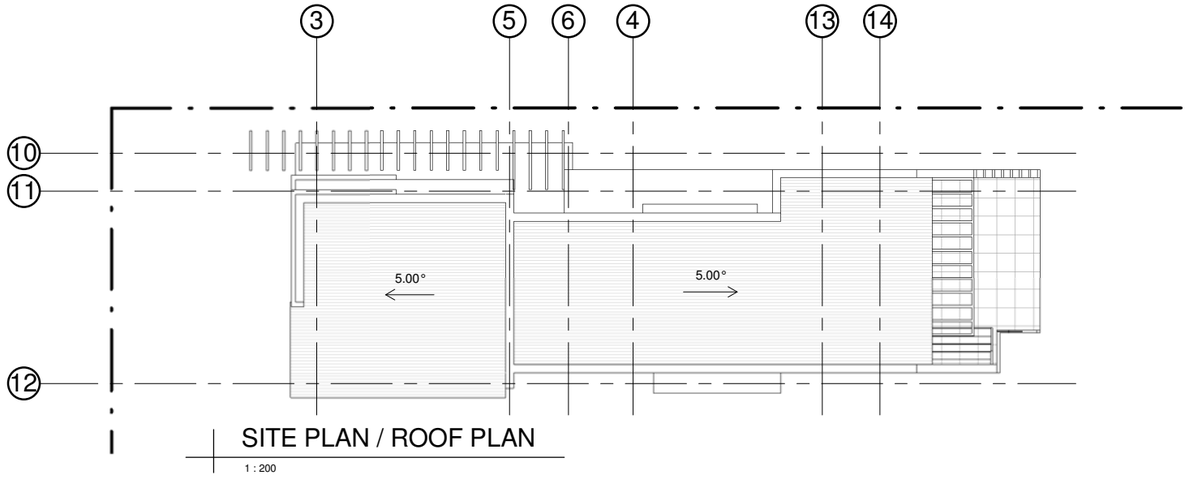
UNIT TYPE 3 LEVEL 1

1 : 200



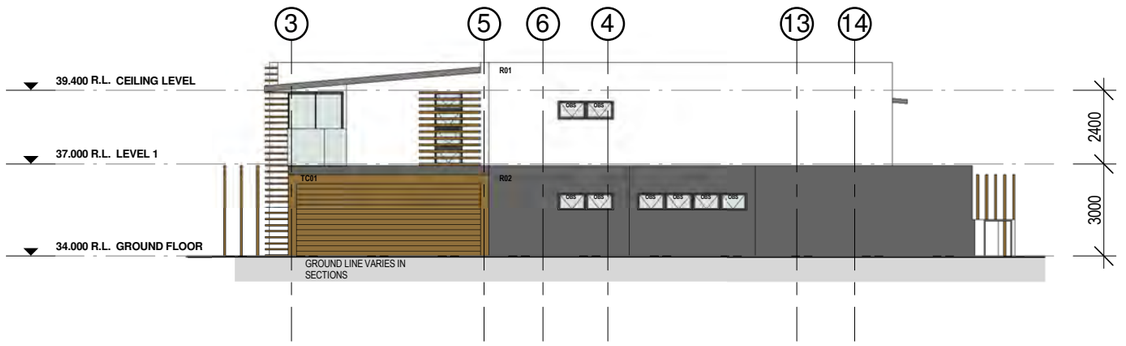
NORTH ELEVATION

1 : 200



SITE PLAN / ROOF PLAN

1 : 200



SOUTH ELEVATION

1 : 200

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ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
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Legend:

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RW	RETAINING WALL	BFD	BI-FOLD DOOR	LV	LOUVRES	IWS	INTEGRAL WALL
				RWT	RAINWATER TANK		

DESIGN WORKSHOP AUSTRALIA

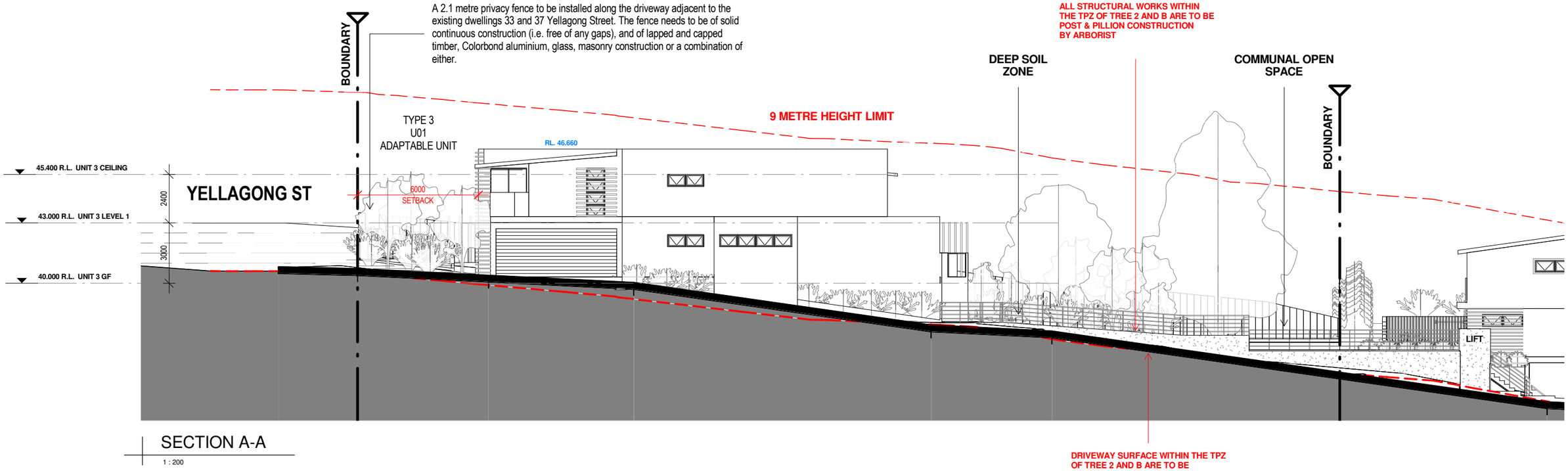
Wollongong
81a Princes Highway,
Fairy Meadow NSW 2519
Tel: (02) 4227 1661
Email: info@designworkshop.com.au
Web: www.designworkshop.com.au

Sydney
Level 10, 6 Mount
Olympus Boulevard,
Wolli Creek NSW 2205
Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	UNIT TYPE 3 - FLOOR PLAN

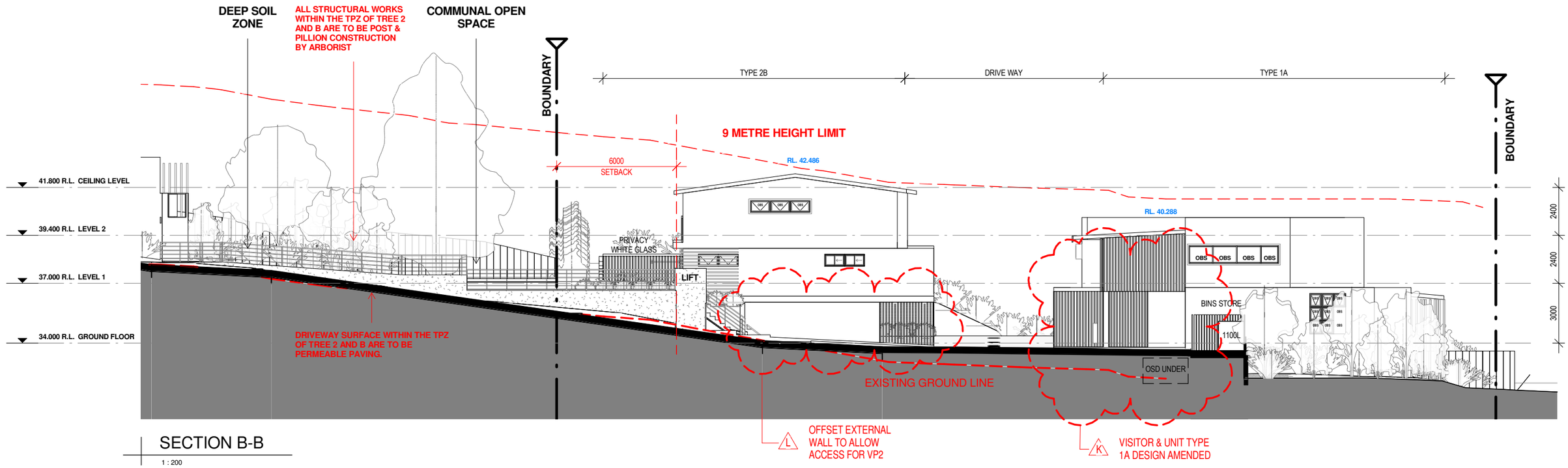
DATE:	12.04.2019	PROJECT No.	1912
DRAWN:	TN		
SCALE:	1 : 200	DWG No.	AI-30
QA:	RG	Rev.	L

A3



SECTION A-A

1 : 200



SECTION B-B

1 : 200

DISCLAIMER

Subject to: full site survey, measurements are preliminary, discussions and meetings with authorities, approval from authorities, relevant consultant information as per council DA requirements. Feasibility completed based on information provided by client. All parking and ramps to traffic engineers details.

ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

Legend:

FB01	FACE BRICKWORK TYPE 1	R	ROOF	SLW	SLIDING WINDOW	P	POST
FB02	FACE BRICKWORK TYPE 2	DP	DOWNPIPES	FW	FIXED WINDOW	T	TIMBER FLOORS
FB03	FACE BRICKWORK TYPE 3	TB	TIMBER BATTENS	OB	OBSCURE WINDOW	CT	CERAMIC TILES
BL	BLOCKWORK	D	DOOR	AW	AWNING WINDOW	CPT	CARPET
CL01	CLADDING	GD	GARAGE DOOR	SK	SKYLIGHT	PC	POLISHED CONCRETE
CL02	CLADDING	SLD	SLIDING DOOR	WH	WINDOW HOOD	SP	FEATURE SCREENING
RW	RETAINING WALL	BFD	BI-FOLD DOOR	LV	LOUVRES	IWS	INTEGRAL WALL
				RWT	RAINWATER TANK		

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Sydney
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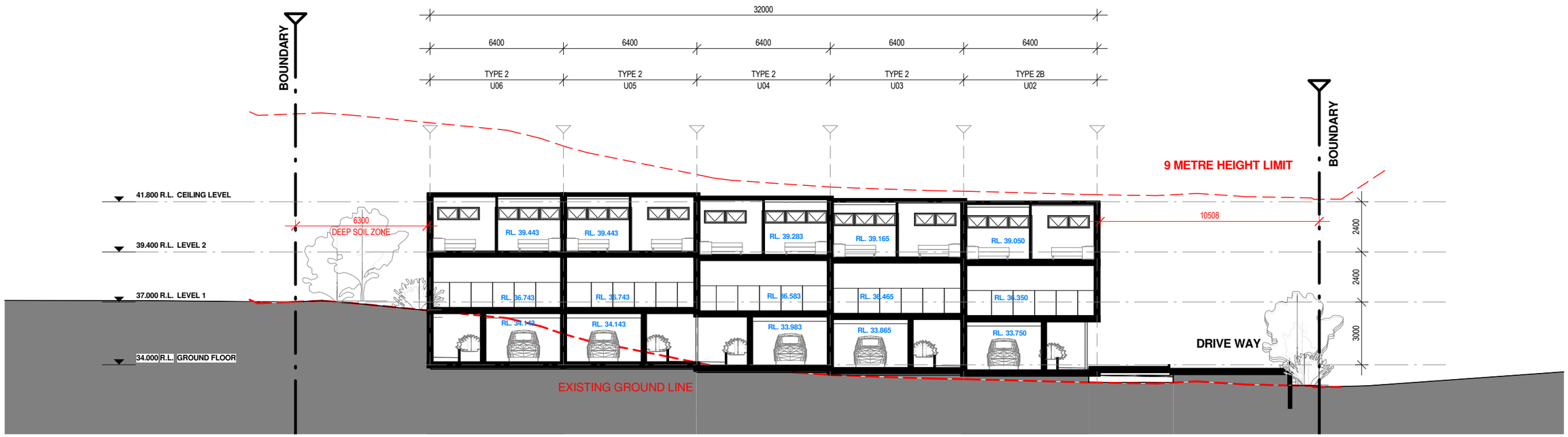
Olympus Boulevard,
Wolli Creek NSW 2205

Nominated Architect:
Robert Gizzi (Reg. 8286)

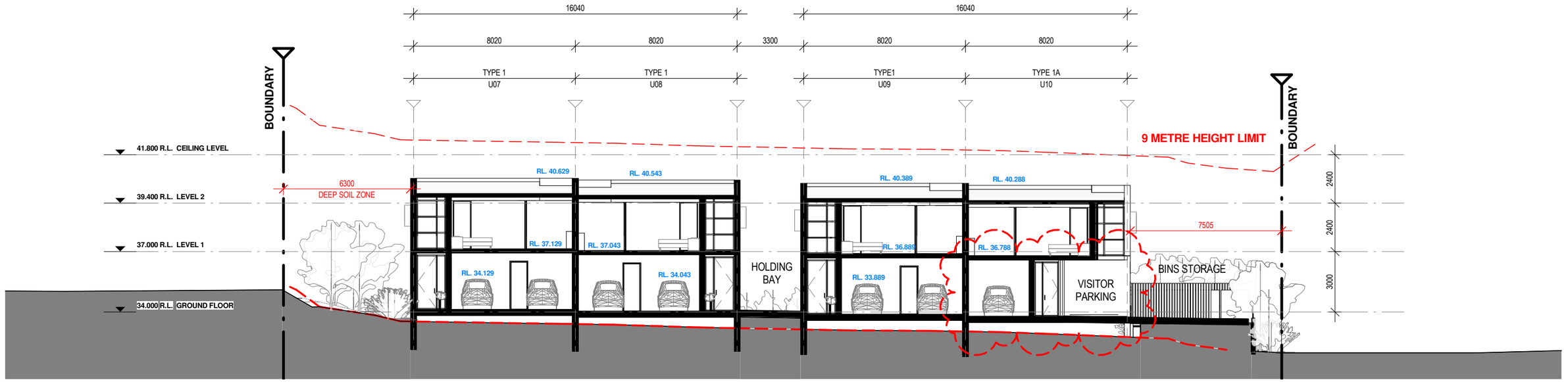
CLIENT:	ALY MEDIUM DENSITY	DATE: 12.04.2019	PROJECT No. 1912
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG	DRAWN: TN	
		SCALE: 1 : 200	DWG No. AI-40 Rev. L
DRAWING NAME:	SECTIONS A - B	QA: RG	

A3



SECTION C-C

1 : 200



SECTION D-D

1 : 200

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ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

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Legend:

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BL	BLOCKWORK	D	DOOR	AW	AWNING WINDOW	CPT	CARPET
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CL02	CLADDING	SLD	SLIDING DOOR	WH	WINDOW HOOD	SP	FEATURE SCREENING
RW	RETAINING WALL	BFD	BI-FOLD DOOR	LV	LOUVRES	IWS	INTEGRAL WALL
				RWT	RAINWATER TANK		

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Level 10, 6 Mount
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Wolli Creek NSW 2205

Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT: ALY
MEDIUM DENSITY

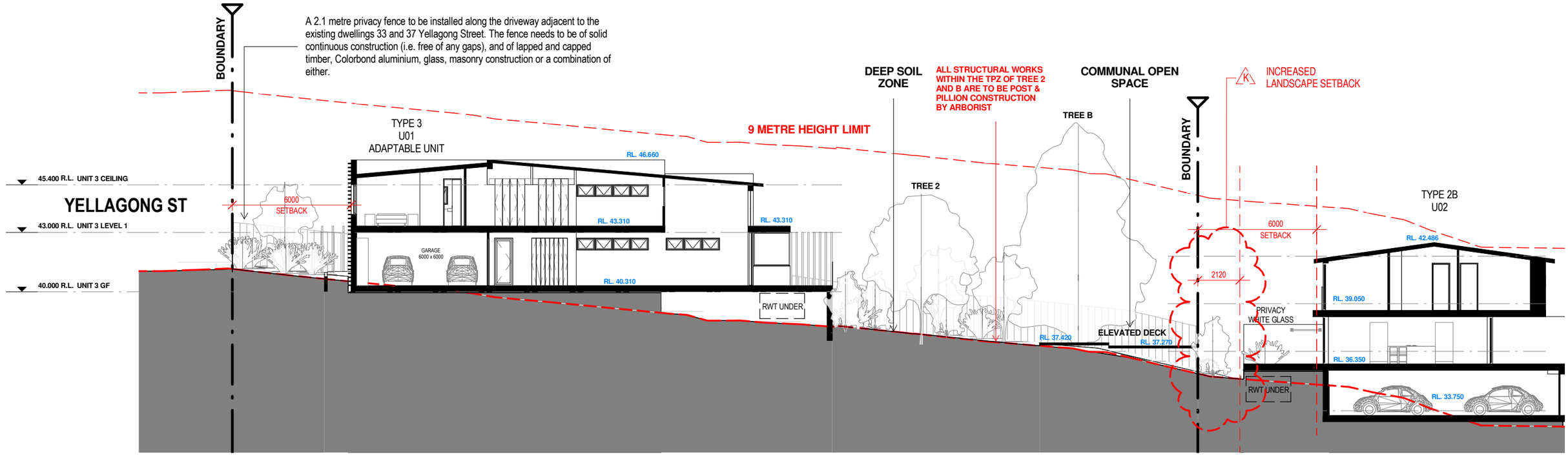
ADDRESS: 35 YELLAGONG STREET, WEST WOLLONGONG

DRAWING NAME: SECTIONS C - D

DATE: 12.04.2019
DRAWN: TN
SCALE: 1 : 200
QA: RG

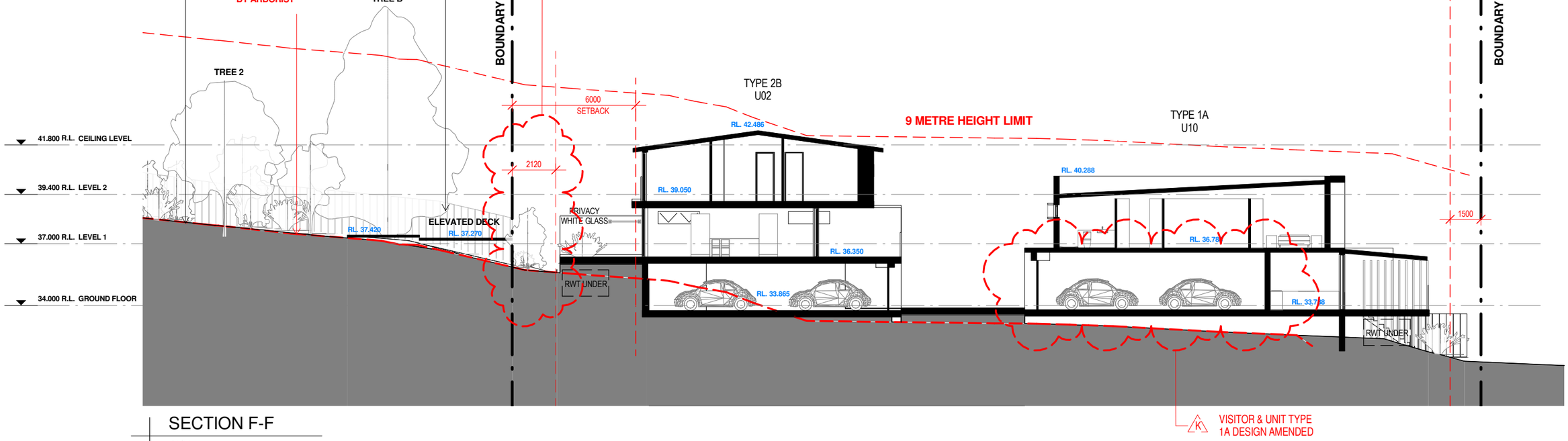
PROJECT No. 1912
DWG No. AI-41
Rev. L

A3



SECTION E-E

1 : 200



SECTION F-F

1 : 200

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ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

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RW	RETAINING WALL	BFD	BI-FOLD DOOR	LV	LOUVRES	IWS	INTEGRAL WALL
				RWT	RAINWATER TANK		

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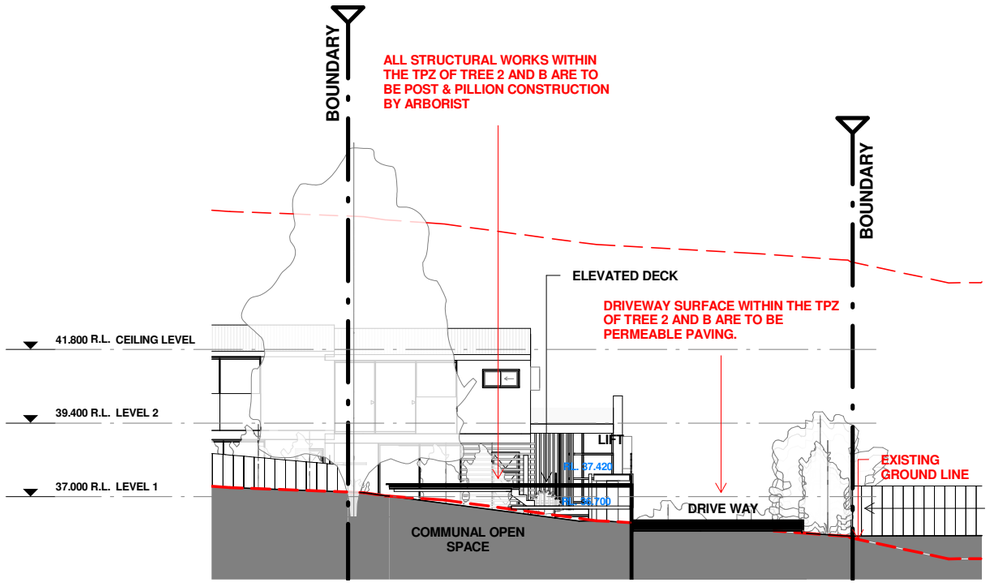
Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	SECTIONS E - F

DATE:	12.04.2019	PROJECT No.	
DRAWN:	TN	1912	
SCALE:	1 : 200	DWG No.	Rev.
QA:	RG	AI-42	L

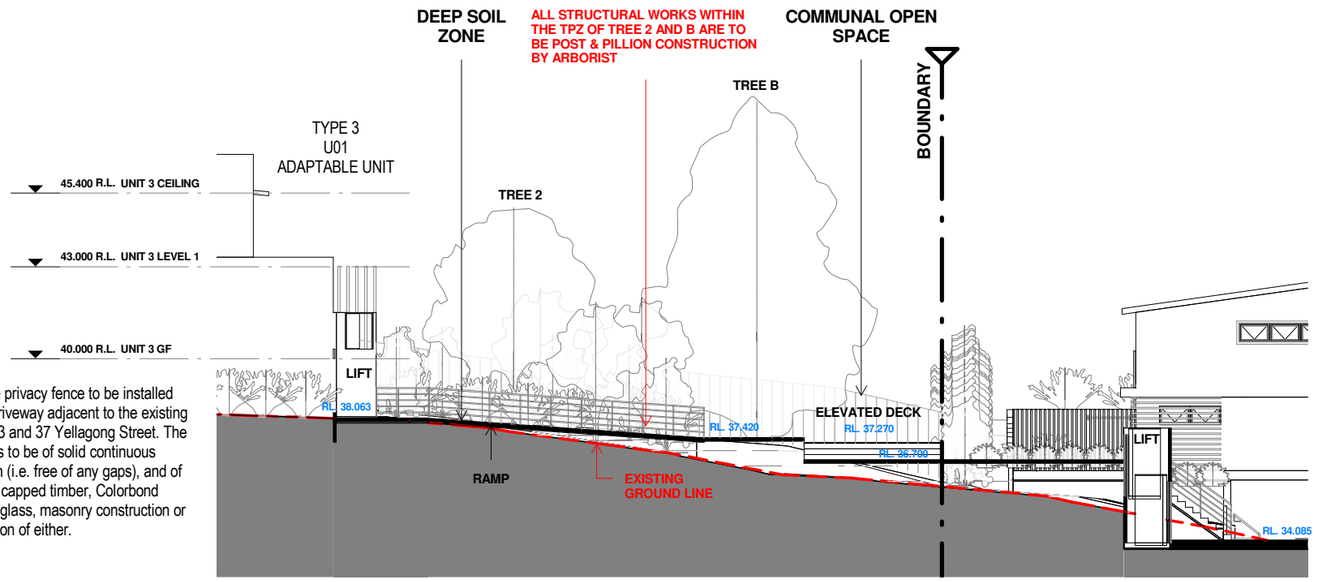
A3



SECTION G-G

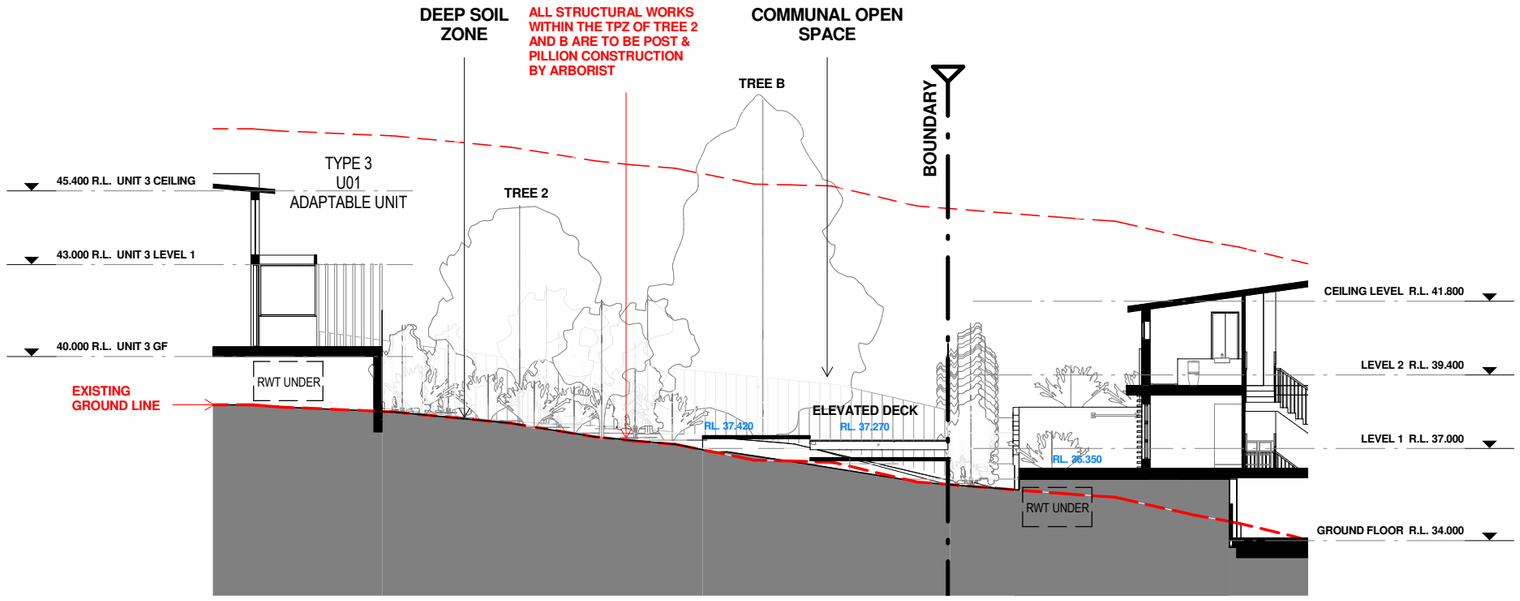
1 : 200

A 2.1 metre privacy fence to be installed along the driveway adjacent to the existing dwellings 33 and 37 Yellagong Street. The fence needs to be of solid continuous construction (i.e. free of any gaps), and of lapped and capped timber, Colorbond aluminium, glass, masonry construction or a combination of either.



SECTION H-H

1 : 200



SECTION I-I

1 : 200

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REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

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				RWT	RAINWATER TANK		

DWA
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Sydney
Level 10, 6 Mount
Olympus Boulevard,
Wolli Creek NSW 2205

Nominated Architect:
Robert Gizzi (Reg. 8286)

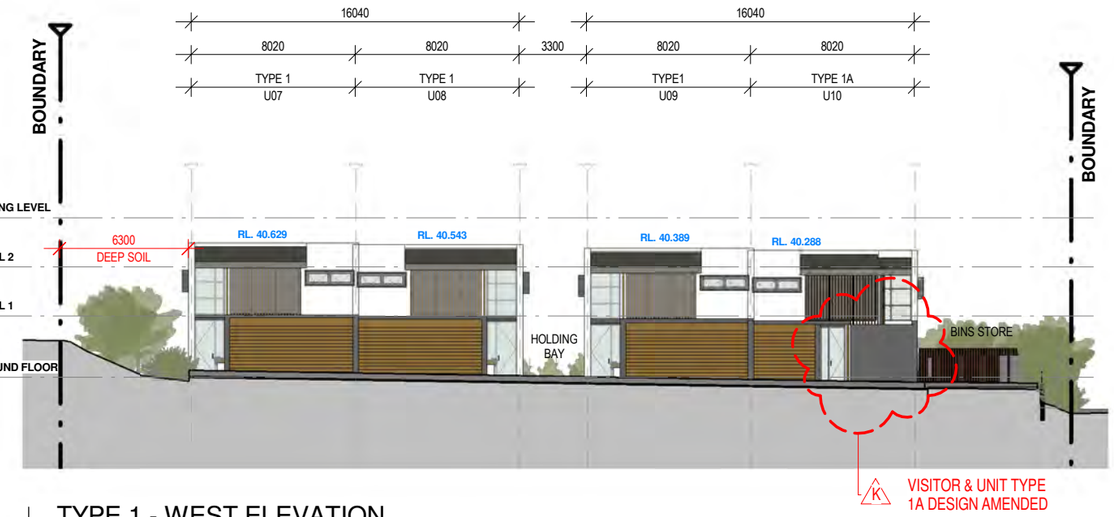
ADDITIONAL INFORMATION

CLIENT:	ALY MEDIUM DENSITY	DATE: 12.04.2019	PROJECT No. 1912
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG	DRAWN: TN	
		SCALE: 1 : 200	DWG No. AI-43 Rev. L
DRAWING NAME:	SECTIONS G - H	QA: RG	

A3

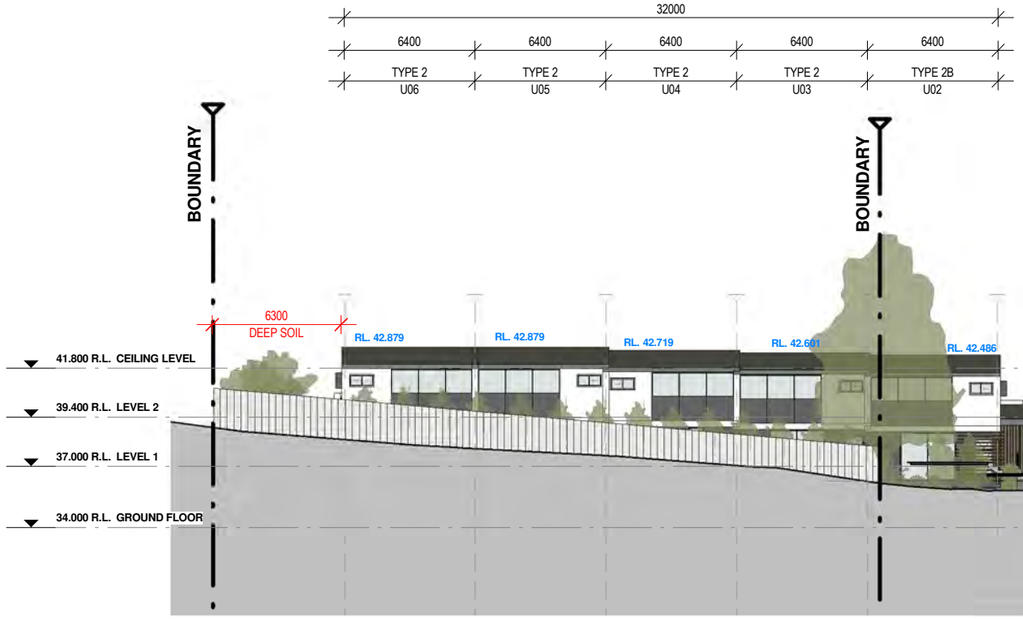
TYPE 1 - EAST ELEVATION

1 : 300



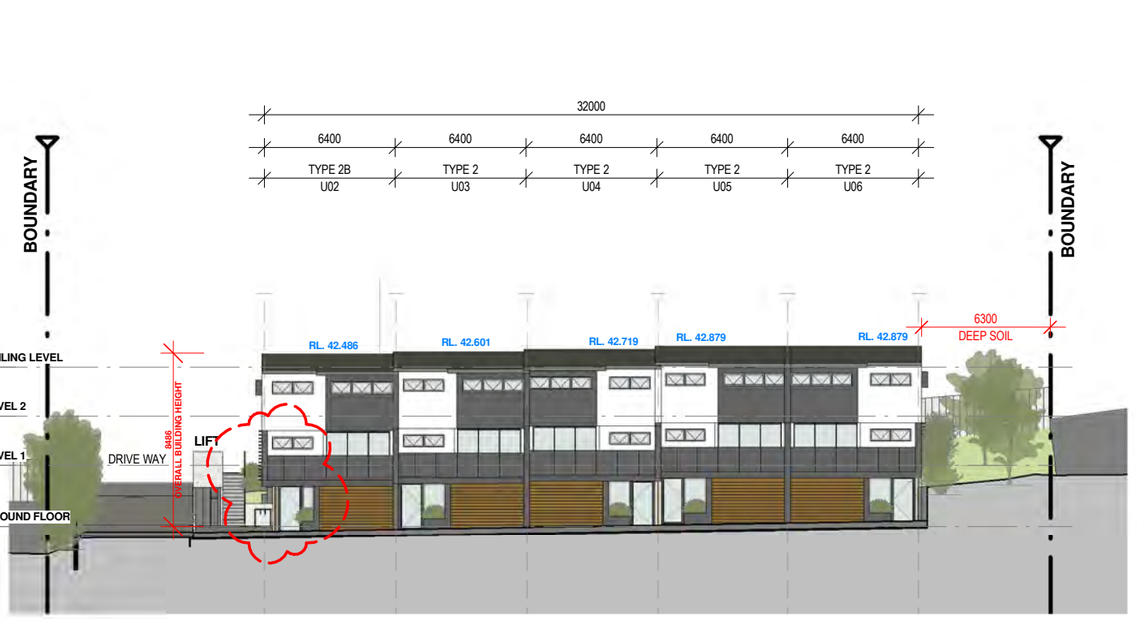
TYPE 1 - WEST ELEVATION

1 : 300



TYPE 2 - WEST ELEVATION

1 : 300



TYPE 2 - EAST ELEVATION

1 : 300

DISCLAIMER

Subject to: full site survey, measurements are preliminary, discussions and meetings with authorities, approval from authorities, relevant consultant information as per council DA requirements. Feasibility completed based on information provided by client. All parking and ramps to traffic engineers details.

ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

Legend:

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				RWT	RAINWATER TANK		

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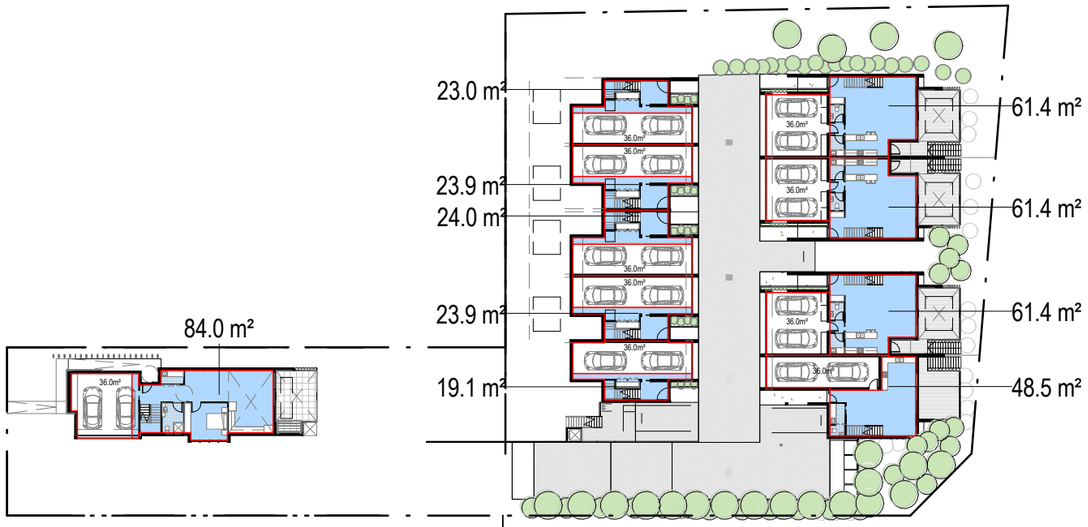
Sydney
Level 10, 6 Mount
Olympus Boulevard,
Wolli Creek NSW 2205
Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	ELEVATIONS

DATE:	12.04.2019
DRAWN:	TN
SCALE:	1 : 300
QA:	RG

PROJECT No.	
1912	
DWG No.	Rev.
AI-51	L

A3

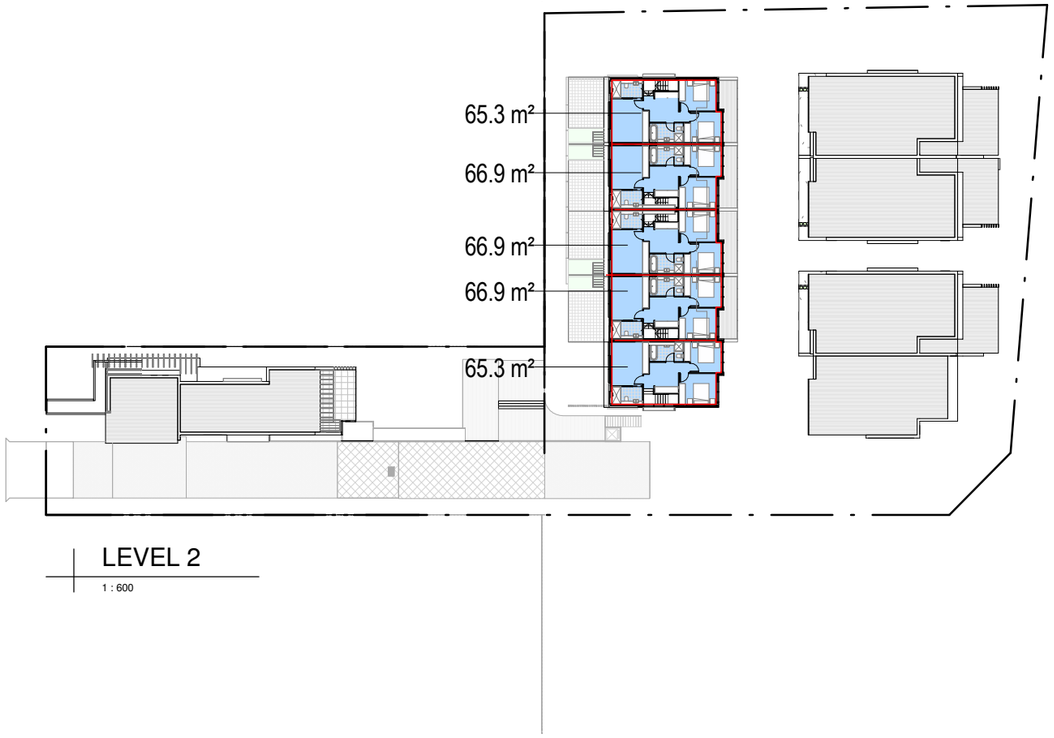


GROUND FLOOR

1 : 600

LEVEL 1

1 : 600



LEVEL 2

1 : 600

SITE AREA FSR ALLOWED GFA / UNIT ALLOWED	3117.0m² 1558.5m² 155.9m²	(0.5:1)
TOTAL PROPOSED GFA UNDER BY	1444.7m² 113.8m²	(0.46:1)
LANDSCAPE REQUIRED LANDSCAPE PROVIDED	935.1m² 973.9m²	(30.0%) (31.2%)
DEEP SOIL REQUIRED DEEP SOIL PROVIDED	467.6m² 496.9m²	(15.0%) (16.0%)

PARKING REQUIRED	20 SPACES
VISITORS PARK REQUIRED (0.2 / UNIT)	2 SPACES
MOTORBIKE REQUIRED BICYCLES RESIDENCE (1/3 UNITS) BICYCLES VISITORS (1/12 UNITS)	1 SPACE 3 SPACES 1 SPACE
PARKING PROVIDED	22 SPACES

STORAGE	
UNIT 1 (ADAPTABLE)	8.1m² (23.1m³)
UNIT 2 UNIT 3 UNIT 4 UNIT 5	5.7m² (13.8m³) 5.7m² (13.8m³) 5.7m² (13.8m³) 5.7m² (13.8m³)
UNIT 6 UNIT 7 UNIT 8 UNIT 9 UNIT 10	7.9m² (22.0m³) 7.9m² (22.0m³) 7.9m² (22.0m³) 7.9m² (22.0m³) 7.9m² (22.0m³)

Area Schedule (GFA)

Level	Name	Area
UNIT 1		
GROUND FLOOR	UNIT 1	84.0 m²
LEVEL 1	UNIT 1	72.9 m²
		156.8 m²
UNIT 2		
GROUND FLOOR	UNIT 2	19.1 m²
LEVEL 1	UNIT 2	52.6 m²
LEVEL 2	UNIT 2	65.3 m²
		136.9 m²
UNIT 3		
GROUND FLOOR	UNIT 3	23.9 m²
LEVEL 1	UNIT 3	53.8 m²
LEVEL 2	UNIT 3	66.9 m²
		144.6 m²

Area Schedule (GFA)

Level	Name	Area
UNIT 4		
GROUND FLOOR	UNIT 4	24.0 m²
LEVEL 1	UNIT 4	53.9 m²
LEVEL 2	UNIT 4	66.9 m²
		144.8 m²
UNIT 5		
GROUND FLOOR	UNIT 5	23.9 m²
LEVEL 1	UNIT 5	53.9 m²
LEVEL 2	UNIT 5	66.9 m²
		144.7 m²

Area Schedule (GFA)

Level	Name	Area
UNIT 6		
GROUND FLOOR	UNIT 6	23.0 m²
LEVEL 1	UNIT 6	52.6 m²
LEVEL 2	UNIT 6	65.3 m²
		140.9 m²
UNIT 7		
GROUND FLOOR	UNIT 7	61.4 m²
LEVEL 1	UNIT 7	86.9 m²
		148.3 m²

Area Schedule (GFA)

Level	Name	Area
UNIT 8		
GROUND FLOOR	UNIT 8	61.4 m²
LEVEL 1	UNIT 8	86.9 m²
		148.3 m²
UNIT 9		
GROUND FLOOR	UNIT 9	61.4 m²
LEVEL 1	UNIT 9	86.9 m²
		148.3 m²
UNIT 10		
GROUND FLOOR	UNIT 10	48.5 m²
LEVEL 1	UNIT 10	82.6 m²
		131.1 m²
		1444.7 m²

DISCLAIMER

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ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

Legend:

FB01	FACE BRICKWORK TYPE 1	R	ROOF	SLW	SLIDING WINDOW	P	POST		
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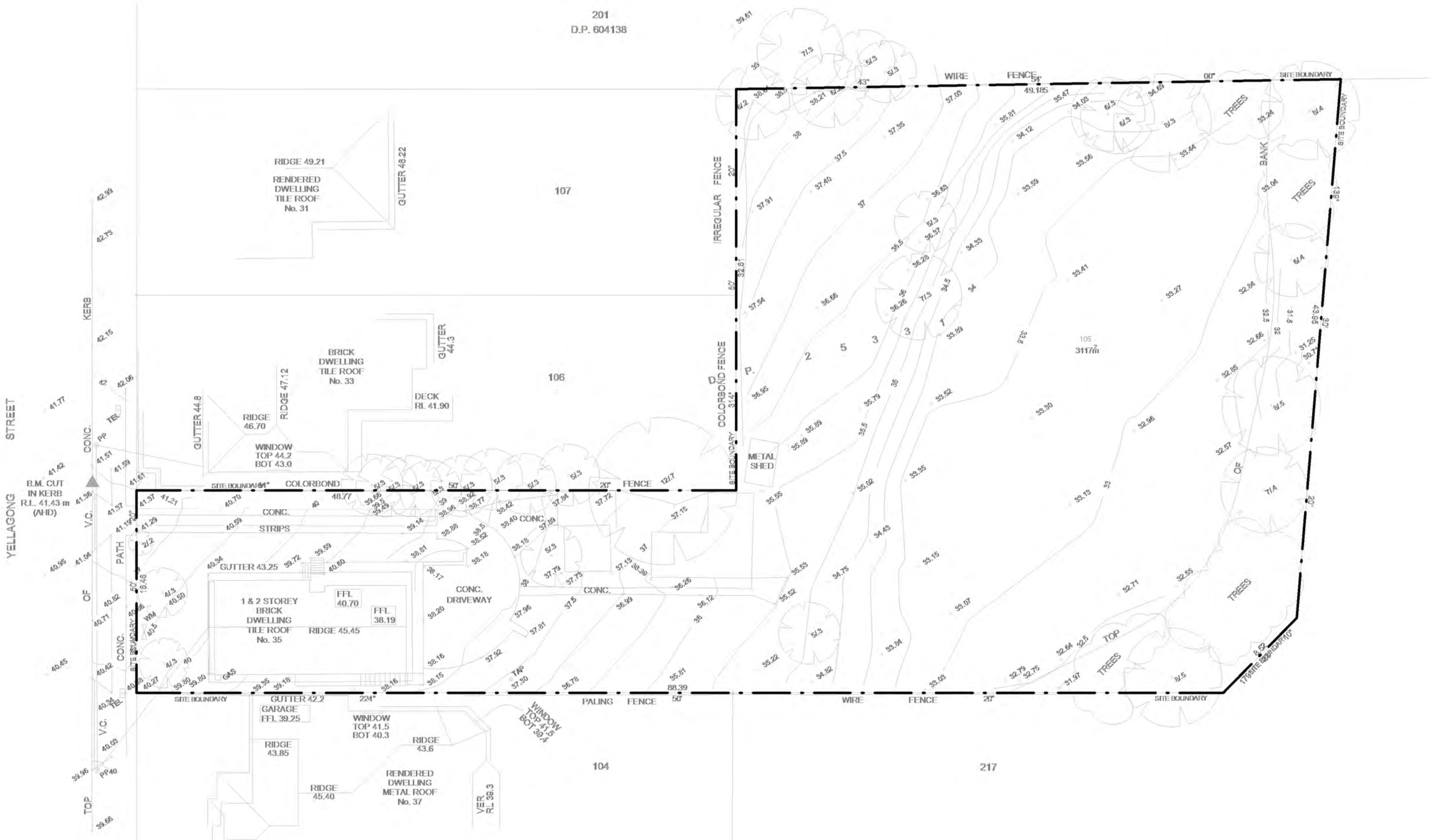
Wolli Creek NSW 2205
Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	GFA PLAN

DATE:	12.04.2019	PROJECT No.	
DRAWN:	TN	1912	
SCALE:	1 : 600	DWG No.	Rev.
QA:	RG	AI-60	L

A3



SITE SURVEY

1 : 300

ORIGINAL SITE SURVEY BY JRK SURVEYS
Jason Keywood - JRK Surveys [j.keywood@surveying.com.au]
0419 409020

DISCLAIMER
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ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
J	07.06.2019	ADDITIONAL INFORMATION

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Level 10, 6 Mount Olympus Boulevard,
Wolli Creek NSW 2205
Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT:	ALY MEDIUM DENSITY	DATE: 12.04.2019	PROJECT No. 1912
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG	DRAWN: TN	
		SCALE: 1 : 300	DWG No. AI-04 Rev. J
DRAWING NAME:	SITE SURVEY	QA: RG	

A3

GENERAL

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERRED TO THE OWNER FOR DECISION BEFORE PROCEEDING WITH THE WORK.
2. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE DRAWINGS.
3. SETTING OUT DIMENSIONS SHOWN ON THE DRAWING SHALL BE VERIFIED BY THE CONTRACTOR.
4. DURING CONSTRUCTION, THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVER-STRESSED.

STORMWATER DRAINAGE

1. STORMWATER DRAINAGE SHALL BE GENERALLY IN ACCORDANCE WITH AS 3500.3.
2. PIPES OF 300mm DIA. AND UNDER SHALL BE UPVC TO AS 1254.
3. PIPES OF 375mm DIA. AND LARGER SHALL BE FRC OR CONCRETE CLASS 2 TO AS 1342, RUBBER RING JOINTED UNO.
4. PIPES UP TO 150mm DIA. SHALL BE LAID AT A MINIMUM GRADE OF 1.0%. PIPES 225mm DIA. AND OVER TO BE LAID AT A MINIMUM GRADE OF 0.5%. UNO. BEDDING MATERIAL TO AS 2032 OR AS 3725 AS APPROPRIATE.
5. MINIMUM COVER TO PIPES 300mm DIA. AND OVER GENERALLY SHALL BE 450mm IN CARPARK & ROADWAY AREAS UNO.
6. BACKFILL TRENCHES WITH APPROVED FILL, SUCH AS SANDY LOAM, COMPACTED IN 200mm LAYERS TO 98% OF STANDARD DENSITY TO AS 1289. 5.1.1.
7. ANY PIPES OVER 16% GRADE SHALL HAVE CONCRETE BULKHEADS AT ALL JOINTS IN ACCORDANCE WITH AS 3500.3.2.
8. PITS SHALL BE OF REINFORCED CONCRETE CONSTRUCTION AS DETAILED. METAL GRATES AT LEVELS INDICATED ALL PITS DEEPER THAN 1200mm TO HAVE CLIMB IRONS.
9. BUILD INTO UPSTREAM FACE OF ALL PITS A 3.0m SUBSOIL LINE FALLING TO PITS TO MATCH PIT INVERT.
10. ALL LINES TO BE 100 DIA. AT 1% MIN. GRADE (U.N.O.)
11. ALL PITS TO BE BENCHED TO HALF PIPE SECTION AND TO HAVE GALVANISED STEEL GRATES AND SURROUNDS.
12. ALL PITS TO BE 600 SQUARE UNLESS NOTED OTHERWISE.
13. PITS & DOWNPIPE LOCATIONS AND LEVELS MAY BE VARIED TO SUIT SITE CONDITIONS AFTER CONSULTING THE ENGINEER.
14. ALL PLANTER BOXES AND BALCONIES TO BE CONNECTED TO THE PROPOSED STORMWATER DRAINAGE LINE.
15. SUBSOIL LINE: PIPES AND FITTINGS SHALL BE PERFORATED PLASTIC TO AS 2439 PART 1. LAY PIPES ON FLOOR OF TRENCH GRADED 1% AND OVERLAY WITH FILTER MATERIAL EXTENDING TO WITHIN 200mm OF SURFACE. PROVIDE FILTER FABRIC OF PERMEABLE POLYPROPYLENE BETWEEN FILTER MATERIAL AND TOPSOIL.

SWALE 1

PROVIDE INTERCEPTOR SWALE TO DIVERT OVERLAND FLOWS TO REAR CREEK. SEE C03 SWALE 1 DETAIL

PROVIDE INTERCEPTOR SWALE & DIVERT OVERLAND FLOWS TO OSD PIT. SEE C03 FOR SWALE 2 DETAIL.

ALL BALCONY OUTLETS TO CONNECT TO OSD TANK SYSTEM.

Ø100 DRAINAGE LINE TO RAINWATER TANK.

RAINWATER TANKS TO BASIX REQUIREMENTS.

Ø100 RAINWATER TANK OVERFLOW PIPE TO OSD TANK. ENSURE MIN. 1.0% FALL.

SWALE 2

SWALE 3

PROVIDE INTERCEPTOR SWALE & DIVERT OVERLAND FLOWS TO OSD PIT. SEE C03 FOR SWALE 3 DETAIL.

PROVIDE 600 SQ. PIT TO CAPTURE SWALE FLOWS & DIRECT TO OSD TANK.

Ø100 DRAINAGE LINE TO RAINWATER TANK. TRENCHES TO BE EXCAVATED BY HAND ONLY

SWALE PIT TO OSD TANK, PROVIDE MIN. 1.0% FALL.

RAINWATER TANKS TO BASIX REQUIREMENTS.

Ø100 RAINWATER TANK OVERFLOW PIPE & BALCONY OUTLET TO OSD TANK. ENSURE MIN. 1.0% FALL. TRENCHES TO BE EXCAVATED BY HAND ONLY

PROVIDE PIT TO CAPTURE SWALE FLOWS & DIRECT TO OSD TANK.

Ø100 DRAINAGE LINE TO OSD TANK.

NEW DRIVEWAY LAYBACK TO WOLLONGONG CITY COUNCIL REQUIREMENTS.

PROVIDE PLANTER OUTLET & DIRECT INTO OSD TANK.

PROVIDE PLANTER OUTLET & DIRECT INTO OSD TANK.

PROVIDE OPENING IN HOB FOR OVERFLOW FROM OSD TANK IF THERE IS BLOCKAGE.

PROVIDE OPENING IN HOB FOR OVERFLOW FROM OSD TANK IF THERE IS BLOCKAGE.

Ø375 RCRRJ OSD OUTLET TO FALL AT MIN. 0.5% GRADE & DISCHARGE TO EXISTING CREEK. PROVIDE EROSION & SCOUR PROTECTION AS OUTLINED.

Ø375 RCRRJ OSD OUTLET TO BREAK OUT AT CREEK TOP OF BANK, PROVIDE HEADWALL IL 26.50 (TO BE CONFIRMED). PROVIDE EROSION & SCOUR PROTECTION TO BOTTOM OF BANK AS OUTLINED.

OSD VOLUME=30.72m³
2.6x5.6x2.8m DEEP INTERNAL DIM.
RL VARIES.
IL = 30.40
PROVIDE TWO 900sq GRATED LIDS TO TANK

PROVIDE HEADWALL & RIP RAP SCOUR PROTECTION TO BOTTOM OF BANK.
RIP RAP LENGTH = 7000mm
RIP RAP WIDTH = 3175mm
MEDIAN ROCK DIAMETER = 200mm

ROCK IS TO BE WELL GRADED APPROVED MATERIAL. PROVIDE TWO LAYERS OF ROCK WITH FILTER CLOTH BENEATH.

ROCKS SHALL BE PLACED IN SUCH A MANNER THAT THEY ARE STABLE, INTERLOCKING, AND LAID ROUGHLY COURSED AND BEDDED ON THE BASE.

STORMWATER DRAINAGE PLAN

SCALE 1:200

SYMBOLS & NOTATION

- - - - -	PROPOSED STORMWATER DRAINAGE LINE
—— AGG> ——	90Ø AG LINE CONNECT TO STORMWATER OUTLET OR VERTICAL SLOT DRAIN
+33.84	EXISTING SURFACE LEVEL
	GRATED PIT
WxD TG	WIDTH BY DEPTH OF TRENCH GRATE
DPS	DOWN PIPE SPREADER
DP	Ø100 DOWN PIPE
BO	Ø100 BALCONY OUTLET
	PIPE SUSPENDED UNDER
	OVERLAND FLOWS

BEFORE EXCAVATION FOR PIPEWORK LOCATE DEPTH OF EXISTING SERVICES & CONTACT DIAL BEFORE YOU DIG

IFD TABLE

DURATION	ARI Yrs	INTENSITY (mm/Hr)
5 mins	20	239
5 mins	100	348

ALL EXISTING LEVELS TO BE CONFIRMED ON SITE AND ENGINEER TO BE NOTIFIED PRIOR TO COMMENCEMENT OF WORK.

DEPTH AND LOCATION OF ALL EXISTING SERVICES TO BE CONFIRMED BY BUILDER ON SITE. ENGINEER TO BE NOTIFIED.

OSD SUMMARY

SITE AREA =3117 m²
TRIBUTARY AREA =4840 m²
PRE-DEVELOPMENT AREA =25%
POST DEVELOPMENT AREA =65%

STORAGE DETAILS
STORAGE RETENTION
SSR5 =17.89 m³
SSR100 =30.72m³
PERMISSIBLE SITE DISCHARGE
PSD5 =127.77 L/s
PSD100 =219.37 L/s

ORIFICE RESTRICTION =Ø232 mm

STORAGE REQUIRED
=30.72m³
STORAGE PROVIDED
=2.6x5.6x2.67-1.2x1.2x2.67
= 35.03m³

No.	Date	Revision	By	No.	Date	Revision	By
A	20/05/19	ISSUE FOR COMMENT	A.B				
B	31/05/19	ISSUE FOR COMMENT	A.B				
C	04/06/19	ISSUE FOR COMMENT	A.B				
D	05/06/19	ISSUE FOR COMMENT	A.B				
1	07/06/19	ISSUE FOR DA	A.B				
2	24/07/19	ISSUE FOR DA	A.B				
3	29/07/19	ISSUE FOR DA	A.B				

MEDIUM DENSITY DEVELOPMENT

35 YELLAGONG STREET
WEST WOLLONGONG

PREPARED FOR:– **ACCENTRIA**

ARCHITECTURE REFERENCE:
DESIGN WORKSHOP AUSTRALIA

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Designed by	AB
Drawn by	AB
Checked by	Michael Pereira B.E (civil) MIEAust
Date	JULY 2019

Title: STORMWATER DRAINAGE PLAN

Scale: AS SHOWN @ A1
Drawing No.: C01
Project No.: 19124
Rev.: 3

N

1 Site Plan - First Floor

SCALE 1:300 @ A3

Rev	Date	Description
DE	10/12/18	Design Approval Application
DD	30/11/18	Design Approval Application
DC	23/11/18	Design Approval Application
DB	7/11/18	Design Approval Application

AEQ | ARCHITECTS

PROJECT:
PROPOSED RESIDENTIAL TOWNHOUSE DEVELOPMENT
35 YELLAGONG STREET WOLLONGONG NSW 2500

DRAWING:	SCALE:	ISSUE DATE:	PRJ No:	STAGE:	DWG No:	REV:
Site Plan - First Floor	A3 1:300	11/12/18	AEQ0008	DA	A.002.3	DE

• DRAWING PUBLISHED 10/12/18

DECEMBER - 9AM SHADOW

1 : 800

DECEMBER - 12PM SHADOW

1 : 800

DECEMBER - 3PM SHADOW

1 : 800

DISCLAIMER

Subject to: full site survey, measurements are preliminary, discussions and meetings with authorities, approval from authorities, relevant consultant information as per council DA requirements. Feasibility completed based on information provided by client. All parking and ramps to traffic engineers details.

ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

Legend:

FB01	FACE BRICKWORK TYPE 1	R	ROOF	SLW	SLIDING WINDOW	P	POST
FB02	FACE BRICKWORK TYPE 2	DP	DOWNPIPES	FW	FIXED WINDOW	T	TIMBER FLOORS
FB03	FACE BRICKWORK TYPE 3	TB	TIMBER BATTENS	OB	OBSCURE WINDOW	CT	CERAMIC TILES
BL	BLOCKWORK	D	DOOR	AW	AWNING WINDOW	CPT	CARPET
CL01	CLADDING	GD	GARAGE DOOR	SK	SKYLIGHT	PC	POLISHED CONCRETE
CL02	CLADDING	SLD	SLIDING DOOR	WH	WINDOW HOOD	SP	FEATURE SCREENING
RW	RETAINING WALL	BFD	BI-FOLD DOOR	LV	LOUVRES	IWS	INTEGRAL WALL
				RWT	RAINWATER TANK		

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Sydney
Level 10, 6 Mount
Olympus Boulevard,
Wolli Creek NSW 2205

Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	DECEMBER - 9AM - 3PM SHADOWS

DATE:	12.04.2019
DRAWN:	TN
SCALE:	1 : 800
QA:	RG

PROJECT No.	1912
DWG No.	AI-72
Rev.	L

A3

JUNE - 1PM SHADOW

1 : 800

JUNE - 2PM SHADOW

1 : 800

JUNE - 3PM SHADOW

1 : 800

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ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

DISCLAIMER

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BL	BLOCKWORK	D	DOOR	AW	AWNING WINDOW	CPT	CARPET
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				RWT	RAINWATER TANK		

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Olympus Boulevard,
Wolli Creek NSW 2205

Nominated Architect:
Robert Gizzi (Reg. 8286)

CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	JUNE 1PM - 3PM SHADOWS

DATE:	12.04.2019
DRAWN:	TN
SCALE:	1 : 800
QA:	RG

PROJECT No.	
1912	
DWG No.	Rev.
AI-71	L

A3

JUNE - 9AM SHADOW

1 : 800

JUNE - 10AM SHADOW

1 : 800

JUNE - 11AM SHADOW

1 : 800

JUNE - 12PM SHADOW

1 : 800

DISCLAIMER

Subject to: full site survey, measurements are preliminary, discussions and meetings with authorities, approval from authorities, relevant consultant information as per council DA requirements. Feasibility completed based on information provided by client. All parking and ramps to traffic engineers details.

ADDITIONAL INFORMATION

REF.	DATE	AMENDMENT
L	17.07.2019	ADDITIONAL INFORMATION

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Nominated Architect:
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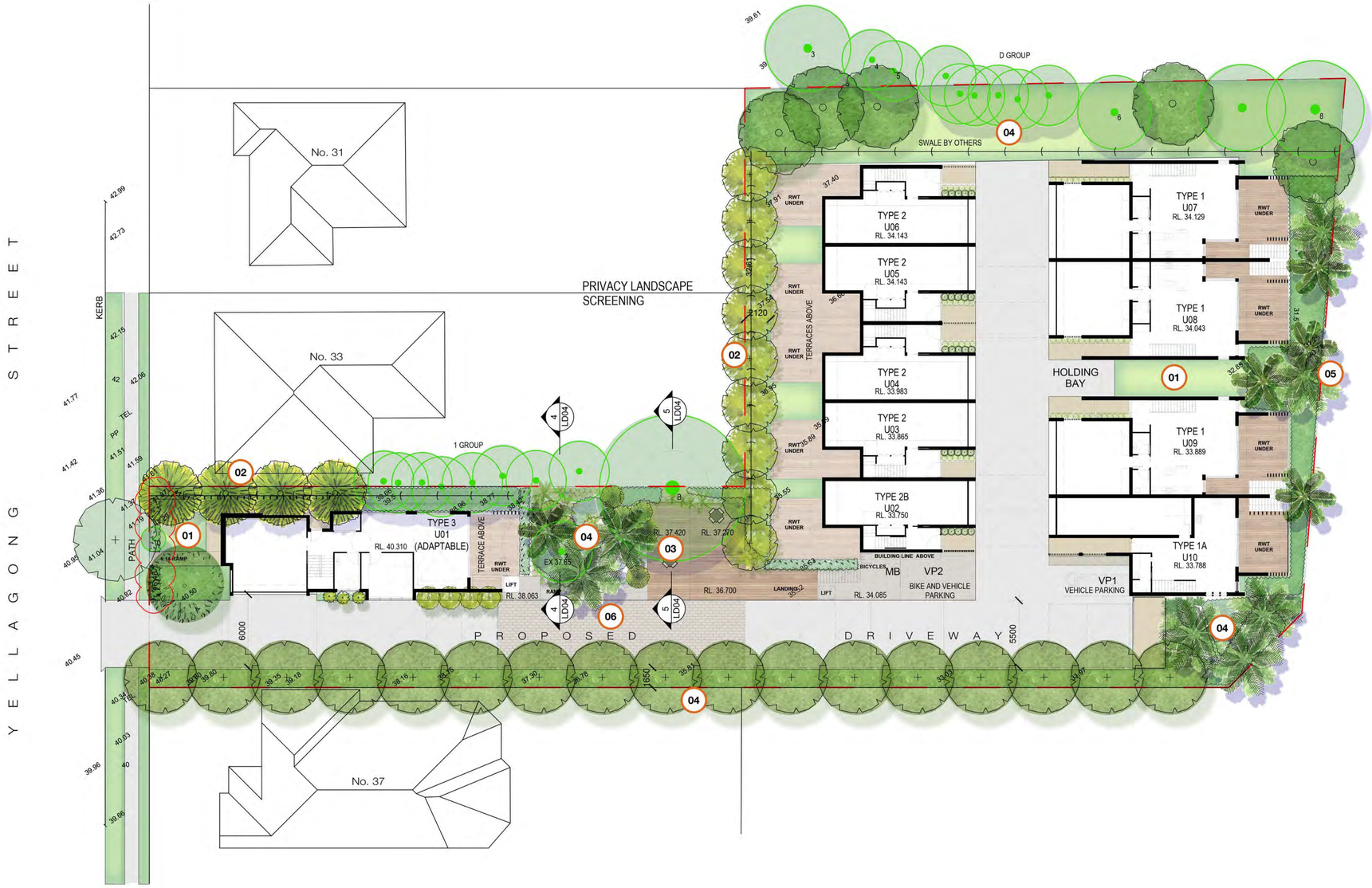
CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	JUNE 9AM - 12PM SHADOWS

DATE:	12.04.2019
DRAWN:	TN
SCALE:	1 : 800
QA:	RG

PROJECT No.	
1912	
DWG No.	Rev.
AI-70	L

A3



DESIGN NOTES

01 OPEN TURF AREA

02 SCREENING PLANTS TO NEIGHBOURING PROPERTY

03 COMMUNAL OPEN SPACE WITH SEATING AND BBQ

04 MIXED PLANTING TO DEEP SOIL ZONE PROVIDING AMENITY AND SCREENING

05 DECIDUOUS TREES ALONG EASTERN BOUNDARY TO ALLOW WINTER SOLAR ACCESS

06 PERMEABLE PAVING WITHIN TPZ ZONES OF EXISTING TREES

LANDSCAPE PLAN - GROUND FLOOR

SCALE 1:200 @ A1

0 2 4 8 12m

LEGEND

- SITE BOUNDARY
- EXISTING TREE RETAINED
- PROPOSED TREE
- 18.5 PROPOSED NEW CONTOUR
- × EX 18.25 EXISTING SPOT LEVEL
- +RL 20.0 PROPOSED SPOT LEVEL
- +TW 21.0 TOP OF WALL LEVEL
- +SL 24.00 TOP OF SLAB LEVEL
- PROPOSED SHRUBS
- PROPOSED GROUNDCOVERS
- TURF
- FENCE TYPE 1
- BUILDING LINE OVER

project: 35 Yellagong Wollongong
client: Accentria Hercules Pty Ltd
date 06.08.19
revision: C
drawn: CS
checked: DMT

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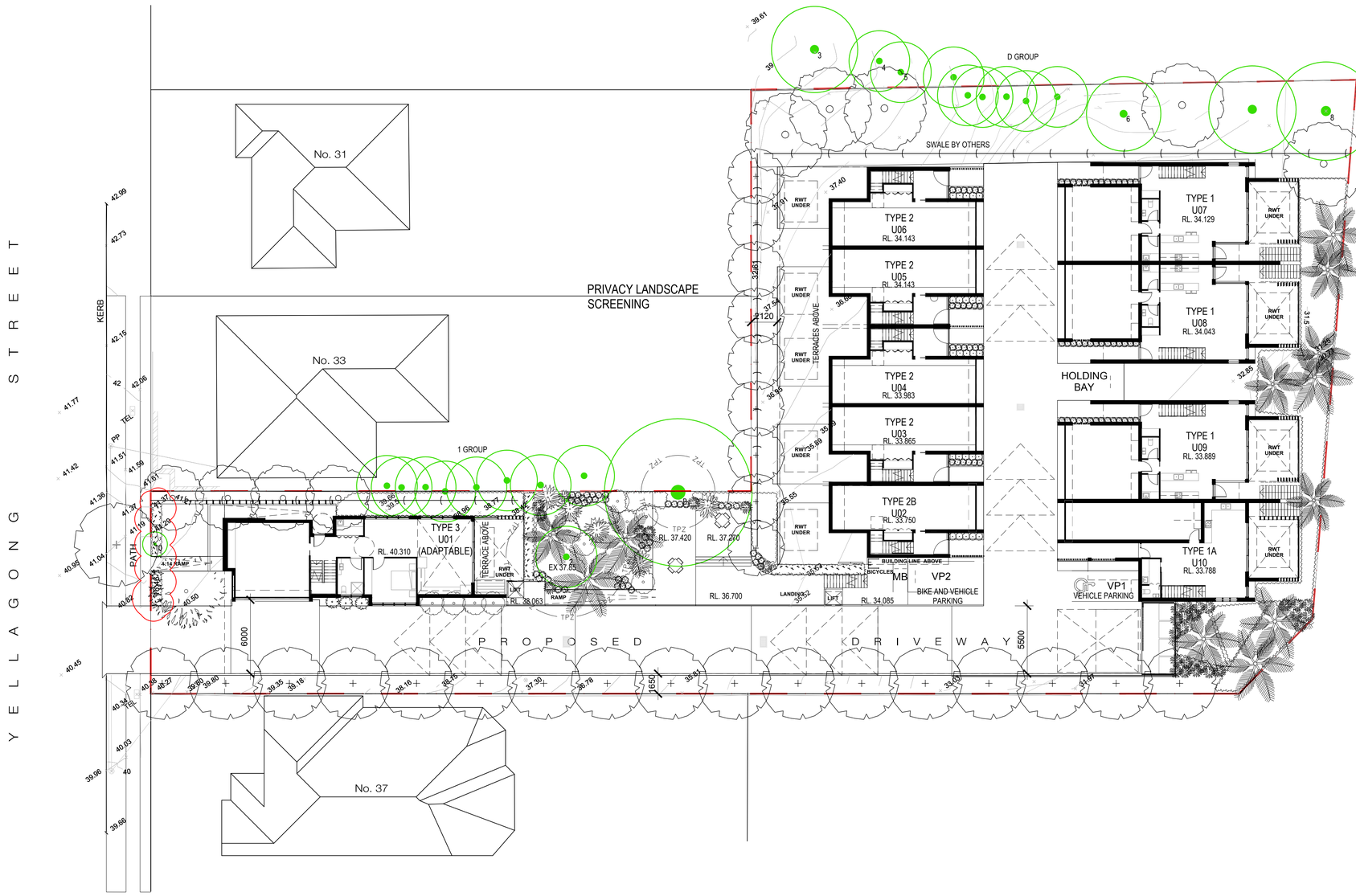

INDICATIVE PLANT SCHEDULE

ID	BOTANICAL NAME	COMMON NAME
TREES		
El-re	Elaeocarpus reticulatus 'Prima Donna'	Blueberry Ash
Hi-ti	*Hibiscus tiliaceus 'Rubra'*	Bronze Leaf Hibiscus
Hy-fl	*Hymenosporum flavum*	Native Frangipani
La-fa	*Lagerstroemia* 'Fantasy'	Crepe Myrtle
Ma-gr	*Magnolia grandiflora 'Exmouth'*	Magnolia
Me-th	*Metrosideros thomasii* 'Crimson Glory'	New Zealand Christmas Bush
Sy-lu	*Syzygium luehmannii*	Lily Pilly
Tr-la	*Tristaniopsis laurina*	Water Gum
Wa-fl	*Waterhousia floribunda 'Sweeper'*	Weeping Lilly Pilly
PALMS		
Li-au	*Livistona australis*	Cabbage Tree Palm
Rh-ex	*Rhapis excelsa*	Lady Palm
Za-fu	*Zamia furfuracea*	Cardboard Palm
SHRUBS		
Ac- Ho	*Acacia howittii 'Honey Bun'*	Honey Bun wattle
Ad-se	*Adenanthos sericeus 'Silver Streek'*	Woolly Bush
Al-bi	*Aloe 'Big Red'*	Big Red Aloe
Al-ca	*Alpinia caerulea 'Red Back'*	Native Ginger
Al-va	*Alpinia zerumbet 'variegata Nana'*	Variegated Shell Ginger
As-au	*Asplenium australasicum*	Birds Nest Fern
Do-ex	*Doryanthes Excelsa*	Gymea Lily
Ec-ca	*Echium candicans*	Pride of Madeira
Hy-fl	*Hymenosporum flavum 'Gold Nugget'*	Dwarf Native Frangipani
Pi-wh	*Pittosporum 'Wheeler's Dwarf'*	Wheelers Dwarf Pittosporum
St-ju	*Strelitzia juncea*	Narrow Leafed Bird of Paradise
Vi-od	*Viburnum odoratissima*	Viburnum
We-fr	*Westringia fruticosa*	Coastal Rosemary
GROUNDCOVERS		
Ad-cu	*Adenanthos cuneatus*	Coral Carpet
Ca-co	*Casuarina 'Cousin It'*	Cousin it
Ca-gl	*Carpobrotus glaucescens*	Pigface
Di-sf	*Dichondra 'Silver Falls'*	Silver Kidneyweed
Ha-vi	*Hardenbergia violacea*	Sasparilla
Lo-ta	*Lomandra 'Tanika*	Mat Rush
Ph-xa	*Philodendron 'Xanadu'*	Dwarf Philodendron
Se-se	*Senecio serpens*	Blue Chalk Sticks
Tr-ja	*Trachelospermum jasminoides*	Star Jasmine

PLANTING PLAN - GROUND FLOOR

SCALE 1:200 @ A1
0 2 4 8 12m

LEGEND

- SITE BOUNDARY
- EXISTING TREE RETAINED
- PROPOSED TREE
- 18.5 PROPOSED NEW CONTOUR
- × EX 18.25 EXISTING SPOT LEVEL
- +RL 20.0 PROPOSED SPOT LEVEL
- +TW 21.0 TOP OF WALL LEVEL
- +SL 24.00 TOP OF SLAB LEVEL
- PROPOSED SHRUBS
- PROPOSED GROUNDCOVERS
- TURF
- FENCE TYPE 1
- BUILDING LINE OVER

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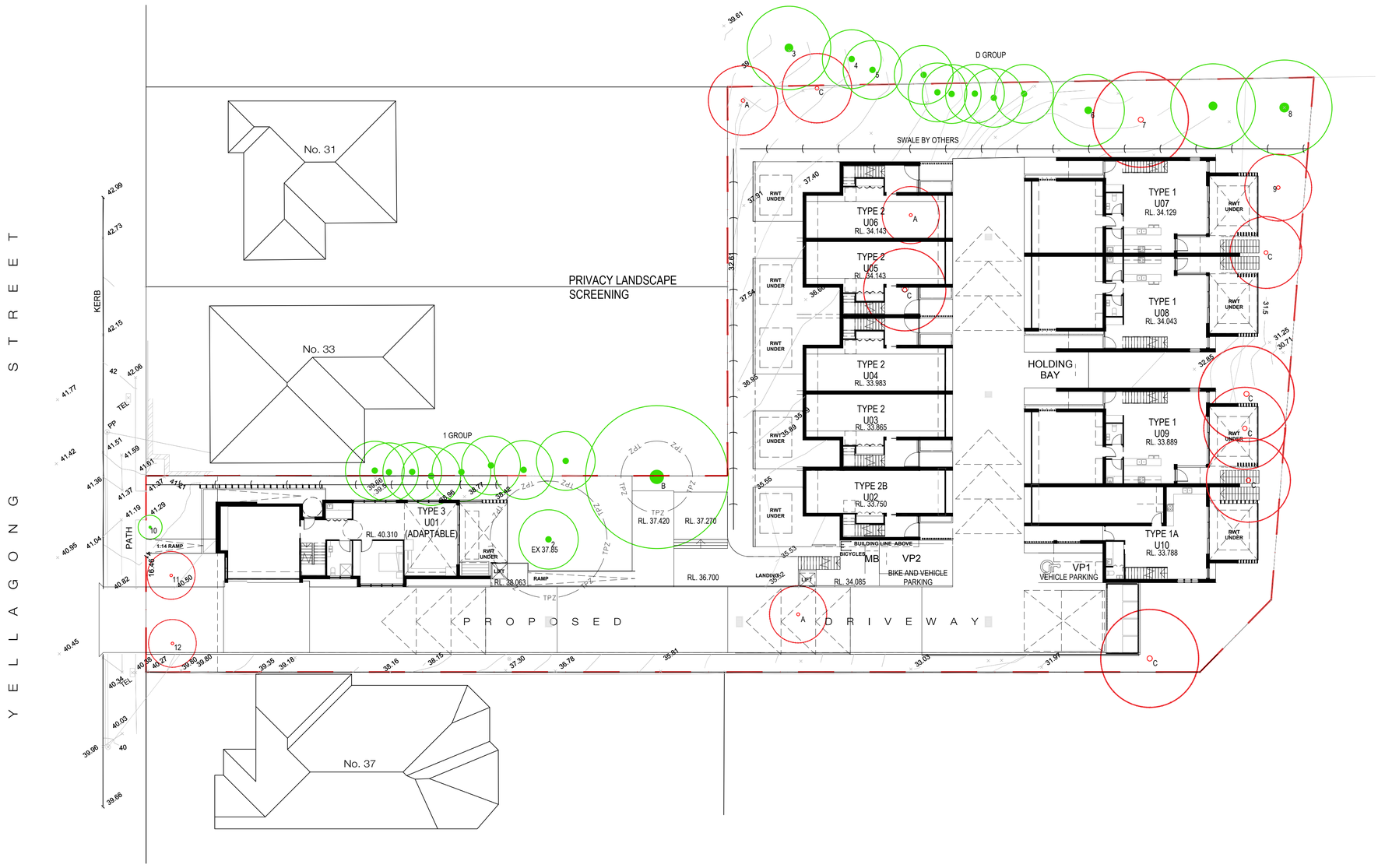
02



EXISITNG PLANT SCHEDULE

NO	BOTANICAL NAME	COMMON NAME	STATUS
1	Cupressus macrocarpa	Monterey Cypress	RETAIN
2	*Araucaria heterophylla*	Norfolk Island Pine	RETAIN
3	*Grevillea robusta*	Silky Oak	RETAIN
4	*Grevillea robusta*	Silky Oak	RETAIN
5	*Melaleuca styphelioides*	Prickly-leaved Paperbark	RETAIN
6	*Eucalyptus saligna X botryoides*	Wollongong Woolybutt	RETAIN
7	*Eucalyptus saligna X botryoides*	Wollongong Woolybutt	REMOVE
8	*Eucalyptus saligna X botryoides*	Wollongong Woolybutt	RETAIN
9	*Eucalyptus nicholii*	Narrow-leaf Black Peppermint	REMOVE
10	Cupressus sempervirens	Mediterranean Cypress	RETAIN
11	*Chamaecyparis obtusa 'Crippsii'*	Golden Hinoki False Cypress	REMOVE
12	*Chamaecyparis obtusa 'Crippsii'*	Golden Hinoki False Cypress	REMOVE
A	*Ligustrum lucidum*	Privet	REMOVE
B	*Cinnamomum camphora*	Camphor Laurel	RETAIN
C	*Grevillea robusta*	Silky Oak	REMOVE
D	*Grevillea robusta,* *Melaleuca styphelioides* (group)	Silky Oak Prickly-leaved Paperbark	RETAIN

REFER TO ARBORICULTURAL IMPACT ASSESSMENT REPORT BY ALLIED TREE CONSULTANCY.
EXISTING TREE NUMBERS AS PER ARBORIST REPORT

TREE RETENTION AND REMOVAL PLAN

SCALE 1:200 @ A1
0 2 4 8 12m

LEGEND
- SITE BOUNDARY
- EXISTING TREE RETAINED
- EXISTING TREE REMOVED
- 18.5 PROPOSED NEW CONTOUR
- × EX 18.25 EXISTING SPOT LEVEL
- +RL 20.0 PROPOSED SPOT LEVEL

project: 35 Yellagong Wollongong
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RODNEY STEVENS ACOUSTICS
Acoustic Consultants
Member Australian Acoustical Society

Proposed Residential Development

35 Yellagong Street, West Wollongong

Carpark Noise Assessment

REPORT R160341R3

Revision 2

Prepared for:

Husayn Aly

35 Yellagong Street

WEST WOLLONGONG NSW 2500

5 June 2019

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Proposed Residential Development

35 Yellagong Street, West Wollongong

Carpark Noise Assessment

PREPARED BY:

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
R160341R1	Revision 0	22 June 2016	Thomas Carney	Desmond Raymond	Rodney Stevens
R160341R2	Revision 1	24 May 2018	Thomas Carney	Desmond Raymond	Rodney Stevens
R160341R3	Revision 2	5 June 2019	Thomas Carney	Desmond Raymond	Rodney Stevens

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5.1 Car Park Noise Impact 9

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Figure 2-4 Second Floor Plan 7

1 INTRODUCTION

Rodney Stevens Acoustics Pty Ltd (RSA) has been engaged by Mr. Husayn Aly to prepare a car park acoustical assessment of a proposed residential development at 35 Yellagong Street, West Wollongong NSW.

The project involves the construction of a multi townhouse residential development. An acoustic report for the proposed development was completed in June 2014 by The Acoustic Group (reference 44.5128.R1:MSC). The report assessed potential noise emissions associated with the development including noise from the cars entering and leaving the premises and potential mechanical plant noise. The major recommendations set out in the report was the construction of large boundary fencing adjacent to sensitive receivers.

Due to the changes in the design of the development, Wollongong City Council has requested an acoustical assessment based on the amended design and the new location of the car park. This report will primarily assess the noise from the use of motor vehicles to the nearby residents.

This report documents a review of the acoustical performance requirements applying to the project to accompany the submission to council.

2 PROJECT OVERVIEW

2.1 Proposed Development

The proposed development is located at 35 Yellagong Street, West Wollongong NSW.

The project area and its surrounding environment are presented in below.

Figure 2-1 Project Area and Surrounding Environment

Aerial image courtesy of © 2016 nearmap ltd

Proposed site layouts of the residential development site are presented in Figure 2-2 to Figure 2-4.

Figure 2-2 Ground Floor Plan

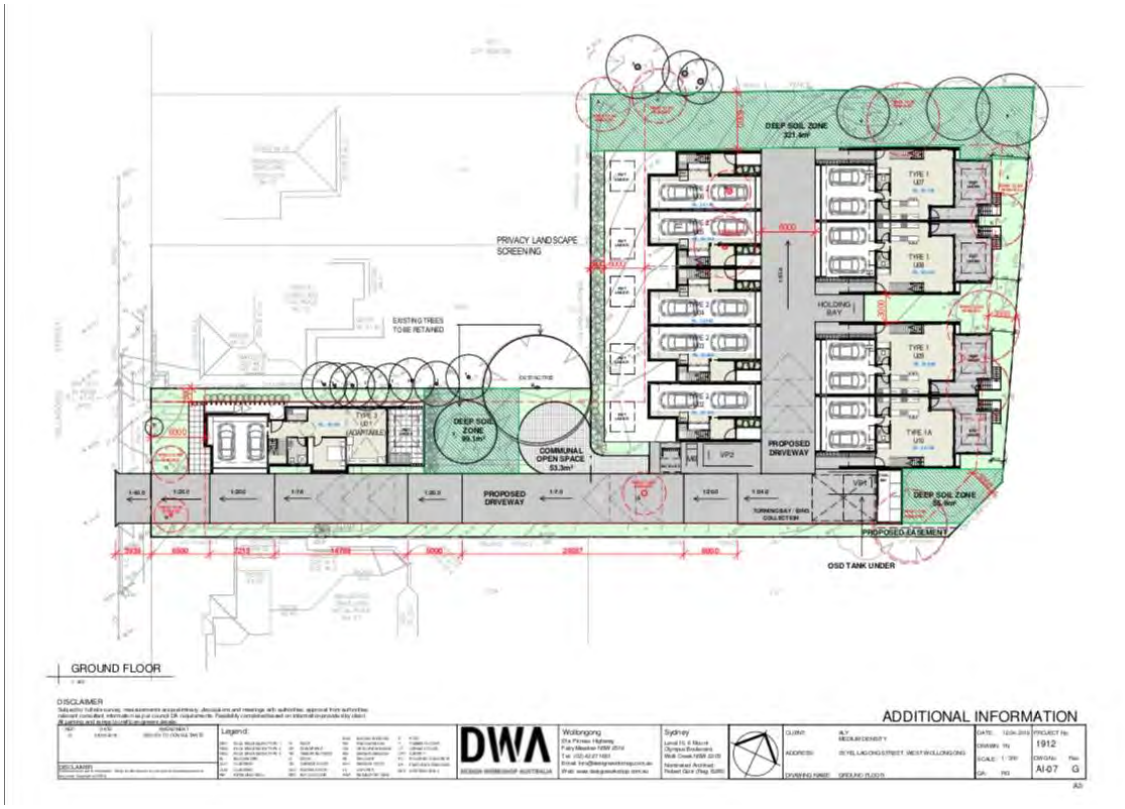


Figure 2-3 First Floor Plan

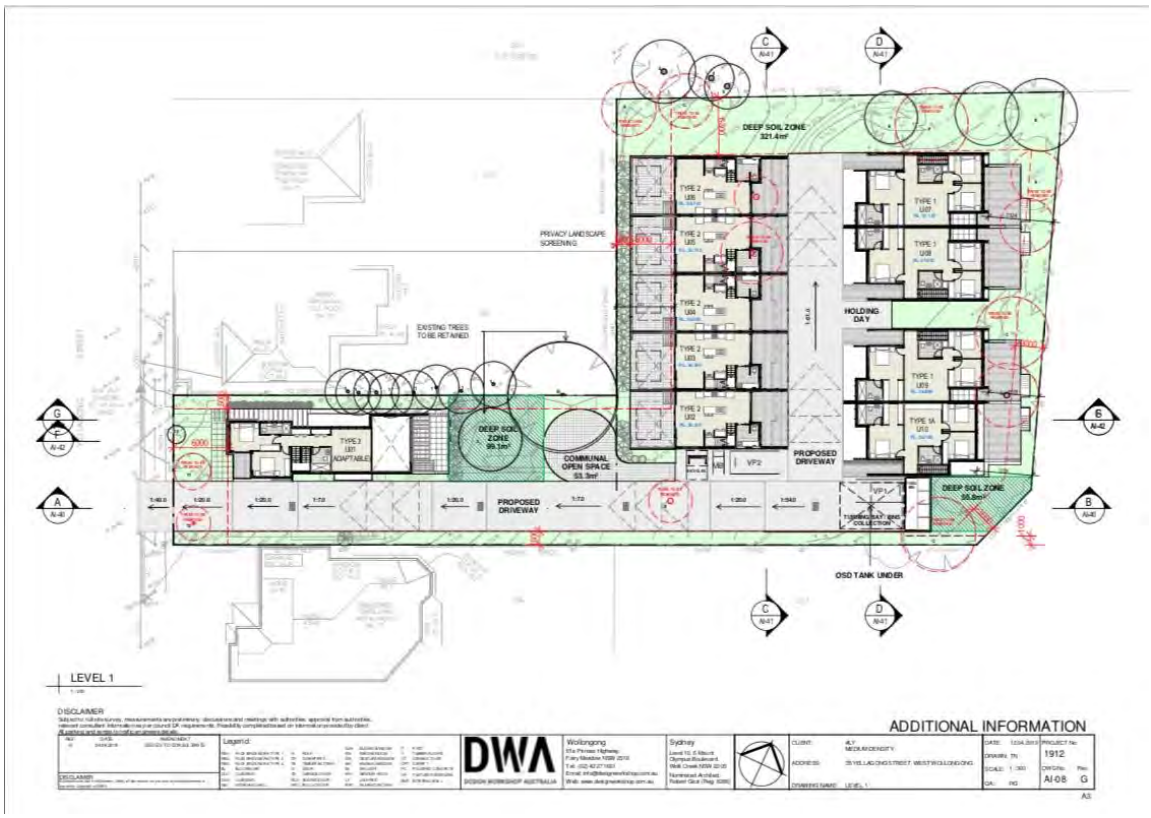
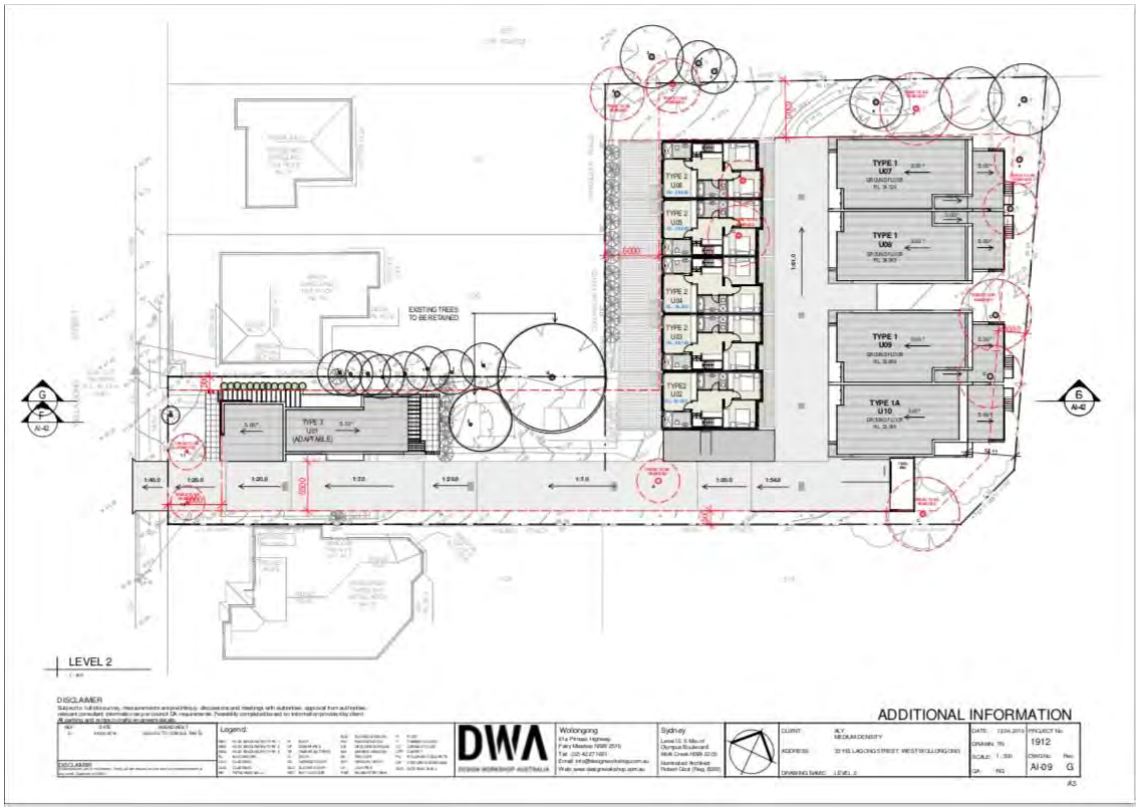


Figure 2-4 Second Floor Plan



3 EXISTING NOISE ENVIRONMENT

Unattended noise monitoring for the residential development was carried out by The Acoustic Group as part of the original acoustic assessment between 25 May and 1 June 2014. Logging measurements utilised an Acoustic Research Labs Type 215 noise logger set to continuously log the noise level in 15 minute increments.

The results have been summarised and presented in Table 3-1.

Table 3-1 Measured Ambient Noise Levels Corresponding to INP Assessment Time Periods

Location	Measurement Descriptor	Measured Noise Level – dB(A) re 20 µPa		
		Daytime 7.00 am – 6:00 pm	Evening 6:00 pm - 10.00 pm	Night-Time 10,00pm – 7.00 am
35 Yellagong Street	LAeq[1]	49	44	44
	RBL (Background)[2]	40	37	33

Note 1: The LAeq is essentially the average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.
Note 2: The RBL noise level is representative of the average minimum background sound level (in the absence of the source under consideration), or simply the background level.

4 ASSESSMENT CRITERIA

4.1 Sleep Disturbance Criteria

In order to minimise the risk of sleep disturbance from short duration noise events associated with the car park entry door at the proposed development, the *Environmental Noise Control Manual* (EPA 1985) recommends that:

> *The $L_{A1\ (60second)}$ noise level outside a bedroom window should not exceed the L_{A90} background noise level by more than 15 dBA during night-time period (10.00 pm to 7.00 am). The $L_{A1\ (60second)}$ noise level may conservatively be estimated by the typical maximum level of noise emission.*

The Application Notes for the NSW INP state that whilst the abovementioned criterion is not ideal, in the absence of any more suitable alternative, the EPA will continue its use as a guide to determine the likelihood of sleep disturbance.

The *Environmental Criteria for Road Traffic Noise* (Environment Protection Authority NSW 1999) provides additional guidance as to the likelihood of sleep disturbance and points out the following:

> *"There is no universally accepted criterion governing the likelihood of sleep disturbance. In other words, at the current level of understanding, it is not possible to establish absolute noise level criteria that would correlate to an acceptable level of sleep disturbance (for all or even a majority of people)."*

The NSW Roads and Maritime Service Authority's *Environmental Noise Management Manual* (ENMM), addresses sleep disturbance in a similar fashion. With respect to road traffic noise, it is required to assess the characteristics of so-called "maximum noise events" at nearest residential receivers, namely their occurrence throughout the night-time period (i.e. how many on an hourly basis) and their magnitudes. A "maximum noise event" is defined as any single event where the L_{Amax} level exceeds the $L_{Aeq(1hr)}$ level by more than 15 dBA.

The *NSW Road Noise Policy* (DECCW, March 2011) provides a discussion on research into sleep disturbance and makes reference to the EPA and RMS documented guidelines discussed above. The new policy concludes that ongoing research into sleep disturbance will continue to be reviewed.

The sleep disturbance guideline provides the most relevant basis available upon which to assess the potential impacts of noise events associated with truck movements on private property. As such, this criterion is recommended to be adopted for the assessment of short duration vehicular noise events associated with the operation of the car park at the proposed conference centre.

For planning purposes the assumed level of background noise for the night-time period is given in Table 3-1 resulting in a sleep disturbance criterion of:

$L_{A1(60second)}$ **48 dBA** at all sensitive receivers

5 NOISE IMPACT ASSESSMENT

5.1 Car Park Noise Impact

Noise will be generated by activities associated with cars arriving and leaving the premises (opening and closing of doors, starting, maneuvering, accelerating etc.). Typical sound power levels for low speed vehicle activities are included in Table 5-1 along with the corresponding predicted noise levels at the identified residential dwellings.

The calculations include noise attenuation provided by distance. A worst case scenario of 2 cars leaving the car park within a 60 second time frame has been assumed for the prediction. The car park noise assessment is based on bitumen road calculations that allows for a worst case scenario calculation on the possible car park and car movement impact on nearby residents.

Table 5-1 Typical Vehicle Related Noise Emissions at Nearby Noise Sensitive Receiver

Location	Typical Maximum Sound Power Level Lw (dBA)			Predicted Noise Impact	Criteria	Compliance
	Car Accelerating	Car Starting	Car Door Closing			
33 Yellagong St	93 – 98	91 – 97	88 – 93	47 – 60	48	With recommendations
37 Yellagong St	93 – 98	91 – 97	88 – 93	47 – 60	48	With recommendations
29 Gundarun St	93 – 98	91 – 97	88 – 93	35 – 48	48	Compliance
15 Koorabel Ave	93 – 98	91 – 97	88 – 93	30 – 43	48	Compliance

The predicted noise emissions from the activities of the car park show compliance at two of the residential dwellings. The proposed development will achieve compliance at all sensitive receivers with recommendations set out in this report.

6 RECOMMENDATIONS

Council has raised concerns with the possible offensive noise emissions associated with the development. The building must satisfy BCA requirements and will satisfy nominal criteria for offensive noise emissions if built to the appropriate standard.

The above predicted noise levels shows an exceedance in the established noise criteria. The following is recommended to be incorporated within the design of the development:

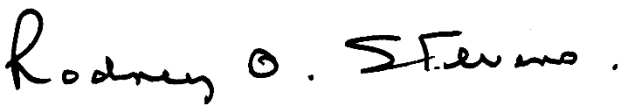
- A 2.1 metre privacy fence to be installed along the driveway adjacent to the sensitive receivers at 33 and 37 Yellagong Street. The fence needs to be of solid continuous construction (i.e. free of any gaps), and of lapped and capped timber, Colorbond aluminium, glass, masonry construction or a combination of either.

7 CONCLUSION

Rodney Stevens Acoustics has conducted a review of The Acoustic Croup's 2014 acoustic report (reference 44.5128.R1:MSC) and conducted a car park acoustic assessment for the proposed development site at 35 Yellagong Street, West Wollongong NSW.

The assessment has been conducted to satisfy the Sleep Disturbance Criteria and other regulatory criteria. The criteria requirements will be achieved at neighbouring sensitive receivers with recommendations set out in this report.

Approved:-



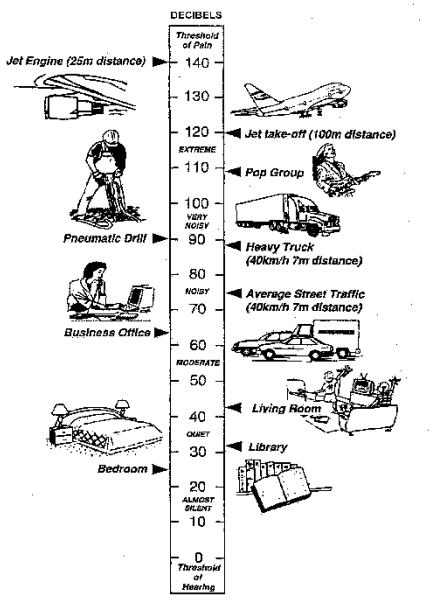
Rodney Stevens - MAAS

Appendix A – Acoustic Terminology

A-weighted sound pressure	The human ear is not equally sensitive to sound at different frequencies. People are more sensitive to sound in the range of 1 to 4 kHz (1000 – 4000 vibrations per second) and less sensitive to lower and higher frequency sound. During noise measurement an electronic '*A-weighting*' frequency filter is applied to the measured sound level *dB(A)* to account for these sensitivities. Other frequency weightings (B, C and D) are less commonly used. Sound measured without a filter is denoted as linear weighted dB(linear).
Ambient noise	The total noise in a given situation, inclusive of all noise source contributions in the near and far field.
Community annoyance	Includes noise annoyance due to: ▪ character of the noise (e.g. sound pressure level, tonality, impulsiveness, low-frequency content) ▪ character of the environment (e.g. very quiet suburban, suburban, urban, near industry) ▪ miscellaneous circumstances (e.g. noise avoidance possibilities, cognitive noise, unpleasant associations) ▪ human activity being interrupted (e.g. sleep, communicating, reading, working, listening to radio/TV, recreation).
Compliance	The process of checking that source noise levels meet with the noise limits in a statutory context.
Cumulative noise level	The total level of noise from all sources.
Extraneous noise	Noise resulting from activities that are not typical to the area. Atypical activities may include construction, and traffic generated by holiday periods and by special events such as concerts or sporting events. Normal daily traffic is not considered to be extraneous.
Feasible and reasonable measures	Feasibility relates to engineering considerations and what is practical to build; reasonableness relates to the application of judgement in arriving at a decision, taking into account the following factors: ▪ Noise mitigation benefits (amount of noise reduction provided, number of people protected). ▪ Cost of mitigation (cost of mitigation versus benefit provided). ▪ Community views (aesthetic impacts and community wishes).

- Noise levels for affected land uses (existing and future levels, and changes in noise levels).

Impulsiveness	Impulsive noise is noise with a high peak of short duration or a sequence of these peaks. Impulsive noise is also considered annoying.
Low frequency	Noise containing major components in the low-frequency range (20 to 250 Hz) of the frequency spectrum.
Noise criteria	The general set of non-mandatory noise levels for protecting against intrusive noise (for example, background noise plus 5 dB) and loss of amenity (e.g. noise levels for various land use).
Noise level (goal)	A noise level that should be adopted for planning purposes as the highest acceptable noise level for the specific area, land use and time of day.
Noise limits	Enforceable noise levels that appear in conditions on consents and licences. The noise limits are based on achievable noise levels, which the proponent has predicted can be met during the environmental assessment. Exceedance of the noise limits can result in the requirement for either the development of noise management plans or legal action.
Performance-based goals	Goals specified in terms of the outcomes/performance to be achieved, but not in terms of the means of achieving them.
Rating Background Level (RBL)	The rating background level is the overall single figure background level representing each day, evening and night time period. The rating background level is the 10^{th} percentile min L_{A90} noise level measured over all day, evening and night time monitoring periods.
Receptor	The noise-sensitive land use at which noise from a development can be heard.
Sleep disturbance	Awakenings and disturbance of sleep stages.
Sound and decibels (dB)	Sound (or noise) is caused by minute changes in atmospheric pressure that are detected by the human ear. The ratio between the quietest noise audible and that which should cause permanent hearing damage is a million times the change in sound pressure. To simplify this range the sound pressures are logarithmically converted to decibels from a reference level of 2 x 10-5 Pa. The picture below indicates typical noise levels from common noise sources.



dB is the abbreviation for decibel – a unit of sound measurement. It is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure.

Sound Power Level (SWL)

The sound power level of a noise source is the sound energy emitted by the source. Notated as SWL, sound power levels are typically presented in *dB(A)*.

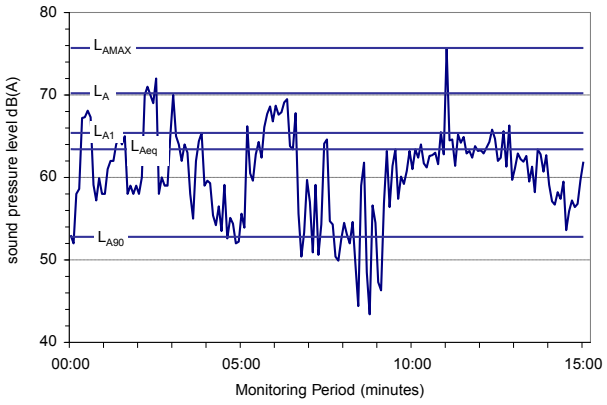
Sound Pressure Level (SPL)

The level of noise, usually expressed as SPL in *dB(A)*, as measured by a standard sound level meter with a pressure microphone. The sound pressure level in *dB(A)* gives a close indication of the subjective loudness of the noise.

Statistical noise levels

Noise levels varying over time (e.g. community noise, traffic noise, construction noise) are described in terms of the statistical exceedance level.

A hypothetical example of A weighted noise levels over a 15 minute measurement period is indicated in the following figure:



Key descriptor

- LAmax Maximum recorded noise level.

- L_{A1} The noise level exceeded for 1% of the 15 minute interval.
- L_{A10} Noise level present for 10% of the 15 minute interval. Commonly referred to the average maximum noise level.
- L_{Aeq} Equivalent continuous (energy average) A-weighted sound pressure level. It is defined as the steady sound level that contains the same amount of acoustic energy as the corresponding time-varying sound.
- L_{A90} Noise level exceeded for 90% of time (background level). The average minimum background sound level (in the absence of the source under consideration).

Threshold	The lowest sound pressure level that produces a detectable response (in an instrument/person).
Tonality	Tonal noise contains one or more prominent tones (and characterised by a distinct frequency components) and is considered more annoying. A 2 to 5 dBA penalty is typically applied to noise sources with tonal characteristics.

Appendix B – Calibration Certificates

Acoustic Research Labs Pty Ltd
Level 7 Building 2 423 Pennant Hills Rd
Pennant Hills NSW AUSTRALIA 2120
Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

Sound Level Meter
IEC 61672-3.2006

Calibration Certificate

Calibration Number C14662

Client Details Rodney Stevens Acoustics Pty Ltd
1 Majura Close
St Ives Chase NSW 2075

Equipment Tested/ Model Number : Rion NL-42EX
Instrument Serial Number : 00546394
Microphone Serial Number : 152907
Pre-amplifier Serial Number : 46605

Pre-Test Atmospheric Conditions		Post-Test Atmospheric Conditions	
Ambient Temperature :	23°C	**Ambient Temperature :**	22.9°C
Relative Humidity :	51.3%	**Relative Humidity :**	51.2%
Barometric Pressure :	99.81kPa	**Barometric Pressure :**	99.7kPa

Calibration Technician : Corey Stewart
Calibration Date : 26/11/2014
Secondary Check: Luke Hudson
Report Issue Date : 28/11/2014
Approved Signatory : Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
10: Self-generated noise	*Pass*	14: Level linearity on the reference level range	*Pass*
11: Acoustical tests of a frequency weighting	*Pass*	15: Level linearity incl. the level range control	*Pass*
12: Electrical tests of frequency weightings	*Pass*	16: Toneburst response	*Pass*
13: Frequency and time weightings at 1 kHz	*Pass*	17: Peak C sound level	*Pass*
		18: Overload Indication	*Pass*

The sound level meter submitted for testing has successfully completed the class 2 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed.

However, no general statement or conclusion can be made about conformance of the sound level meter to the full requirements of IEC 61672-1:2002 because evidence was not publicly available, from an independent testing organisation responsible for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002 and because the periodic tests of IEC 61672-3:2006 cover only a limited subset of the specifications in IEC 61672-1:2002.

Least Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
31.5 Hz to 8kHz	*±0.120dB*	*Temperature*	*±0.3°C*
12.5kHz	*±0.165dB*	*Relative Humidity*	*±4.1%*
16kHz	*±0.245dB*	*Barometric Pressure*	*±0.1kPa*
Electrical Tests			
31.5 Hz to 20 kHz	*±0.121dB*		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

NATA
WORLD RECOGNISED ACCREDITATION

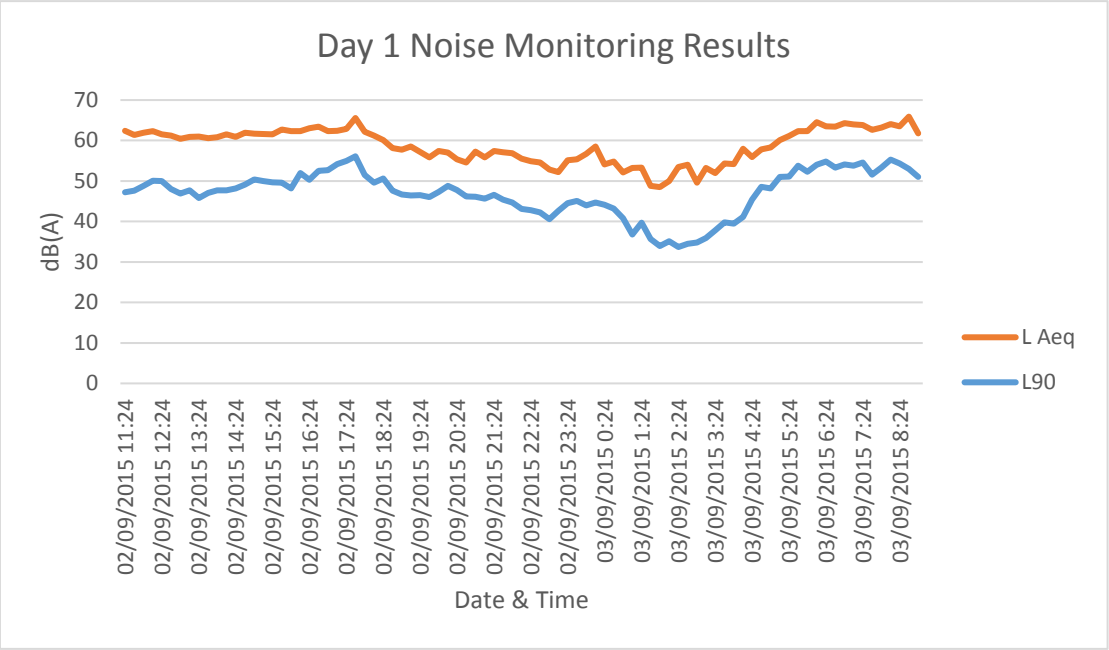
This calibration certificate is to be read in conjunction with the calibration test report.

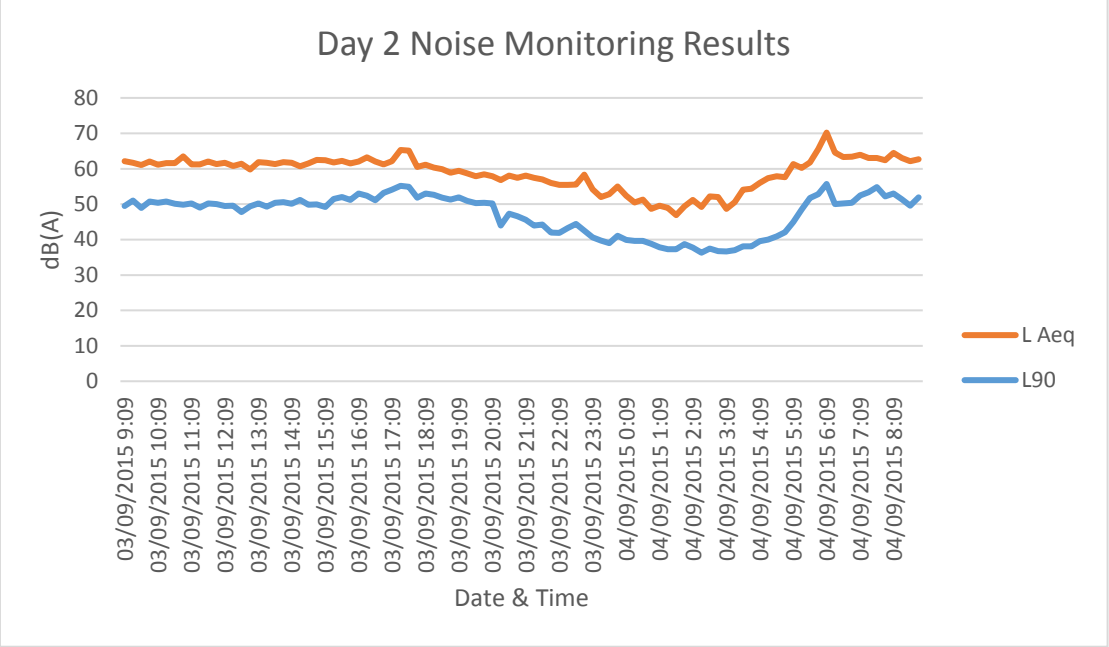
Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025.

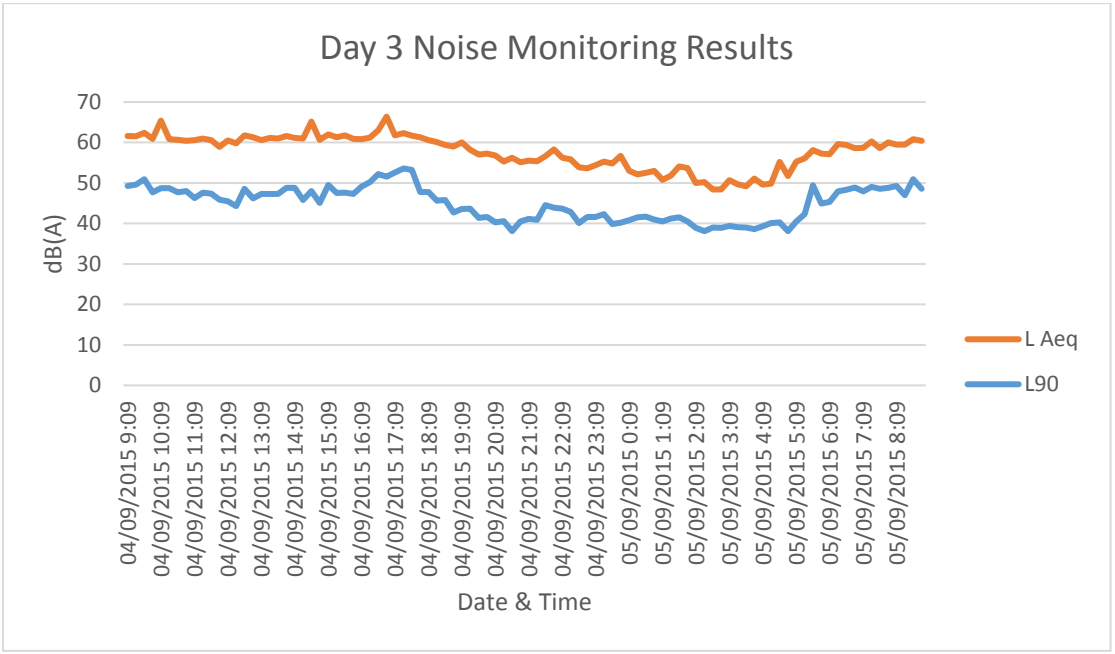
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National standards.

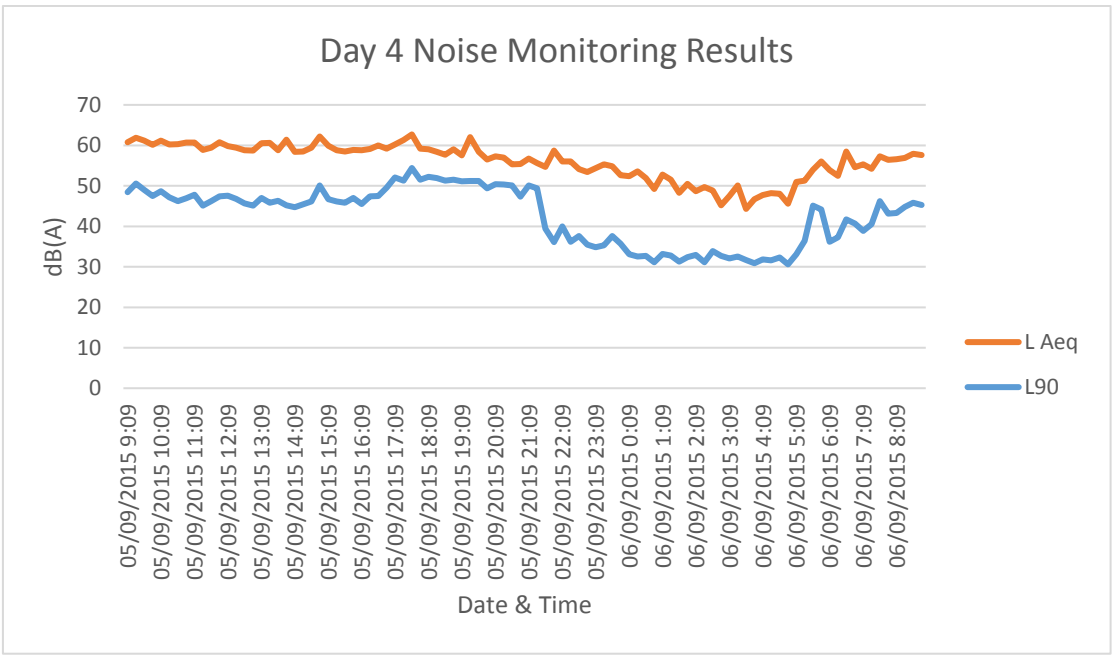
PAGE 1 OF 1

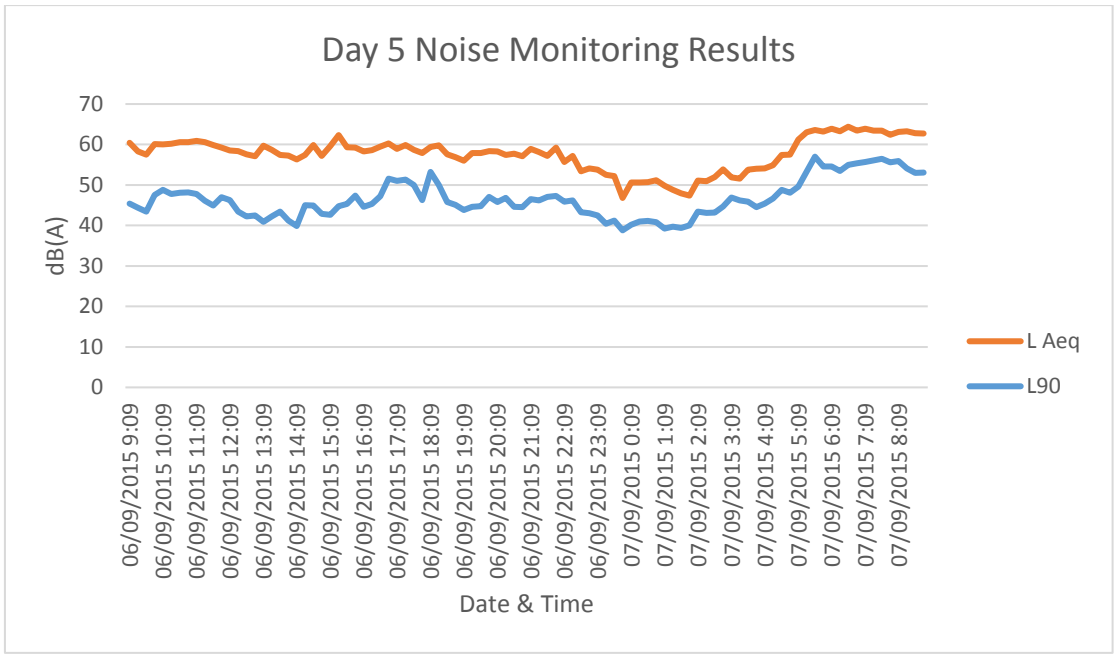
Appendix C – Unattended Noise Monitoring Results






Day 3 Noise Monitoring Results
70
60
50
40
30
20
10
0
dB(A)
04/09/2015 9:09
04/09/2015 10:09
04/09/2015 11:09
04/09/2015 12:09
04/09/2015 13:09
04/09/2015 14:09
04/09/2015 15:09
04/09/2015 16:09
04/09/2015 17:09
04/09/2015 18:09
04/09/2015 19:09
04/09/2015 20:09
04/09/2015 21:09
04/09/2015 22:09
04/09/2015 23:09
05/09/2015 0:09
05/09/2015 1:09
05/09/2015 2:09
05/09/2015 3:09
05/09/2015 4:09
05/09/2015 5:09
05/09/2015 6:09
05/09/2015 7:09
05/09/2015 8:09
Date & Time
L Aeq
L90


Day 4 Noise Monitoring Results
70
60
50
40
30
20
10
0
dB(A)
05/09/2015 9:09
05/09/2015 10:09
05/09/2015 11:09
05/09/2015 12:09
05/09/2015 13:09
05/09/2015 14:09
05/09/2015 15:09
05/09/2015 16:09
05/09/2015 17:09
05/09/2015 18:09
05/09/2015 19:09
05/09/2015 20:09
05/09/2015 21:09
05/09/2015 22:09
05/09/2015 23:09
06/09/2015 0:09
06/09/2015 1:09
06/09/2015 2:09
06/09/2015 3:09
06/09/2015 4:09
06/09/2015 5:09
06/09/2015 6:09
06/09/2015 7:09
06/09/2015 8:09
Date & Time
L Aeq
L90


Day 5 Noise Monitoring Results
dB(A)
70
60
50
40
30
20
10
0
06/09/2015 9:09
06/09/2015 10:09
06/09/2015 11:09
06/09/2015 12:09
06/09/2015 13:09
06/09/2015 14:09
06/09/2015 15:09
06/09/2015 16:09
06/09/2015 17:09
06/09/2015 18:09
06/09/2015 19:09
06/09/2015 20:09
06/09/2015 21:09
06/09/2015 22:09
06/09/2015 23:09
07/09/2015 0:09
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07/09/2015 3:09
07/09/2015 4:09
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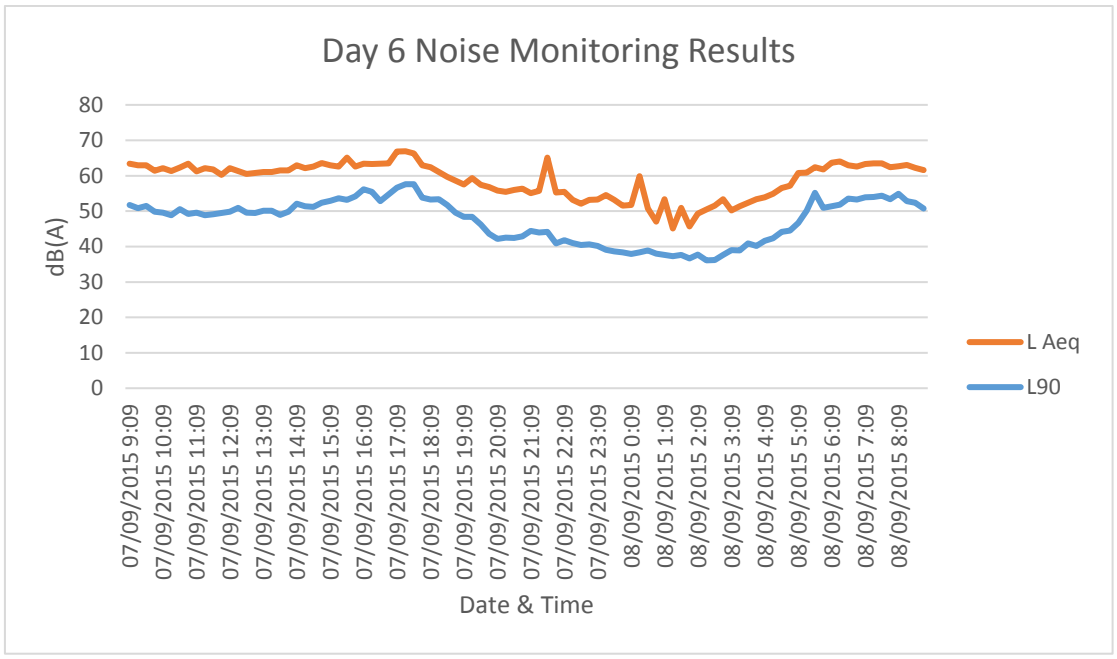
07/09/2015 6:09
07/09/2015 7:09
07/09/2015 8:09
Date & Time
L Aeq
L90


Day 6 Noise Monitoring Results
dB(A)
80
70
60
50
40
30
20
10
0
07/09/2015 9:09
07/09/2015 10:09
07/09/2015 11:09
07/09/2015 12:09
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07/09/2015 14:09
07/09/2015 15:09
07/09/2015 16:09
07/09/2015 17:09
07/09/2015 18:09
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07/09/2015 21:09
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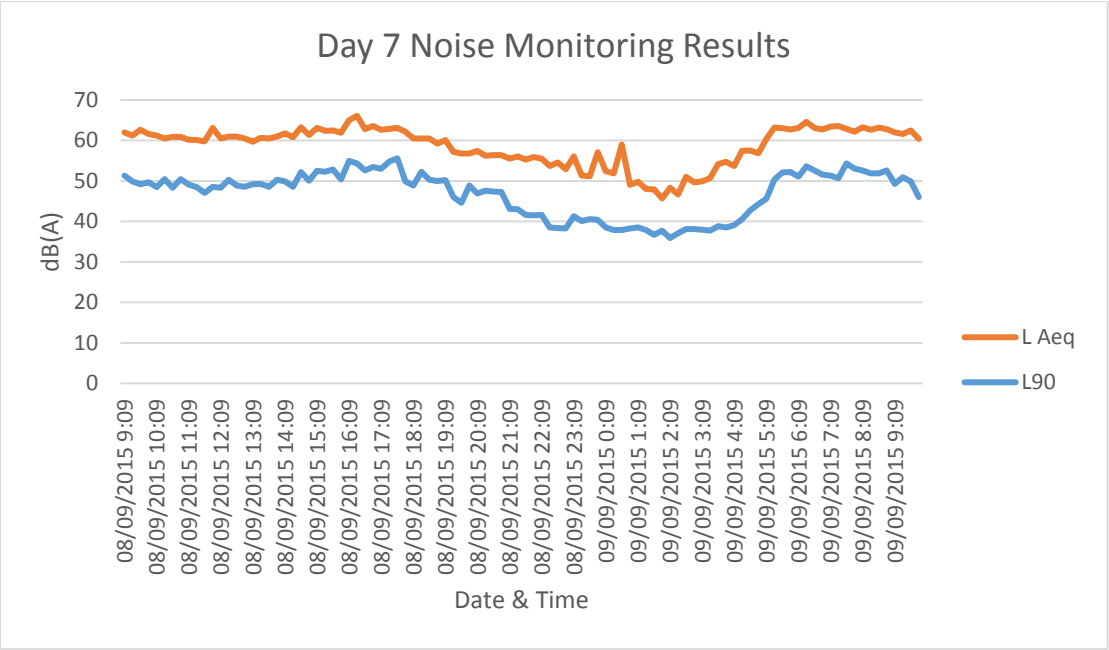
Date & Time
L Aeq
L90


Day 7 Noise Monitoring Results
70
60
50
40
30
20
10
0
dB(A)
08/09/2015 9:09
08/09/2015 10:09
08/09/2015 11:09
08/09/2015 12:09
08/09/2015 13:09
08/09/2015 14:09
08/09/2015 15:09
08/09/2015 16:09
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08/09/2015 20:09
08/09/2015 21:09
08/09/2015 22:09
08/09/2015 23:09
09/09/2015 0:09
09/09/2015 1:09
09/09/2015 2:09
09/09/2015 3:09
09/09/2015 4:09
09/09/2015 5:09
09/09/2015 6:09
09/09/2015 7:09
09/09/2015 8:09
09/09/2015 9:09
Date & Time
L Aeq
L90

SUPPLEMENTARY TRAFFIC AND PARKING IMPACT ASSESSMENT
MEDIUM DENSITY RESIDENTIAL DEVELOPMENT
AT 35 YELLAGONG STREET, WEST WOLLONGONG

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Division of RAMTRANS Australia ABN: 45067491678 RPEQ: 19457

Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

190307.01FD - 6th June 2019

Development Type: Medium Density Residential Development

Site Address: 35 Yellagong Street, West Wollongong

Prepared for: Design Workshop Australia

Document reference: 190307.01FD

Status	Issue	Prepared By	Checked By	Date
Draft	A	ME	TS	31 May 2019
Final	A	ME	TS	5 June 2019
Final	B	ME	CHM	5 June 2019
Final	C	ME	CHM	5 June 2019
Final	D	ME	CHM	6 June 2019

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1 INTRODUCTION

M^CLaren Traffic Engineering was commissioned by *Design Workshop* Australia to provide a Supplementary Traffic and Parking Impact Assessment of the Medium Density Residential Development at 35 Yellagong Street, West Wollongong as depicted in **Annexure A**.

1.1 Description and Scale of Development

The proposed development has the following characteristics relevant to traffic and parking:

- A total of 10 townhouse dwellings;
- A total of 22 car parking spaces provided onsite.

Vehicular access to the property is proposed via a two-way driveway from Yerragong Street.

1.2 State Environmental Planning Policy (Infrastructure) 2007

The proposed development does not qualify as a traffic generating development with relevant size and/or capacity under Clause 104 of the SEPP (Infrastructure) 2007. Accordingly, formal referral to the Roads and Maritime Services (RMS) is unnecessary and the application can be assessed by Wollongong City Council officers accordingly.

1.3 Site Description

The subject development involves the demolition of an existing single storey brick residential dwelling and the construction of ten (10) new townhouse dwellings. The site currently zoned *R2 – Low-Density Residential* under the *Wollongong City Council Local Environmental Plan 2009*. The site has a single frontage to Yellagong Street to the west.

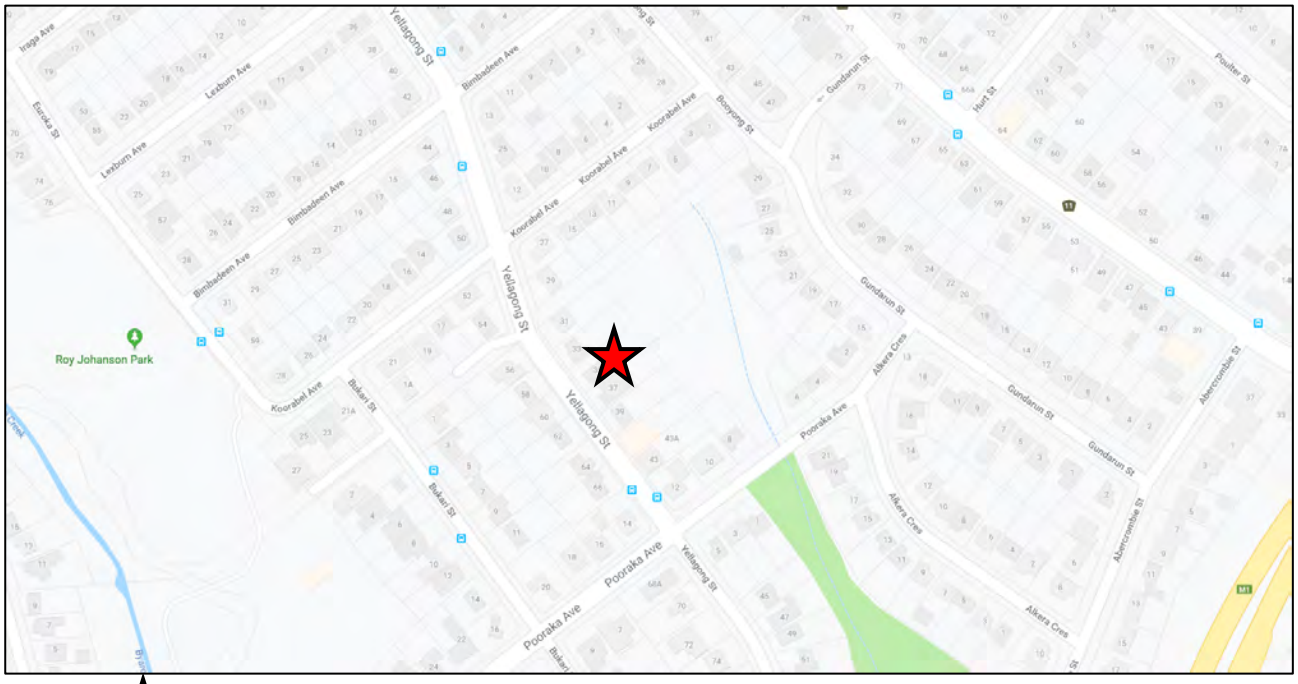
The site is generally surrounded by low to medium density residential dwellings in all directions, with some public recreation area (zoned *RE1*) directly bordering the site to the north. The Princes Motorway (F6 Southern Freeway) is located approximately 400m to the southeast.

1.4 Site Context

The location of the site is shown on an aerial photo and a street map in **Figure 1** and **Figure 2** respectively.

Site Location

FIGURE 1: SITE CONTEXT – AERIAL PHOTO



Site Location

FIGURE 2: SITE CONTEXT – STREET MAP

2 EXISTING TRAFFIC AND PARKING CONDITIONS

2.1 Road Hierarchy

The road network servicing the site has characteristics as described in the following sub-sections.

2.1.1 Yellagong Street

- Unclassified LOCAL Road;
- Approximately 7.5m wide two-way carriageway at the site frontage widening to approximately 12.5m wide to the north of site and kerbside parking on both sides of the road;
- Signposted 50km/h speed limit;
- Unrestricted kerbside parking permitted along both sides of the road.

2.1.2 Pooraka Avenue

- Unclassified LOCAL Road, functioning as a collector;
- Approximately 12.5m wide two-way carriageway (one lane in each direction) and linemarked kerbside parking lanes on both sides of the road;
- Signposted 50km/h speed limit;
- Unrestricted kerbside parking permitted along both sides of the road;
- Becomes London Drive to the south.

2.1.3 Mount Keira Road

- Unclassified LOCAL Road, functioning as a collector;
- Approximately 12.5m wide two-way carriageway (one lane in each direction) and linemarked kerbside parking lanes on both sides of the road;
- Signposted 50km/h speed limit;
- 40km/h school zone restrictions in effect within the vicinity of Edmund Rice College;
- Unrestricted kerbside parking permitted along both sides of the road.

2.2 Existing Traffic Management

- STOP SIGN controlled intersection of Yellagong Street/Pooraka Avenue;
- GIVE-WAY controlled intersection of Yellagong Street/Mount Keira Road.

2.3 Public Transport

The subject site has access to the existing bus stop (ID: 250094) located approximately one (1) minute (80m) walking distance to the south of the site on Yellagong Street. The bus stop services existing bus routes 11 (Wollongong to Wollongong University) and 39 (Wollongong to Figtree) provided by Premier Illawarra.

The location of the site relative to the surrounding public transport network is shown in **Figure 3** below.

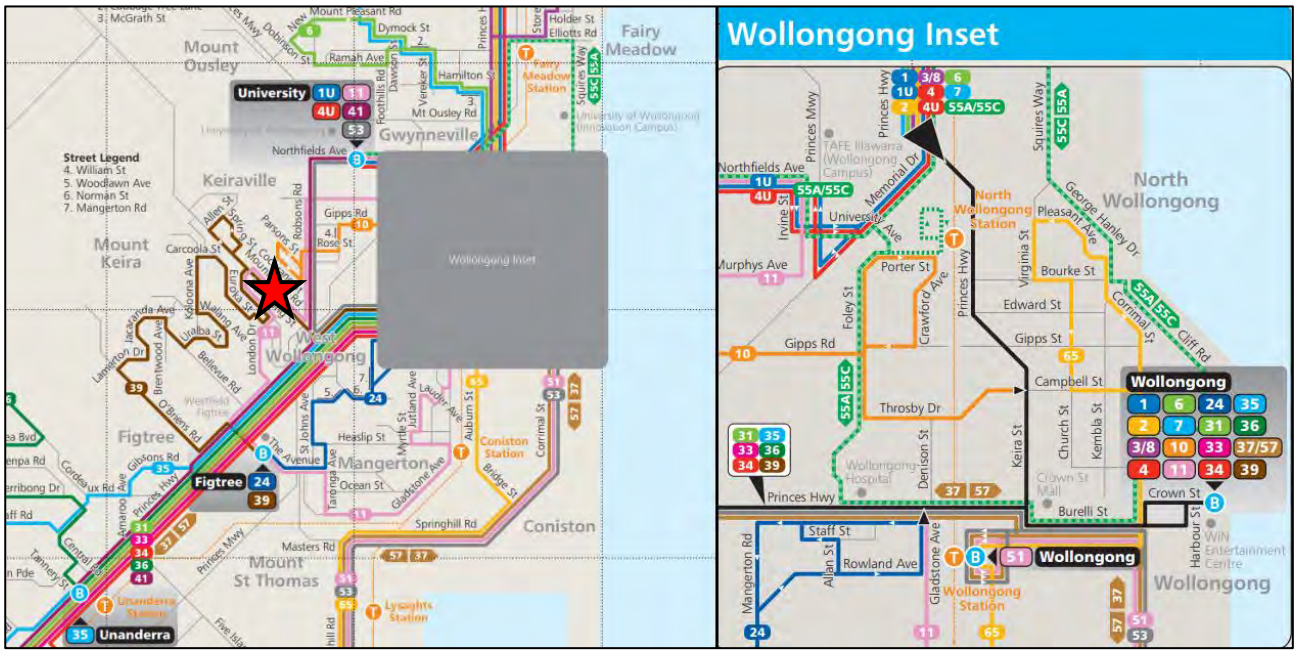


FIGURE 3: PUBLIC TRANSPORT NETWORK MAP

2.4 Future Road and Infrastructure Upgrades

From Wollongong City Council Development Application tracker and website, it appears that there are no future planned road or public transport changes that will affect traffic conditions within the immediate vicinity of the subject site.

3 PARKING ASSESSMENT

3.1 DCP Parking Requirement

Reference is made to the *Wollongong City Council Development Control Plan 2009, Chapter E3: Car Parking, Access, Servicing/ Loading Facilities and Traffic Management which* designates the following parking rates applicable to the proposed development:

> ***Schedule 1 – Car Parking, Bicycle, Motorcycle and Delivery Vehicle Parking Requirements***
>
> *Residential flat building/Multi dwelling housing/Shop top housing/Attached Dwelling*
>
> *Citywide:*
>
> *2 car parking spaces per dwelling (>110m2), plus*
>
> *0.2 car parking spaces per dwelling for visitors*

Table 1 presents the parking requirements of the proposal according to the DCP's above car parking rates.

TABLE 1: DCP PARKING REQUIREMENTS

Land Use	Type	Scale	Rate	Parking Required
Residential	Dwelling >110m^2	10	2 per dwelling	20
	Visitor	10	0.2 per dwelling	2
Total		**-**	**-**	**22**

As shown above, strict application of the DCP requires a total of **22** car parking spaces, with **20** for residential use and two (**2**) for visitor use. The proposed plans detail a total of **22** car parking spaces, resulting in compliance with Council's DCP parking requirements.

Of the **20** residential car parking spaces provided, ten (10) spaces are provided in tandem and ten (10) spaces are provided within double garages. This arrangement is acceptable and satisfies car parking needs of the development.

Further, to aid in residential management of the proposed tandem car parking arrangement a 3m wide holding bay has been provided adjacent to the car parking access roadway. The holding bay shall act as an area for vehicles to wait whilst residents organise tandem parking arrangement (i.e. vehicle 1 to wait within holding bay whilst vehicle 2 enters / leaves allocated tandem garage). The holding bay shall also allow for other vehicles to pass manoeuvring operations and access their allocated garage concurrently. Overall, the proposed holding bay is a favourable outcome and supportable arrangement for the proposed development.

3.2 Disabled Parking

Wollongong City Council's DCP denotes that accessible parking is to comply with *AS2890.6:2009* and be provided in accordance with disabled rates provided within the *Building Code of Australia (BCA*). The BCA specifies a conservative rate of 1 disabled space per 50 car spaces. Since there are only 22 off-street car spaces, applying this rate equates to a requirement of only 0.44 disabled spaces.

However, it is common practice to provide a disabled car space for each adaptable unit proposed within any multi-dwelling housing development. Given the proposed development provides one (1) adaptable townhouse dwelling (Unit 1), the parking associated with this dwelling must be appropriately designed.

The adaptable dwelling (Unit 1) has an attached double garage of which has ample room to accommodate a disabled parking arrangement.

3.3 Bicycle & Motorcycle Parking Requirements

Reference is made to Wollongong City Council's DCP which outlines the following requirements for bicycle and motorcycle parking spaces.

> ***Schedule 1 – Car Parking, Bicycle, Motorcycle and Delivery Vehicle Parking Requirements***
>
> *Bicycle Parking Requirement*
>
> *1 bicycle space per 3 dwellings (residents) and*
>
> *1 bicycle space per 12 dwellings (visitors)*
>
> *Motorcycle Parking Requirement*
>
> *1 motorcycle space per 15 dwellings*

Applying the above rates, results in a total bicycle parking requirement of five (**5**) bicycle spaces, with four (**4**) for residents and one (**1**) for visitors, and one (**1**) motorcycle parking spaces.

The plans provide three (**3**) bicycle spaces accessible by visitors. It is envisaged that residents will use their garage for bicycle storage if required. One (**1**) motorcycle parking space is provided onsite. As such, the proposed plans satisfy the DCP's parking requirements for bicycle and motorcycle parking.

3.4 Servicing & Loading

Waste collection for Unit 1 will be completed by Council's waste collection service vehicles along the site's frontage to Yellagong Street. Waste collection for the remaining townhouses can be undertaken on site at the base of the driveway within the bin collection area as depicted on plans within **Annexure A**.

Waste collection can be completed by Council or a private contractor with a 6.4m length small rigid vehicle (SRV) or maximum 8.8m length medium rigid vehicle (MRV), enabling forward-in/forward-out access. Swept path testing and vertical undercarriage clearance testing for a 6.4m length SRV and 8.8m length MRV have been undertaken and are reproduced within **Annexure B**.

It is noted that visitor parking space 1 is located within the bin collection area/turn around bay. To ensure that the whole bin collection area is vacant when waste collection is undertaken, signage shall be installed to prohibit parking during scheduled waste collection times. It is common practice that waste collection is scheduled outside of residential visitor peak periods and as such, conflict between waste collection and visitor parking is highly unlikely.

Delivery/courier vehicles to the site can utilise the existing on-street parking or the provided visitor car parking space/ loading zone within the car park. These types of delivery vehicles for residential developments are infrequent and typically occur outside of peak residential visitor periods which occur after 6 pm on Friday and Saturday nights. The standard size of a courier vehicle is a B99 design vehicle, which can easily park within the existing on-street kerbside parking supply or within the on-site visitor parking space.

3.5 Car Park Design & Compliance

The car parking layout as depicted in **Annexure A** has been assessed to achieve the relevant clauses and objectives of *AS2890.1:2004*. Swept path testing has been undertaken, with the results reproduced within **Annexure C** for reference. The car parking layout includes the following features:

- Enclosed double garages of minimum 6.0m width wall-to-wall, with minimum 5.4m entry width and 5.8m length;
- Enclosed tandem garages of minimum 3.4m width wall to wall, with minimum 3m entry width and 11.5m length;
- Minimum headroom of 2.2m for general circulation and 2.5m headroom clearance provided over disabled and adaptable parking areas;
- Minimum 6.0m width parking aisles;
- Motorcycle spaces with minimum dimensions of 1.2m width and 2.5m length;
- Maximum driveway grades, transitions and crossfall are compliant with *AS2890.1:2004*;
- 5.5m width two-way driveway facilitating access to Yellagong Street;
- Two-way passing of Australian Standard a B99 vehicle and a B85 vehicle achieved for the first 6m of the driveway from the property boundary;
- Compliant pedestrian sight triangle as per *Figure 3.3* of *AS2890.1:2004* is available at the property boundary on both sides of the driveway subject to maximum 0.6m high obstructions (i.e. fencing, landscaping) in this area;
- 3m wide holding bay located in the parking aisle to assist resident vehicle management and vehicle entry / exit from tandem garage arrangements.

Whilst the plans have been assessed to comply with the relevant standards, it is usual and expected that a design certificate be required at the Construction Certificate stage to account for any changes following the development application.

4 TRAFFIC ASSESSMENT

The impact of the expected traffic generation levels associated with the subject proposal is discussed in the following sub-sections.

4.1 Traffic Generation & Impact

Traffic generation rates for the relevant land uses are provided in the *Roads and Maritime Services (RMS) Guide to Traffic Generating Developments (2002)* and recent supplements and are as follows:

3.3.2 Medium density residential flat building.

Larger units and townhouses (three or more bedrooms):

Weekday peak hour vehicle trips = 0.5-0.65 per dwelling.

The resulting traffic generation is summarised in **Table 2**.

TABLE 2: ESTIMATED TRAFFIC GENERATION

Use	Type	Scale	Generation Rate	Trips	Peak Hour Split (1)	
					AM	PM
Residential	Three + Bedrooms	10	0.65 per dwelling	7	2 in 5 out	5 in 2 out

Note: (1) Assumes 20% inbound & 80% outbound during AM peak: Vice versa for PM.

As shown, the maximum peak-hourly traffic generation associated with the proposed development is in the order of seven (**7**) vehicle trips, equating to approximately one (1) vehicle trip every 8.5 minutes. Note that this traffic generation is considered to be conservative as it does not incorporate the traffic generation of the existing site use.

This level of traffic will have no adverse effect on any nearby intersections and can be readily accommodated within the existing road network with minimal impact in terms of traffic flow efficiency and road safety considerations.

Indeed, the computer models that are available to assess these impacts are not sensitive to such small changes and it may be concluded that the road network will operate with no noticeable change in the existing levels of service. In this regard, the proposed residential use of the site is a low-order traffic use and the proposed development is supportable in terms of its traffic impacts.

5 CONCLUSION

The traffic and parking impacts of the proposed Medium Density Residential Development at 35 Yellagong Street, West Wollongong (as depicted in **Annexure A**) have been assessed.

The proposed development of 10 townhouses includes a total of 22 car parking spaces, comprised of 20 for residential use and two (2) for visitor use, satisfying the relevant controls applicable to the development, including Council's DCP requirements.

The proposed tandem garage parking arrangement satisfies the parking needs of the development and can be adequately managed by residents. A 3m wide holding bay is located adjacent to the vehicular access roadway to assist vehicle entry / exit from tandem garage arrangements

Council's DCP requires the provision of five (5) bicycle parking spaces and one (1) motorcycle parking spaces which have been provided onsite resulting in compliance with Council's requirements.

Waste collection will be completed by Council's waste collection service or a private contractor along Yellagong Street and onsite within the proposed bin collection area. Courier vehicles can utilise on-street parking or onsite visitor parking for deliveries as these types of deliveries will be infrequent.

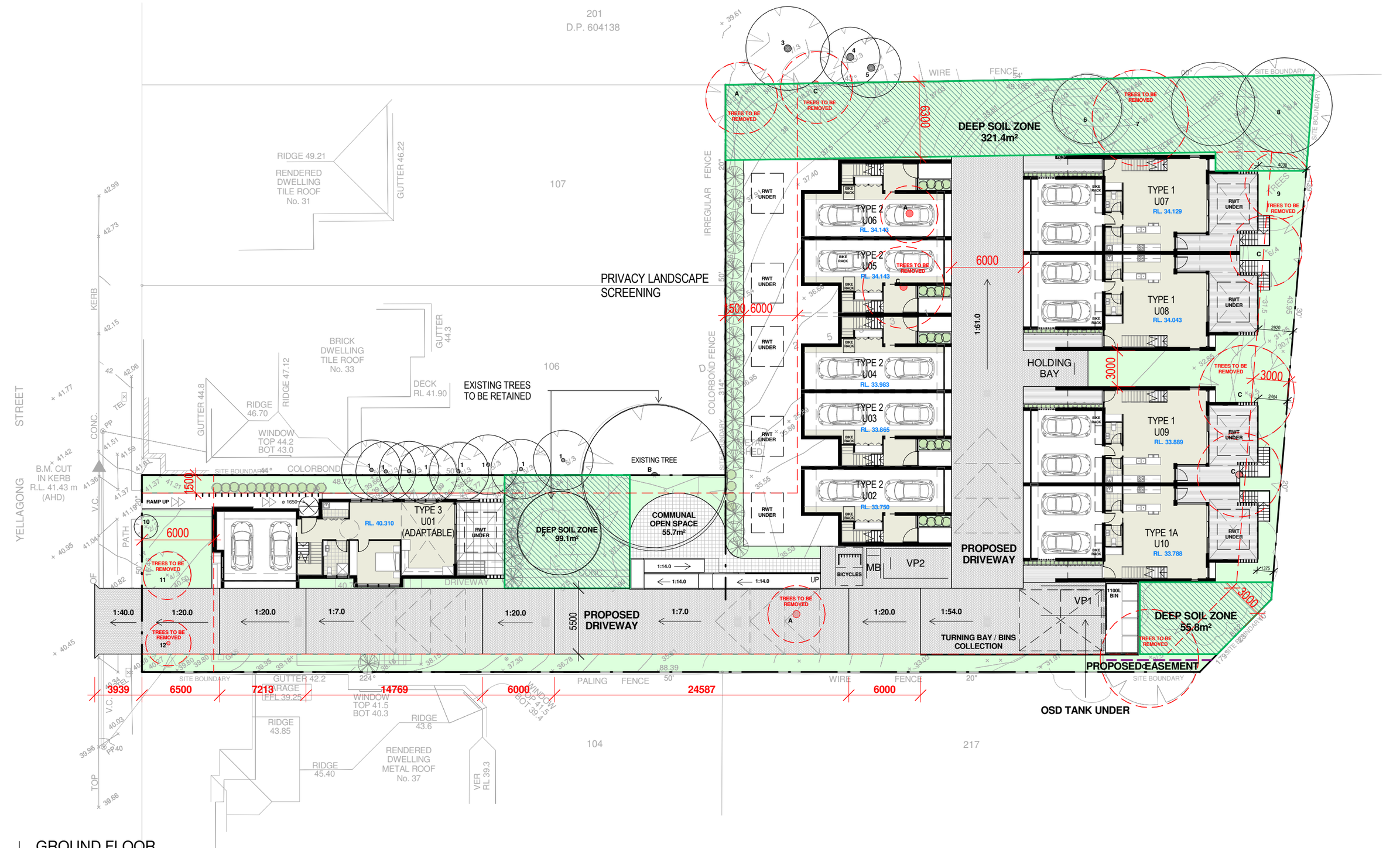
The parking areas of the proposal have been assessed against the relevant sections of *AS2890.1* and have been found to satisfy the objectives of each standard. Swept path testing has been undertaken and is reproduced within **Annexure C**.

The traffic generated by the development is minimal when considering the existing traffic volumes in the local area and will not adversely affect the performance of nearby critical intersections or the existing road network, particularly in terms of Level of Service, traffic flow efficiency, residential amenity and road safety considerations.

In view of the foregoing, subject development is fully supported in terms of its traffic and parking impacts.

ANNEXURE A: PROPOSED PLANS

(1 SHEET)



GROUND FLOOR

1 : 300

DISCLAIMER

Subject to: full site survey, measurements are preliminary, discussions and meetings with authorities, approval from authorities, relevant consultant information as per council DA requirements. Feasibility completed based on information provided by client. All parking and ramps to traffic engineers details.

REF.	DATE	AMENDMENT
H	05.06.2019	ISSUES TO CONSULTANTS

Legend:

FB01	FACE BRICKWORK TYPE 1	R	ROOF	SLW	SLIDING WINDOW	P	POST
FB02	FACE BRICKWORK TYPE 2	DP	DOWNPIPES	FW	FIXED WINDOW	T	TIMBER FLOORS
FB03	FACE BRICKWORK TYPE 3	TB	TIMBER BATTENS	OB	OBSCURE WINDOW	CT	CERAMIC TILES
BL	BLOCKWORK	D	DOOR	AW	AWNING WINDOW	CPT	CARPET
CL01	CLADDING	GD	GARAGE DOOR	SK	SKYLIGHT	PC	POLISHED CONCRETE
CL02	CLADDING	SLD	SLIDING DOOR	WH	WINDOW HOOD	SP	FEATURE SCREENING
RW	RETAINING WALL	BFD	BI-FOLD DOOR	LV	LOUVRES	IWS	INTEGRAL WALL
				RWT	RAINWATER TANK		

DESIGN WORKSHOP AUSTRALIA

Wollongong
81a Princes Highway,
Fairy Meadow NSW 2519
Tel: (02) 4227 1661
Email: info@designworkshop.com.au
Web: www.designworkshop.com.au

Sydney
Level 10, 6 Mount
Olympus Boulevard,
Wolli Creek NSW 2205
Nominated Architect:
Robert Gizzi (Reg. 8286)

ADDITIONAL INFORMATION

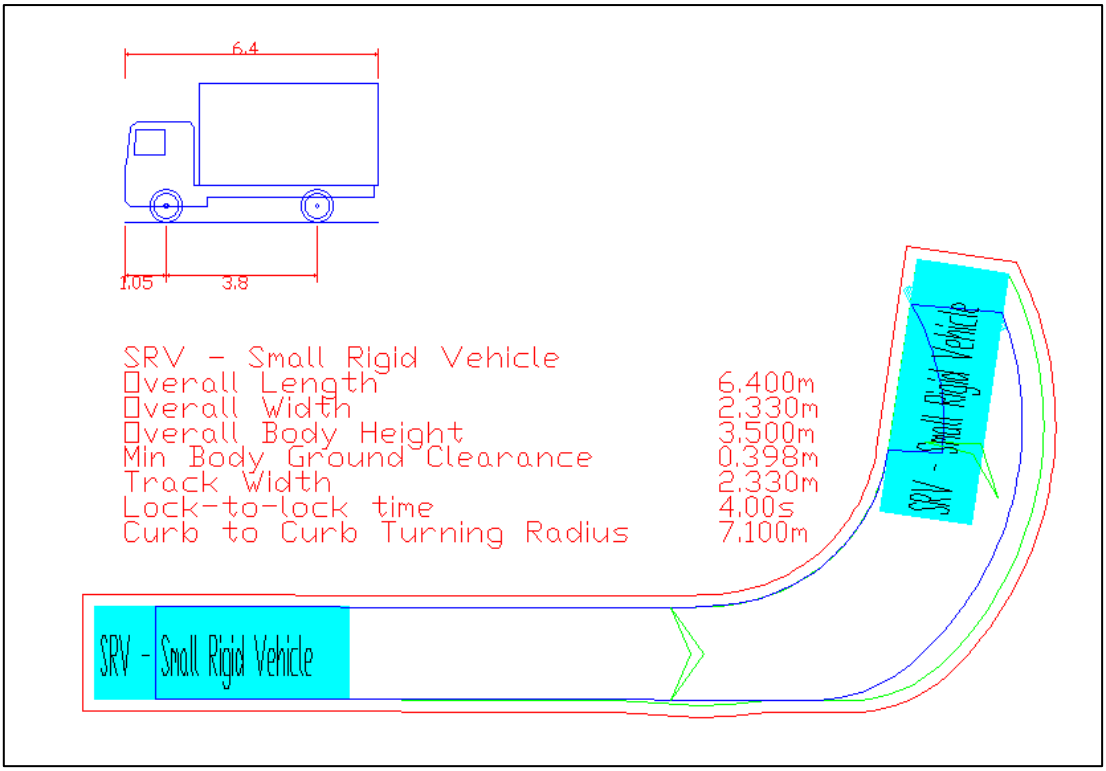
CLIENT:	ALY MEDIUM DENSITY
ADDRESS:	35 YELLAGONG STREET, WEST WOLLONGONG
DRAWING NAME:	GROUND FLOOR

DATE:	12.04.2019
DRAWN:	TN
SCALE:	1 : 300
QA:	RG
PROJECT No.	1912
DWG No.	AI-07
Rev.	H

A3

ANNEXURE B: WASTE COLLECTION VEHICLE TESTING

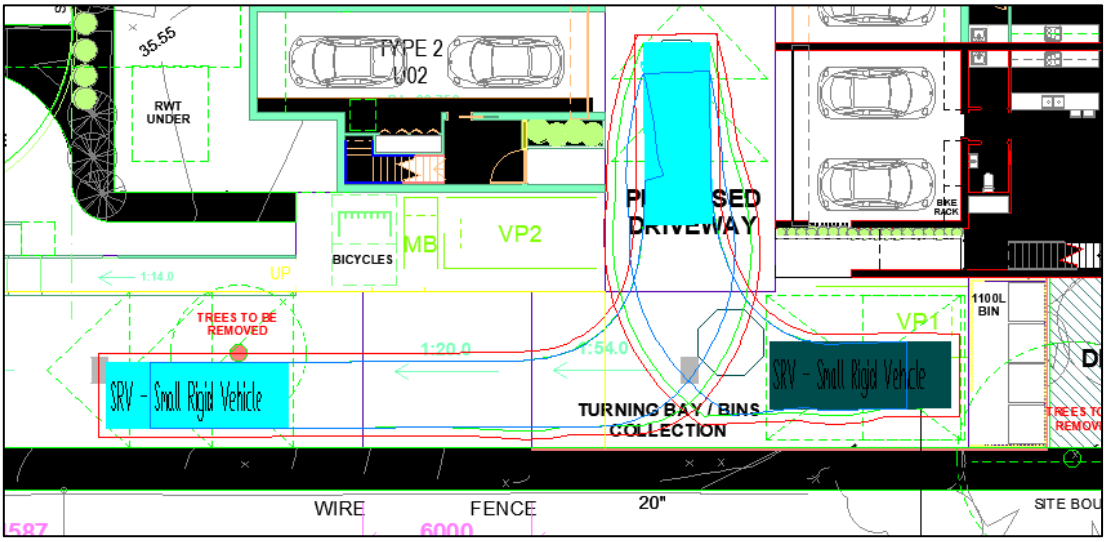
(6 SHEETS)



AUSTRALIAN STANDARD SMALL RIGID VEHICLE (SRV)

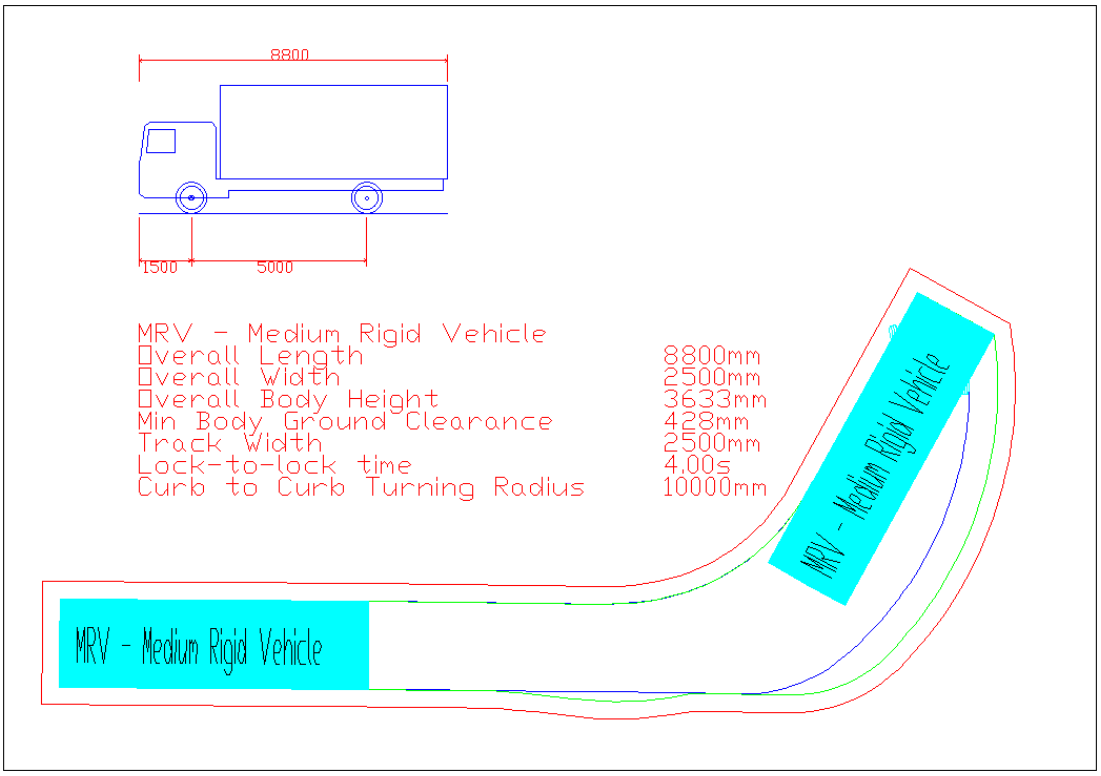
Blue – Tyre Path
Green – Vehicle Body
Red – 500mm Clearance

All tests performed at 5 km/h forwards and 2.5km/h reverse



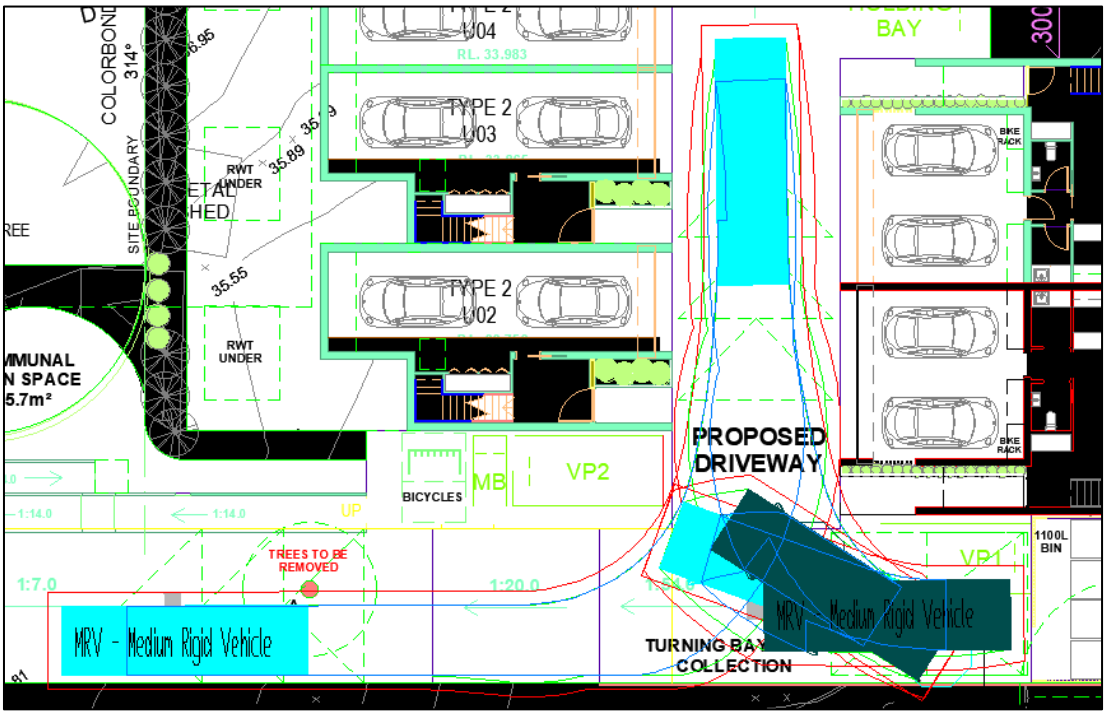
6.4M LENGTH SRV TO BINS COLLECTION AREA

Successful – 2 Manoeuvres REVERSE IN
Forward in / Forward out of driveway achieved
Subject to installation of signs to prohibit visitor parking during scheduled waste collection times.



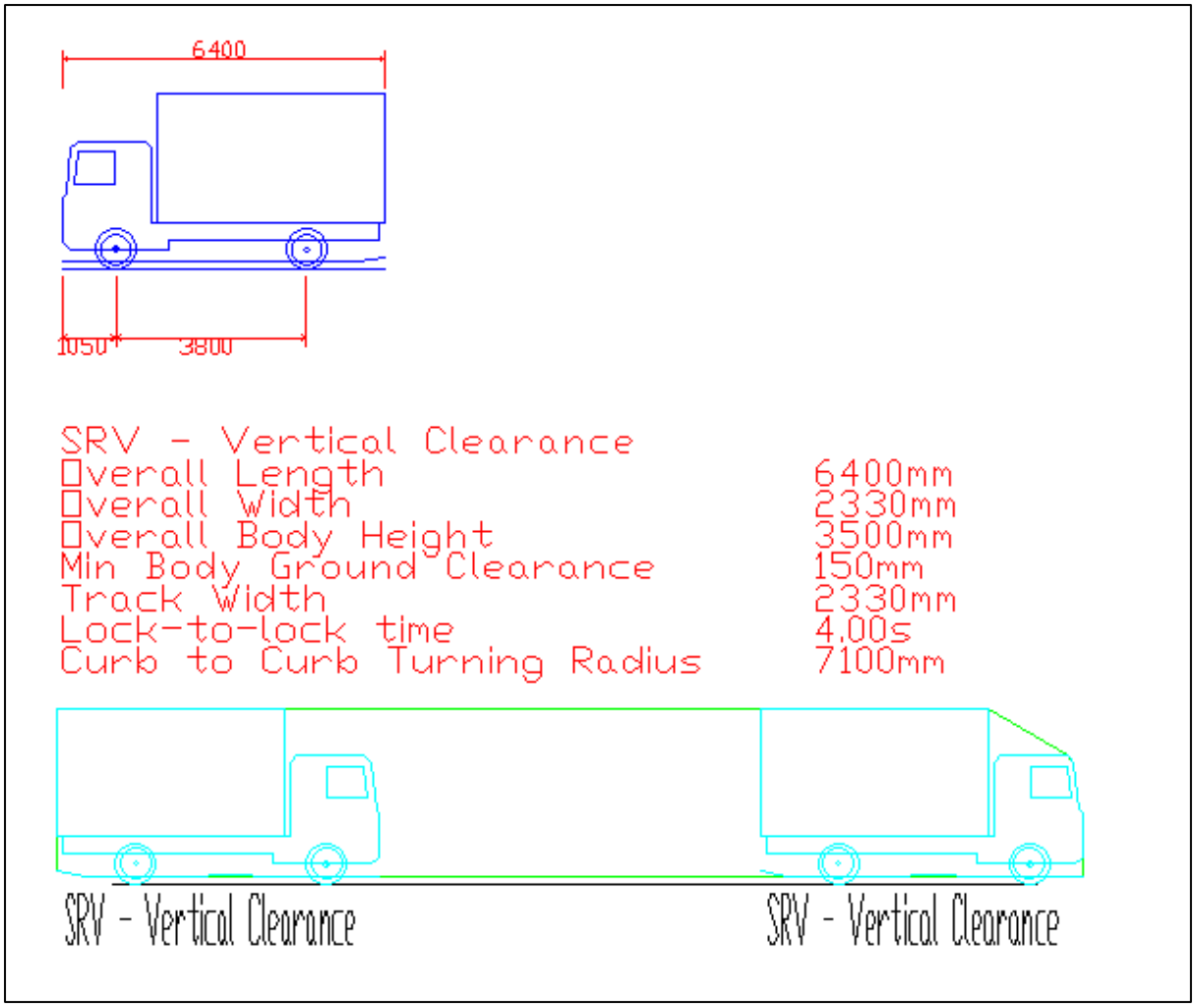
AUSTRALIAN STANDARD MEDIUM RIGID VEHICLE (MRV)

Blue – Tyre Path
Green – Vehicle Body
Red – 500mm Clearance



8.8M LENGTH MRV TO BINS COLLECTION AREA

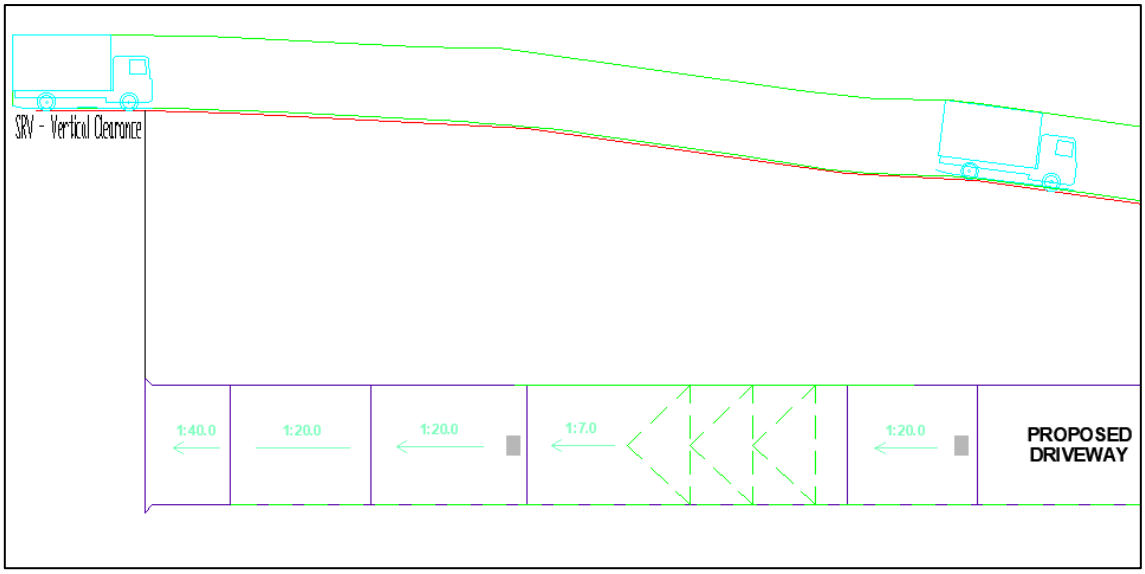
Successful – 4 Manoeuvres REVERSE IN
Forward in / Forward out of driveway achieved
Subject to installation of signs to prohibit visitor parking during scheduled waste collection

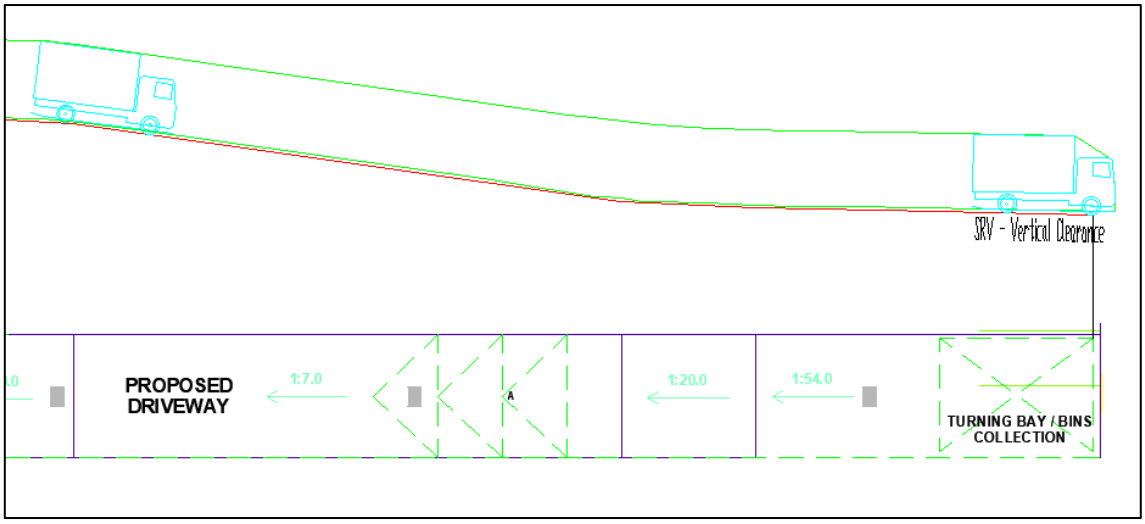


AUSTRALIAN STANDARD 6.4M LENGTH SMALL RIGID VEHICLE (SRV) VERTICAL CLEARANCE MODEL

Blue – Vehicle Body

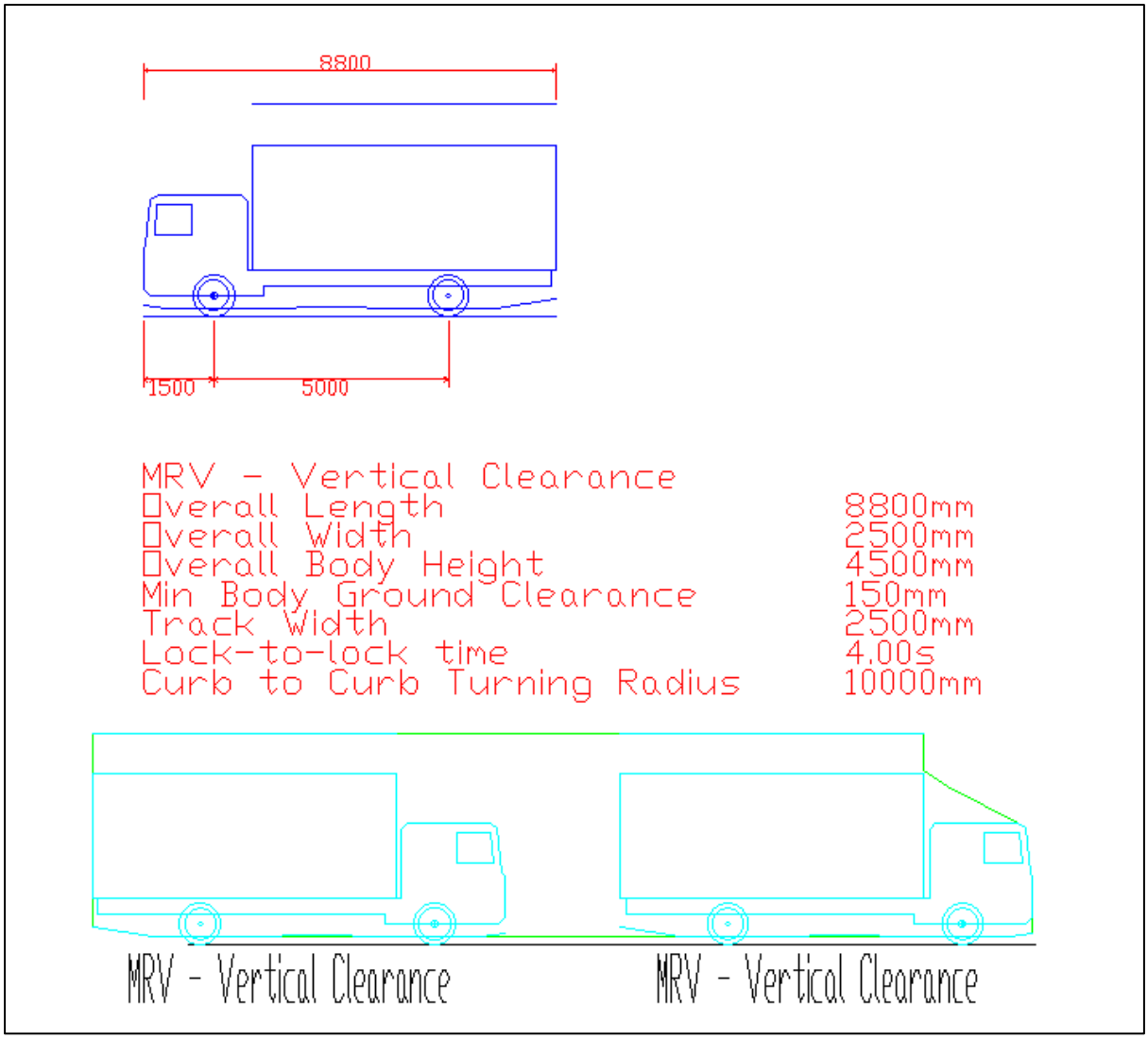
Green – Clearance Path





6.4M LENGTH SRV VERTICAL CLEARANCE TEST OF PROPOSED DRIVEWAY

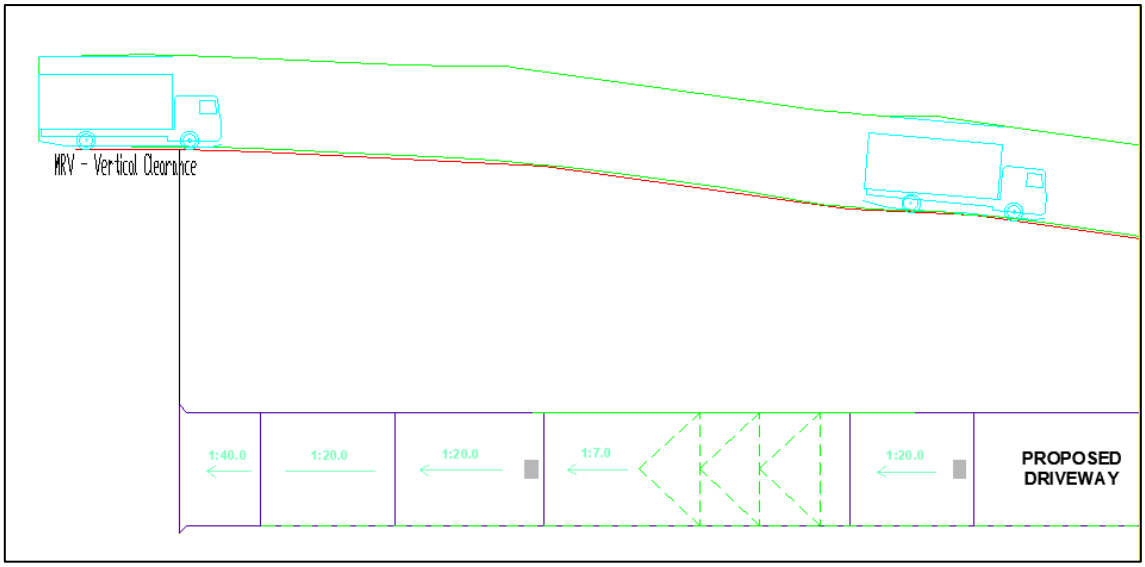
Successful

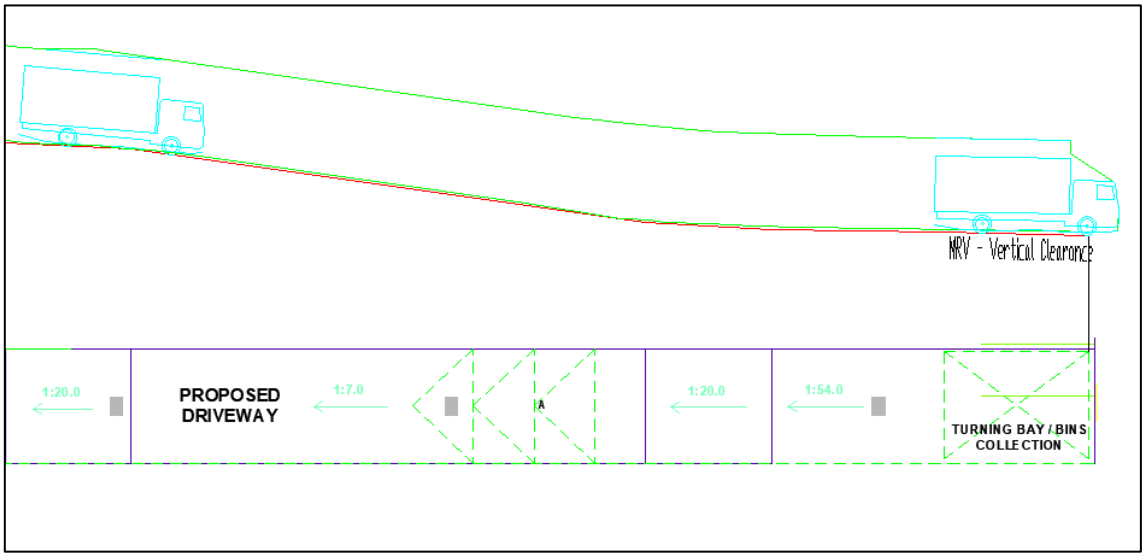


AUSTRALIAN STANDARD 8.8M LENGTH MEDIUM RIGID VEHICLE (MRV) VERTICAL CLEARANCE MODEL

Blue – Vehicle Body

Green – Clearance Path



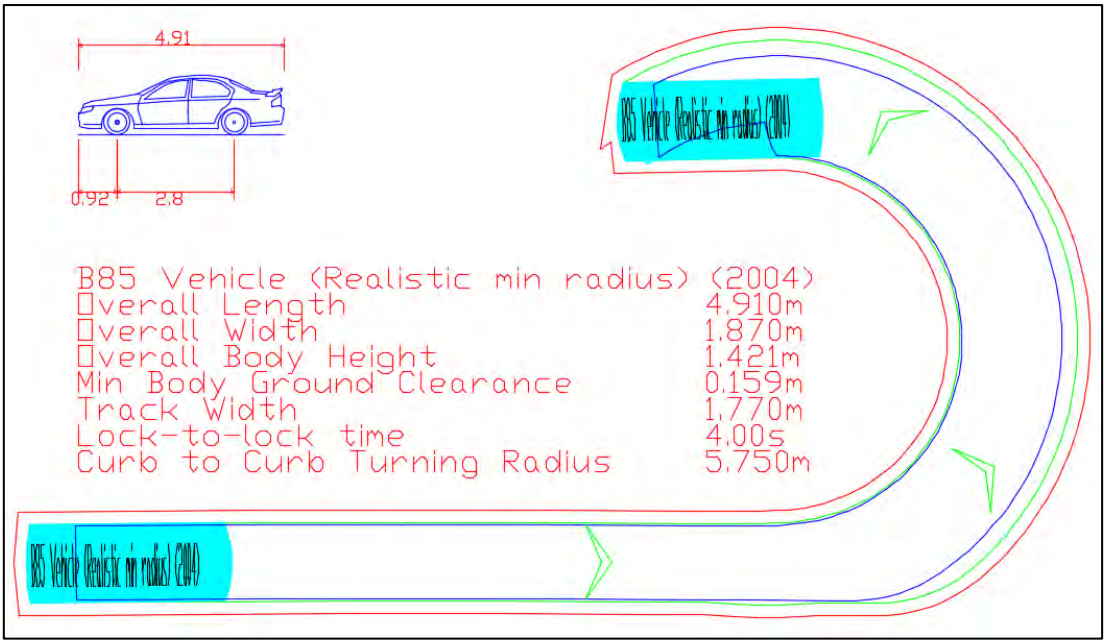


8.8M LENGTH MRV VERTICAL CLEARANCE TEST OF PROPOSED DRIVEWAY

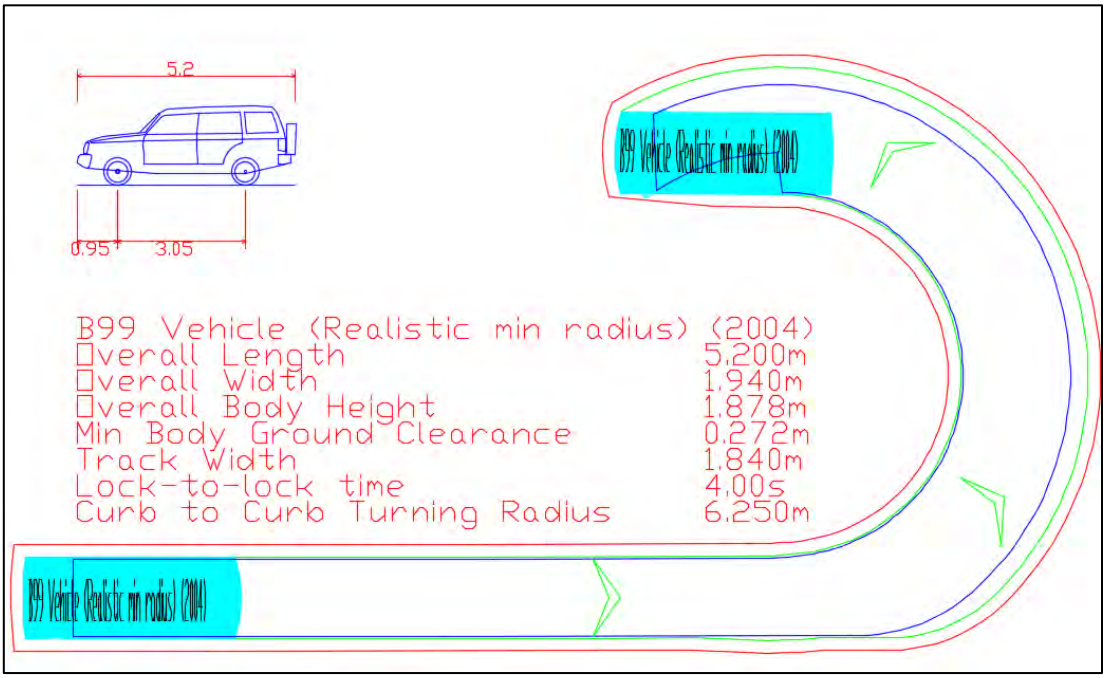
Successful

ANNEXURE C: SWEPT PATH TESTING

(12 SHEETS)



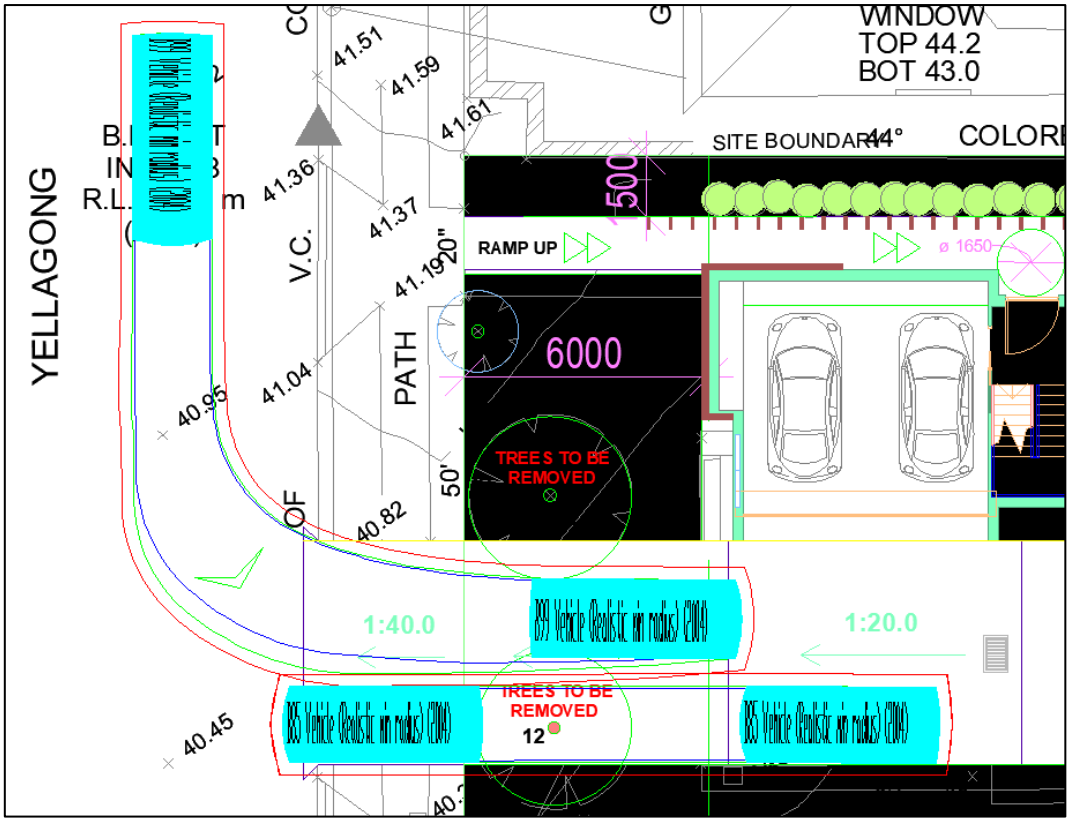
AUSTRALIAN STANDARD 85TH PERCENTILE SIZE VEHICLE (B85)



AUSTRALIAN STANDARD 99TH PERCENTILE SIZE VEHICLE (B99)

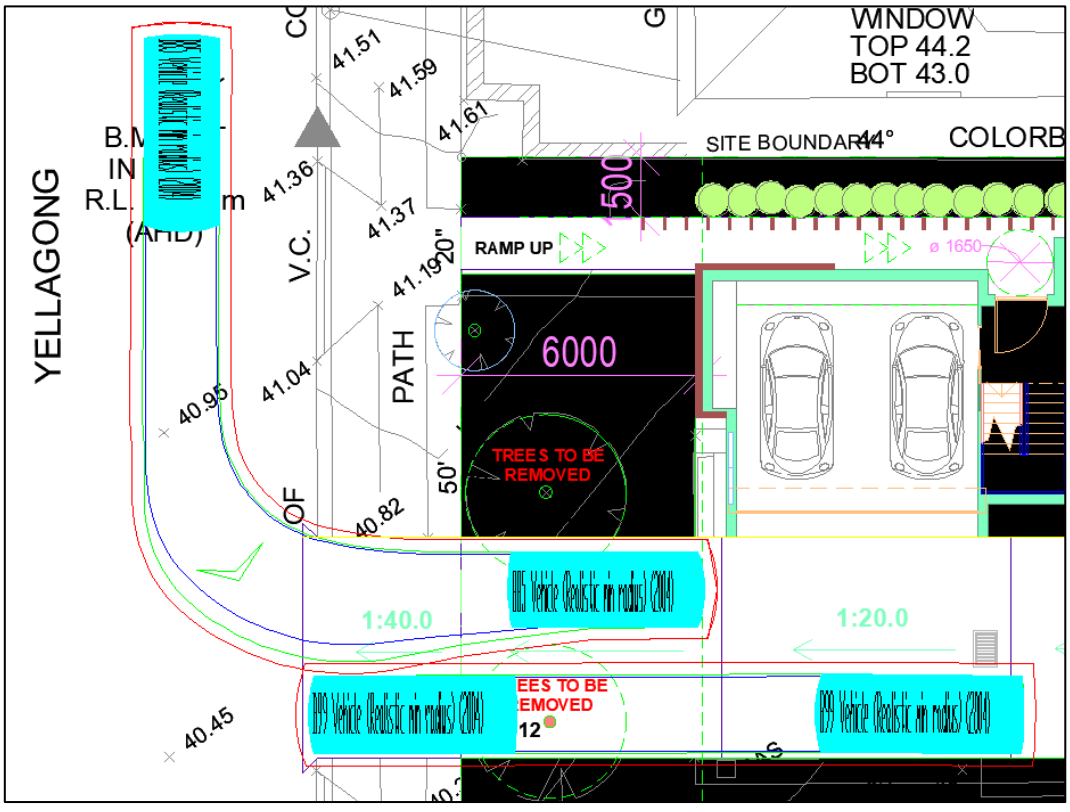
Blue – Tyre Path
Green – Vehicle Body
Red – 300mm Clearance

All tests performed at 5 km/h forwards and 2.5km/h reverse



TWO WAY PASSING AT DRIVEWAY – B99 IN / B85 OUT

Successful



TWO WAY PASSING AT DRIVEWAY – B85 IN / B99 OUT

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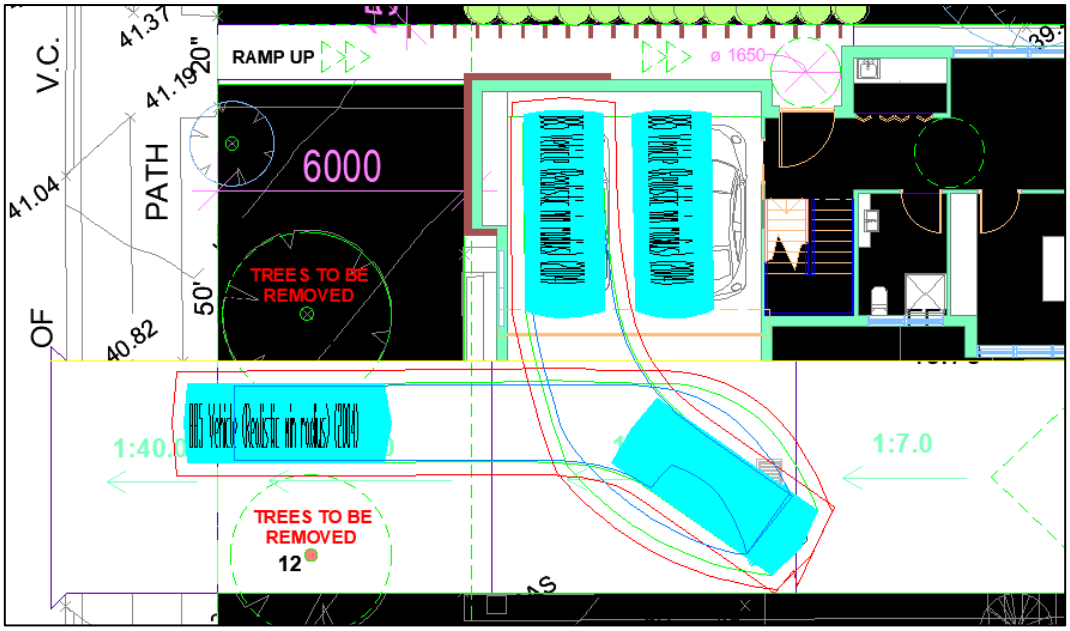
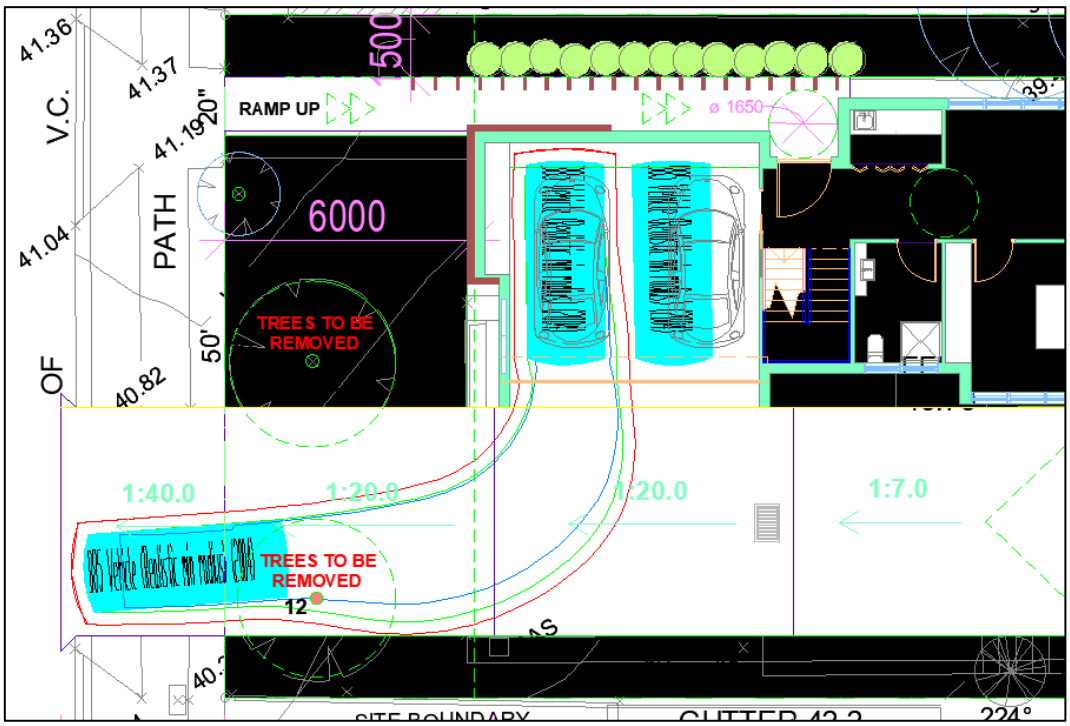
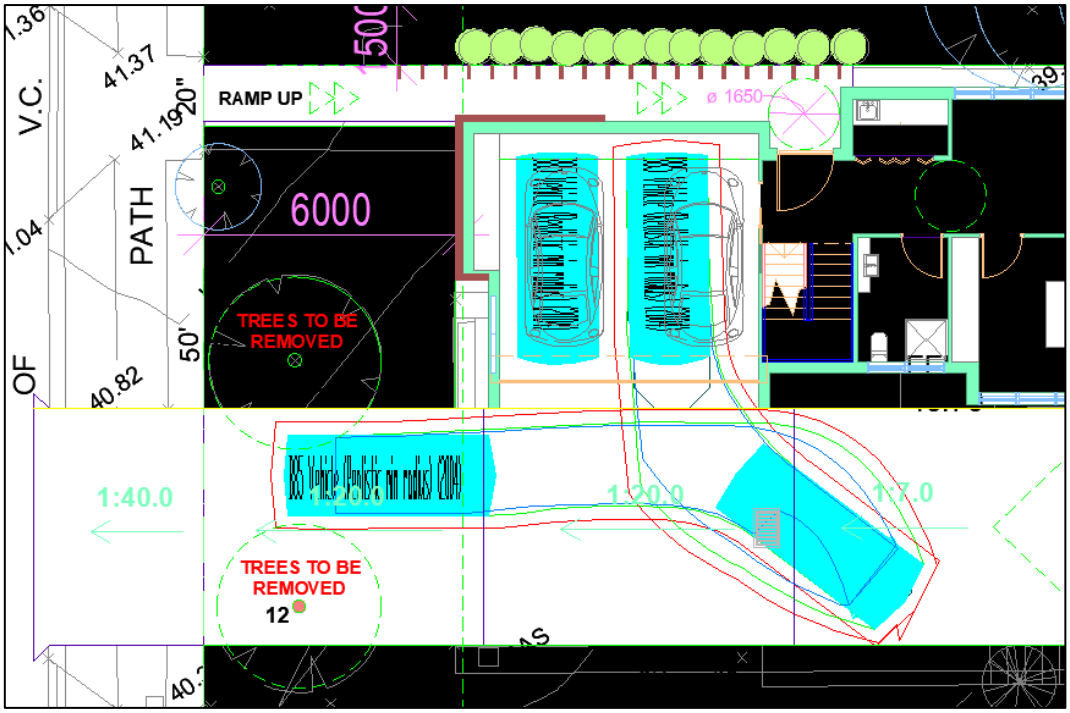
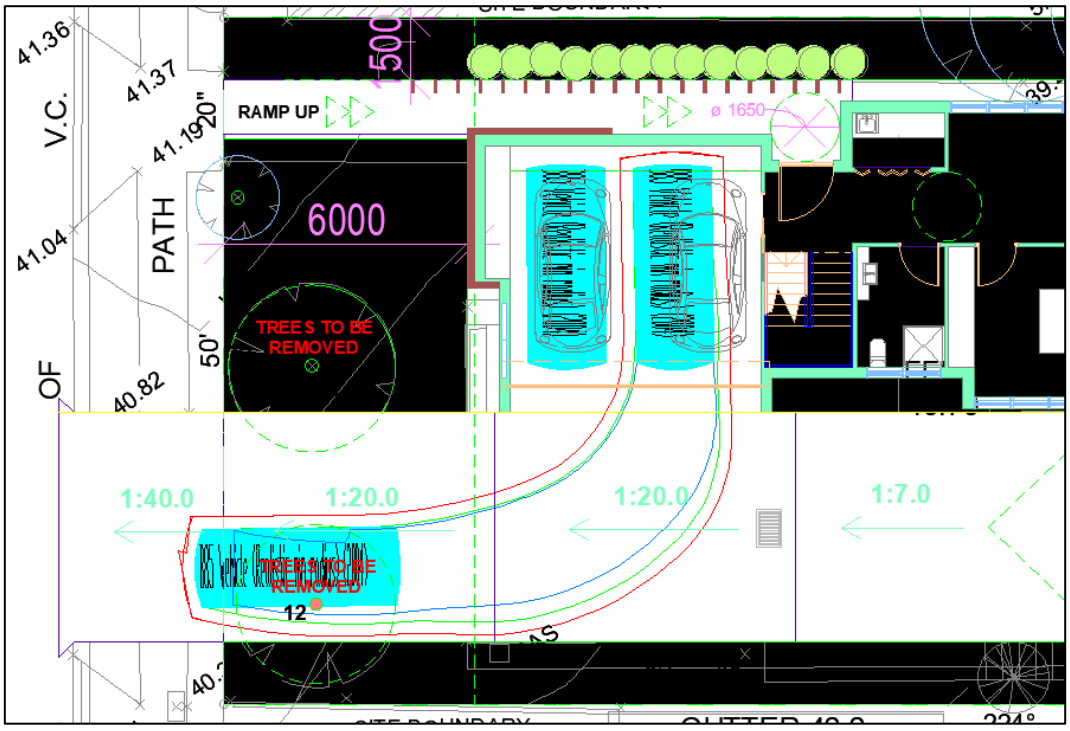




B85 ENTRY / EXIT INTO UNIT 1 SPACE 1

Successful – 2 Manoeuvres REVERSE IN / 1 Manoeuvre FORWARD OUT





B85 ENTRY / EXIT INTO UNIT 1 SPACE 2

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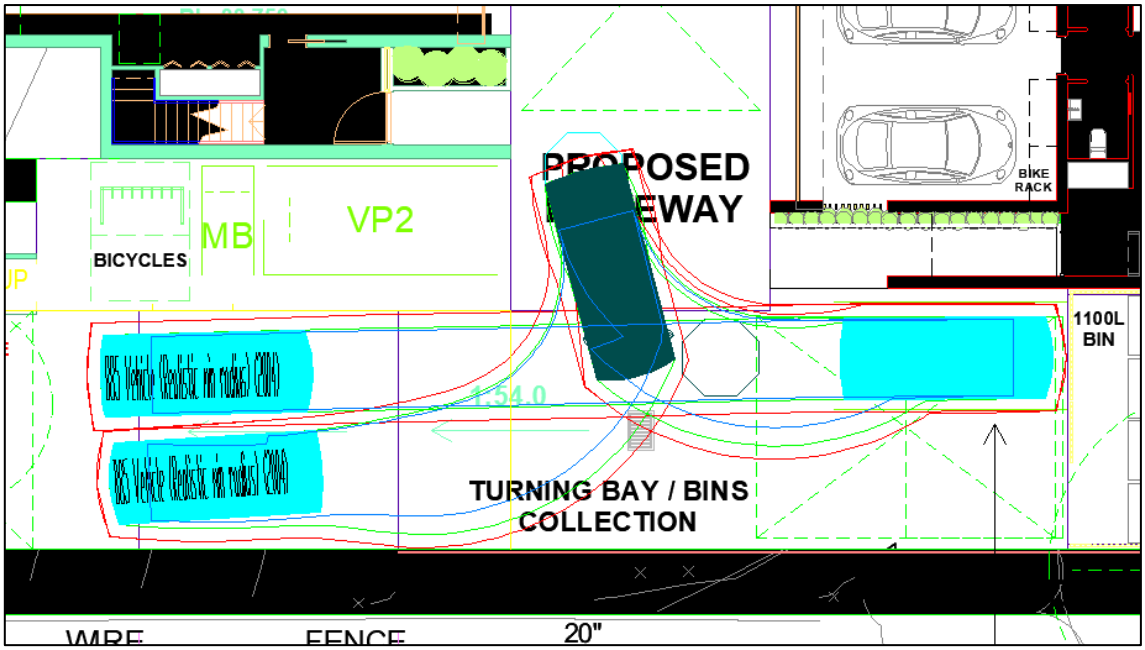

B85 ENTRY / EXIT INTO VISITOR SPACE 1

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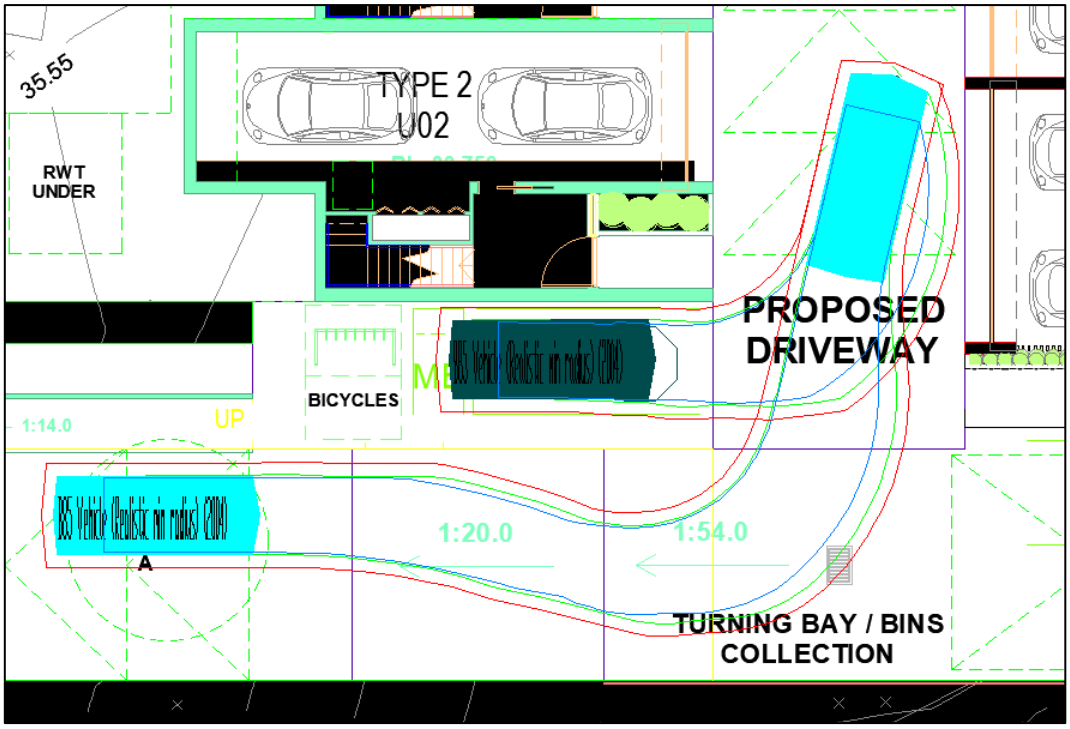

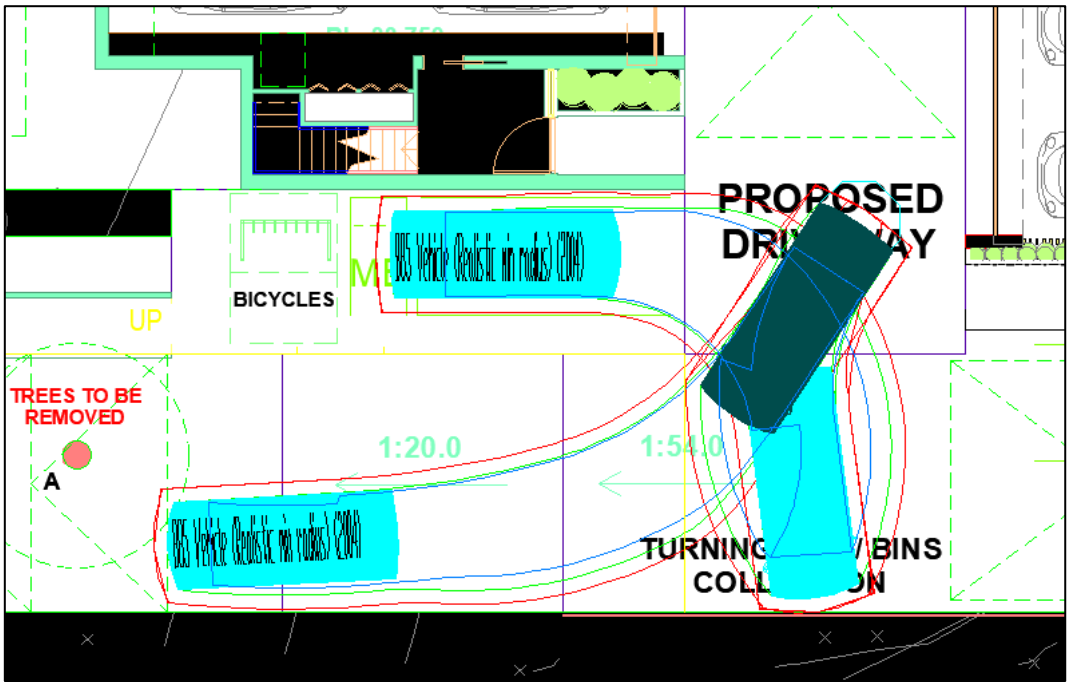

B85 ENTRY / EXIT INTO VISITOR SPACE 2

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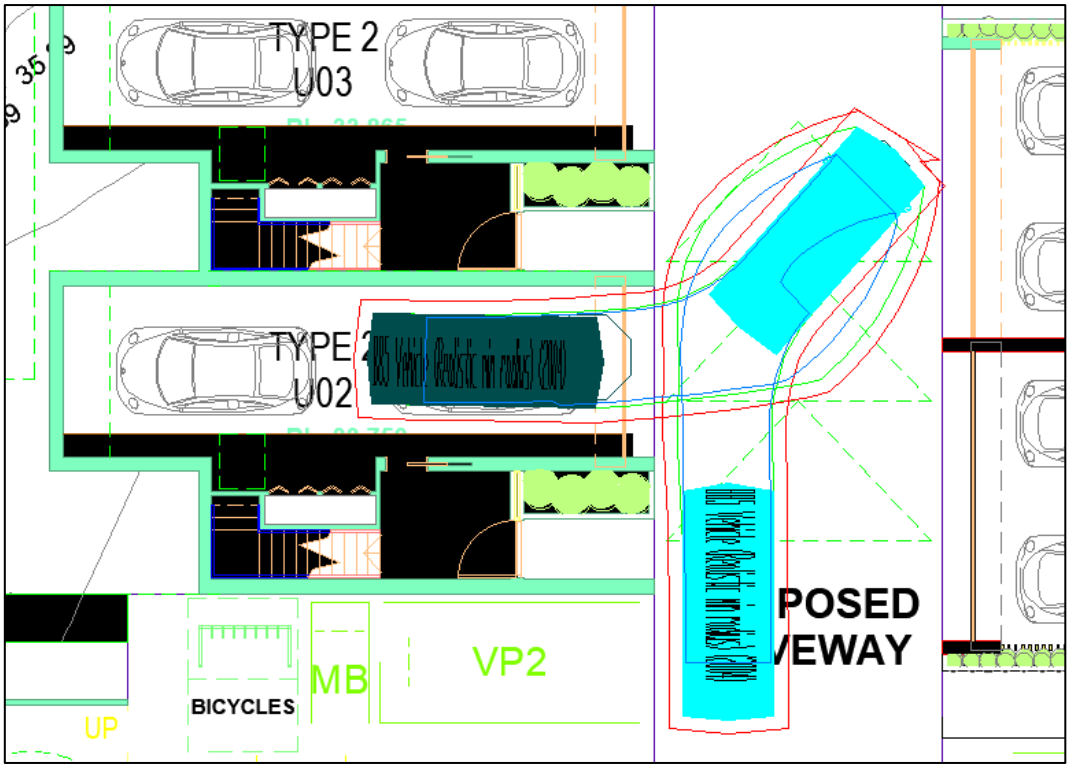

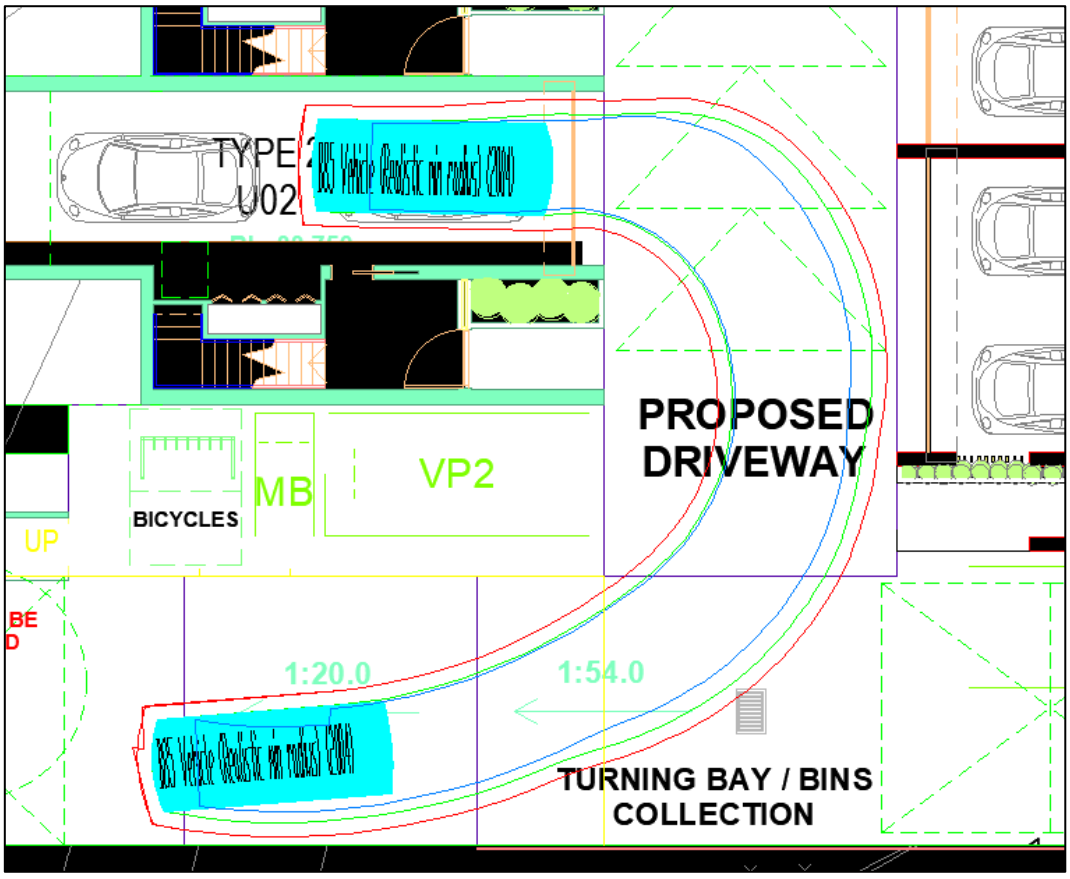

B85 ENTRY / EXIT INTO UNIT 2

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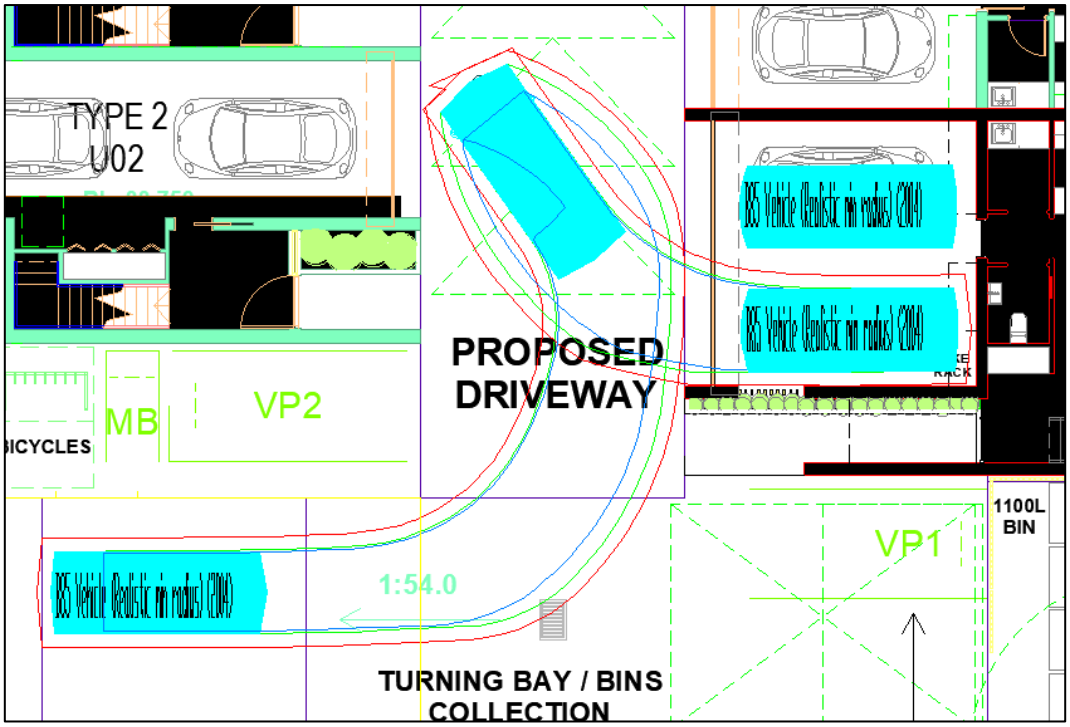
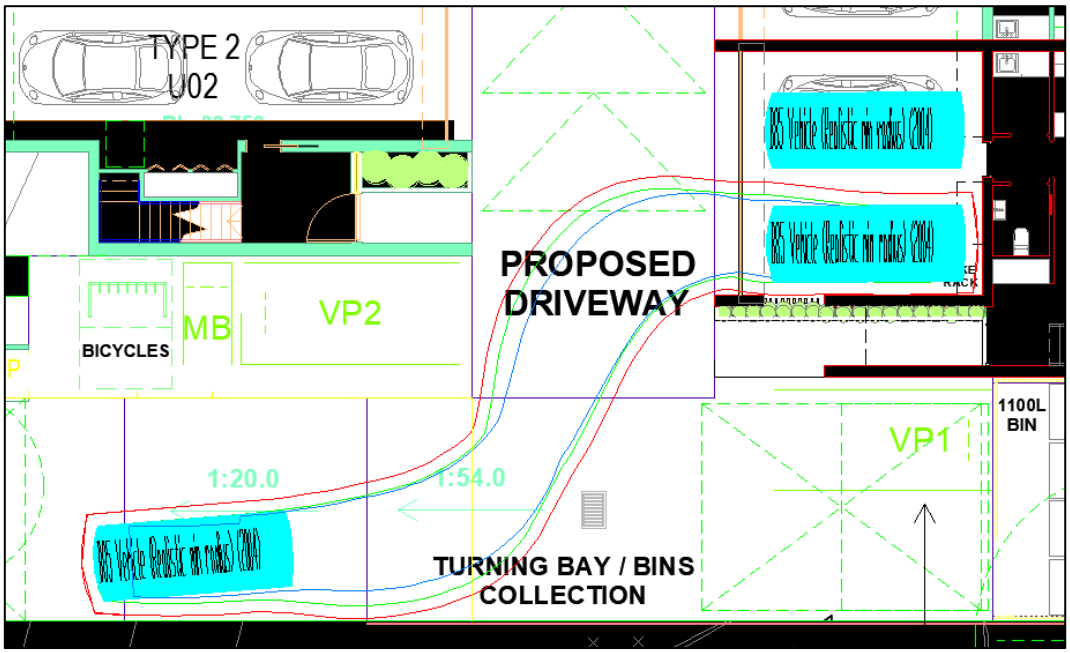
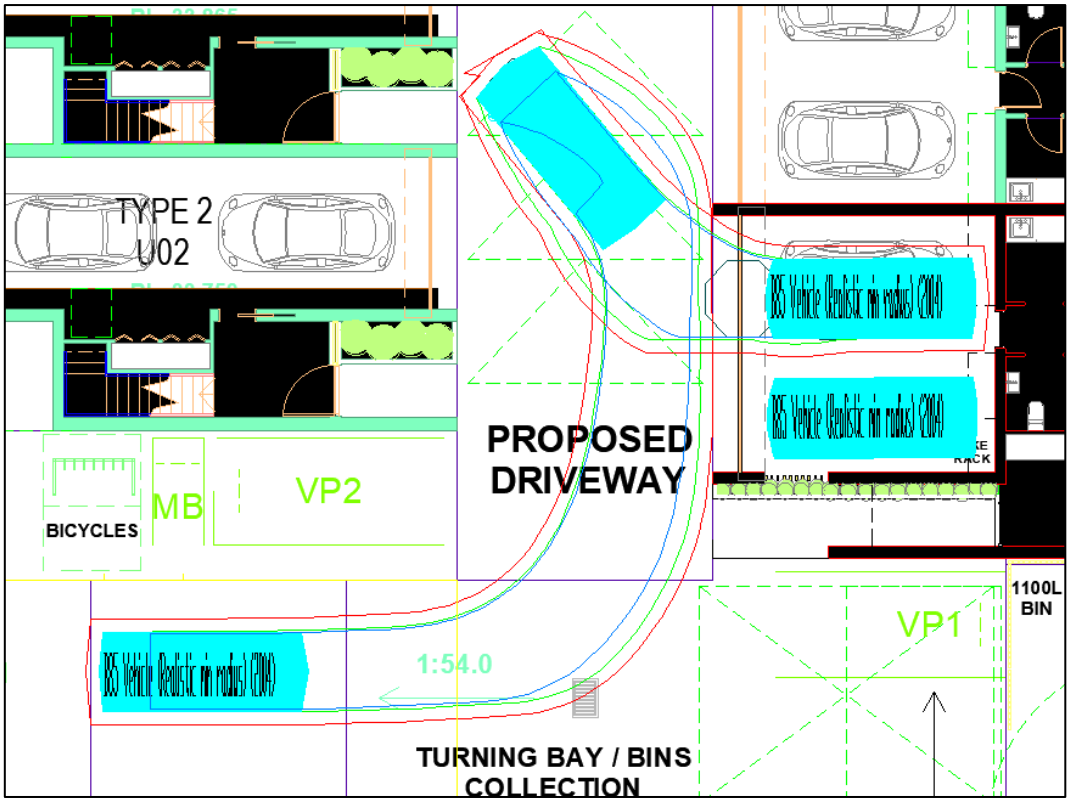
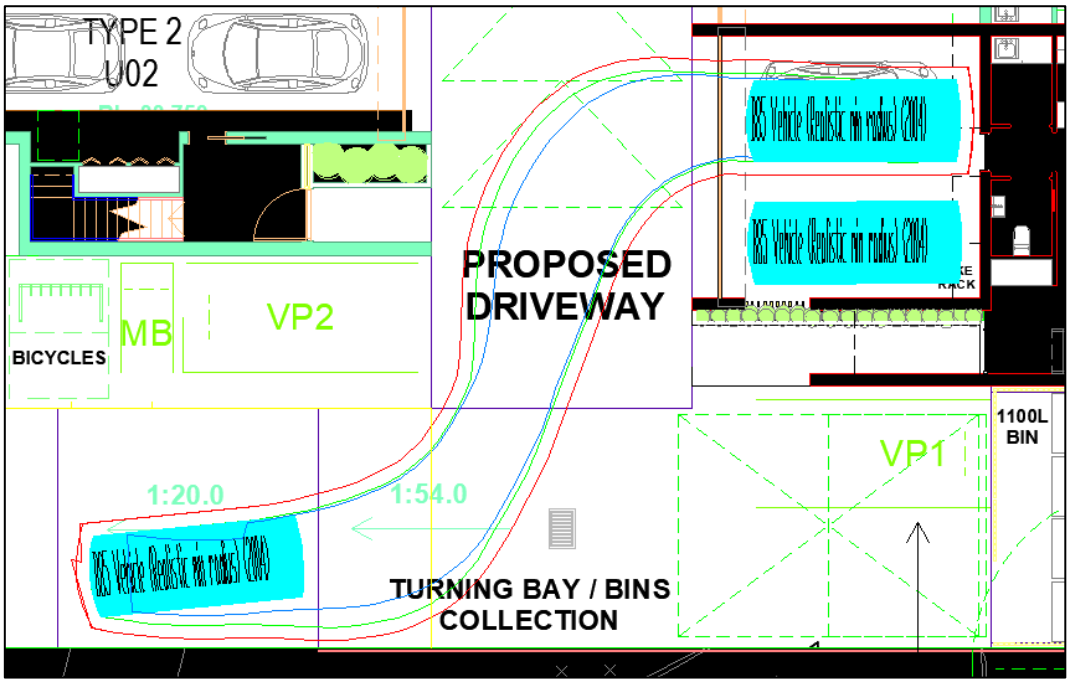




B85 ENTRY / EXIT INTO UNIT 10 SPACE 1

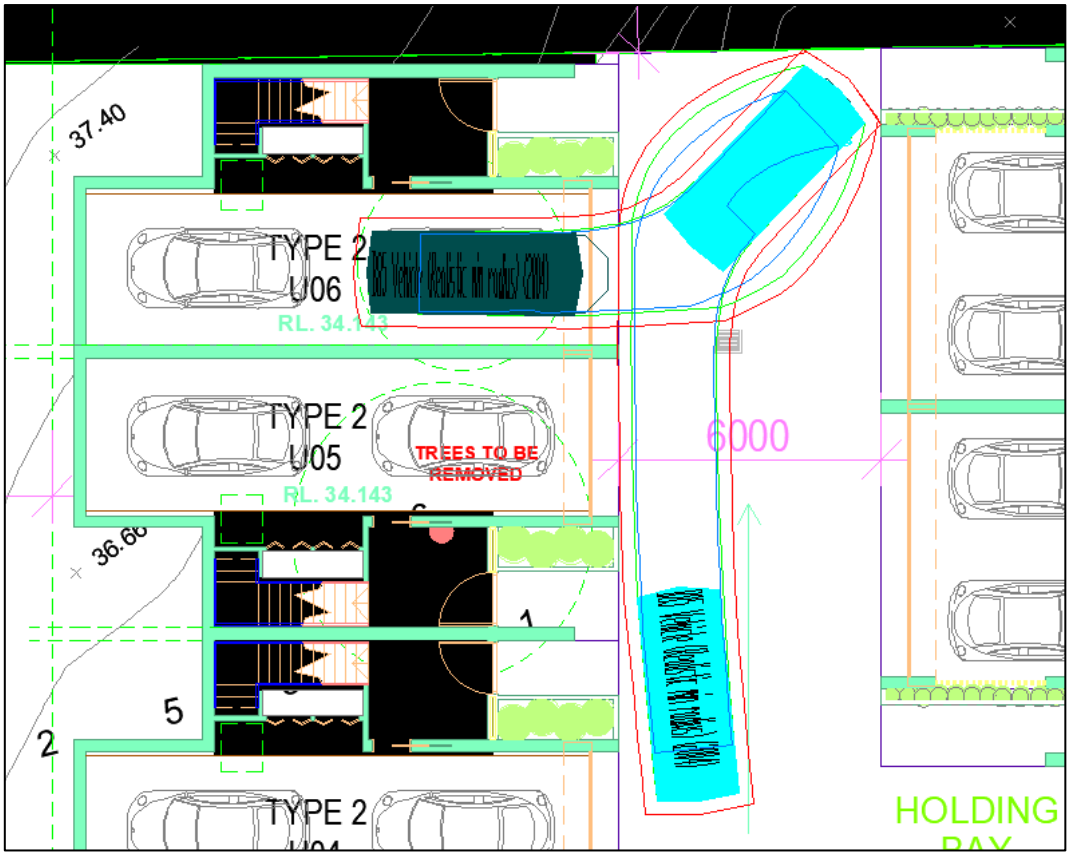
Successful – 2 Manoeuvres REVERSE IN / 1 Manoeuvre FORWARD OUT

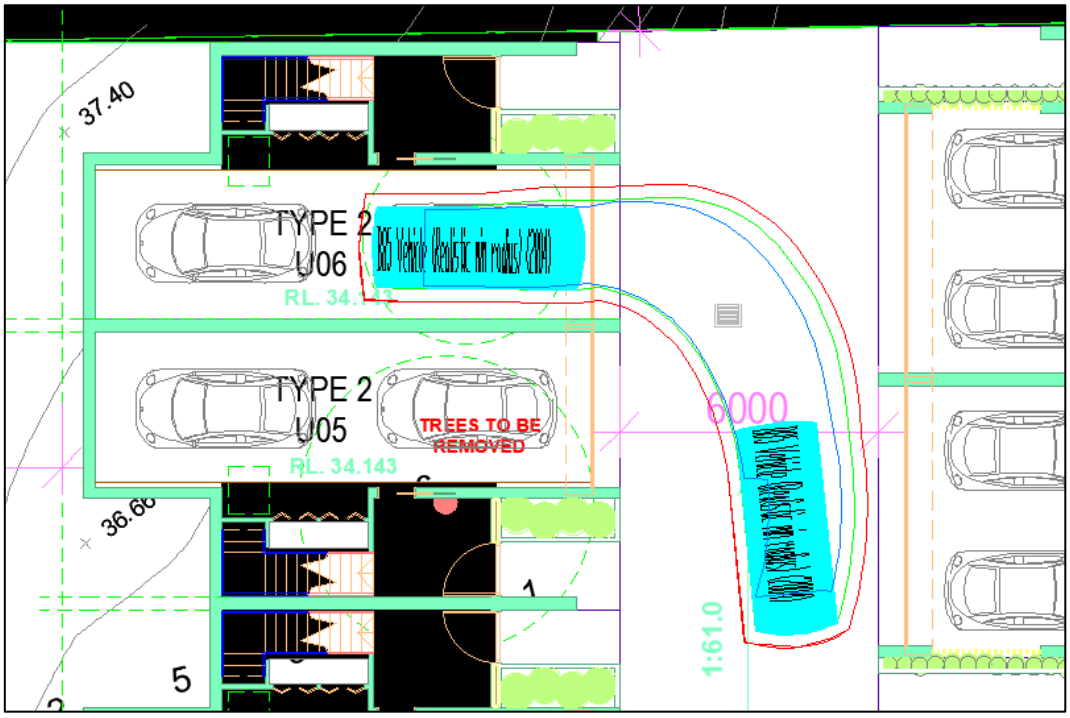




B85 ENTRY / EXIT INTO UNIT 10 SPACE 2

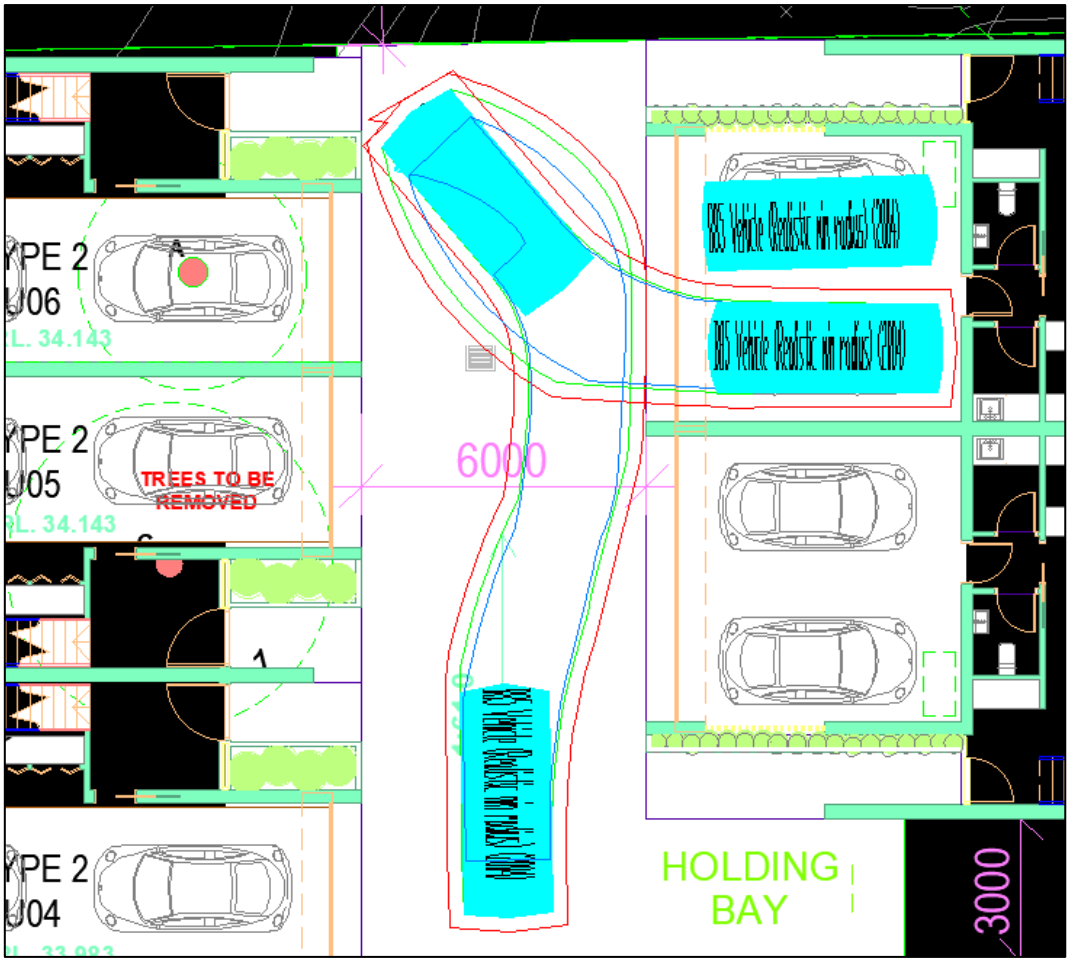
Successful – 2 Manoeuvres REVERSE IN / 1 Manoeuvre FORWARD OUT

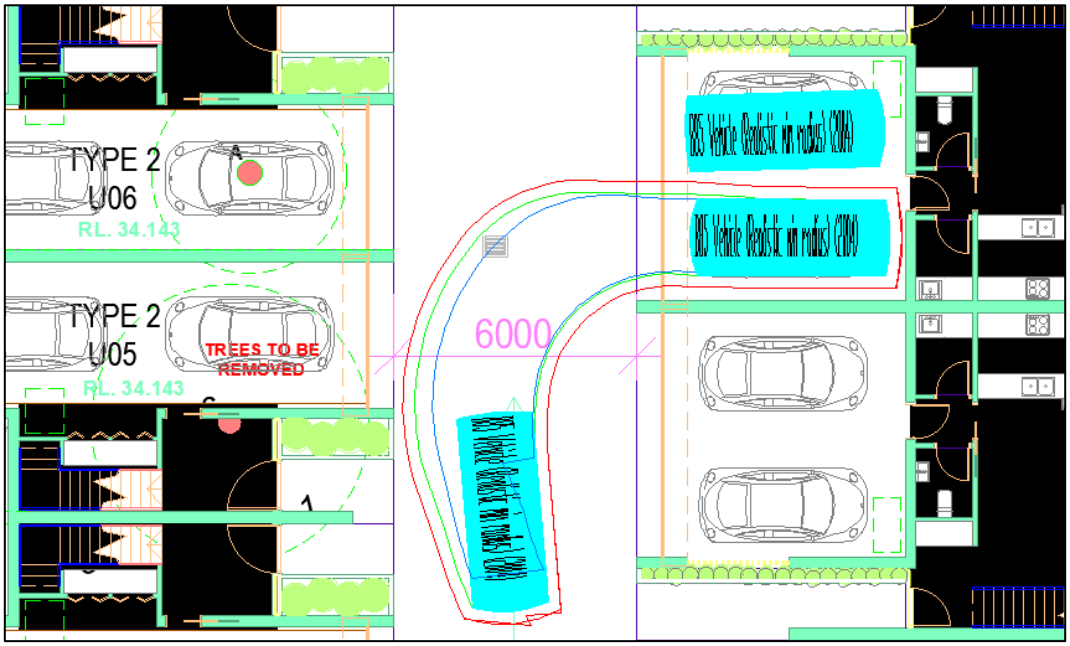




B85 ENTRY / EXIT INTO UNIT 6

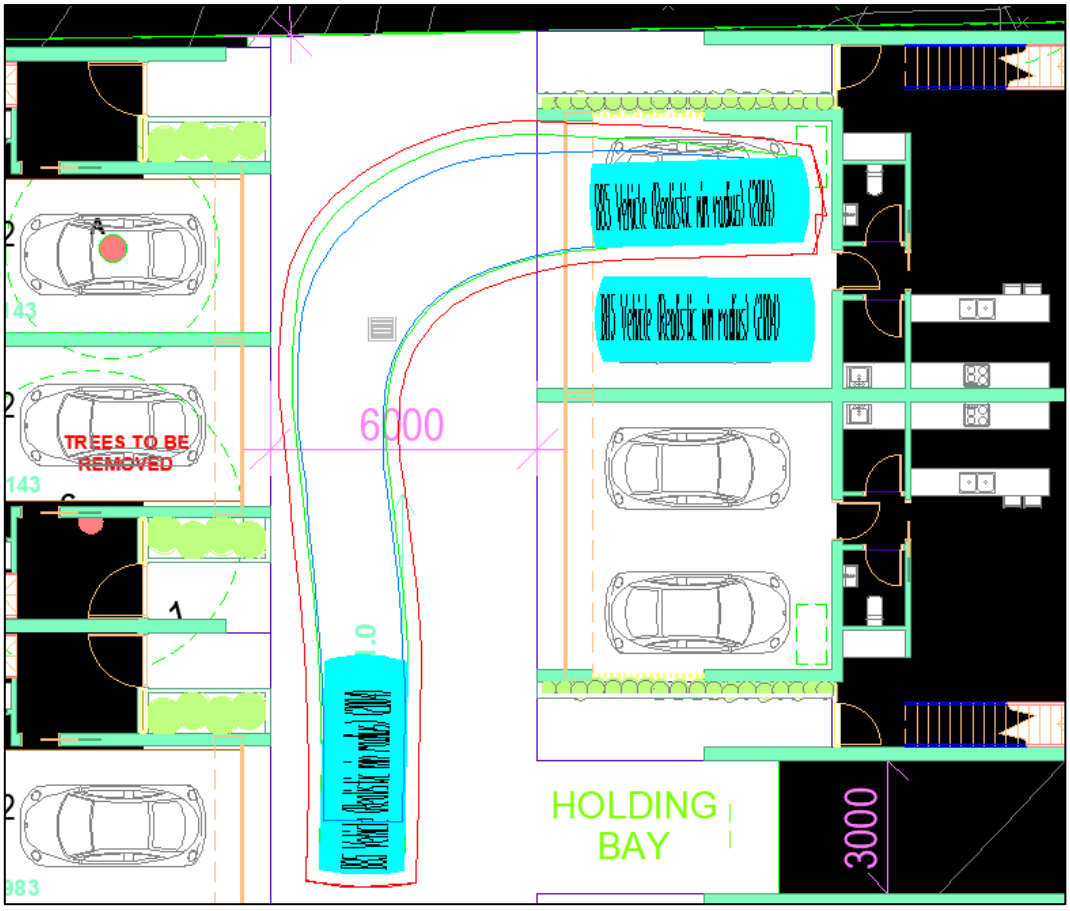
Successful – 2 Manoeuvres REVERSE IN / 1 Manoeuvre FORWARD OUT

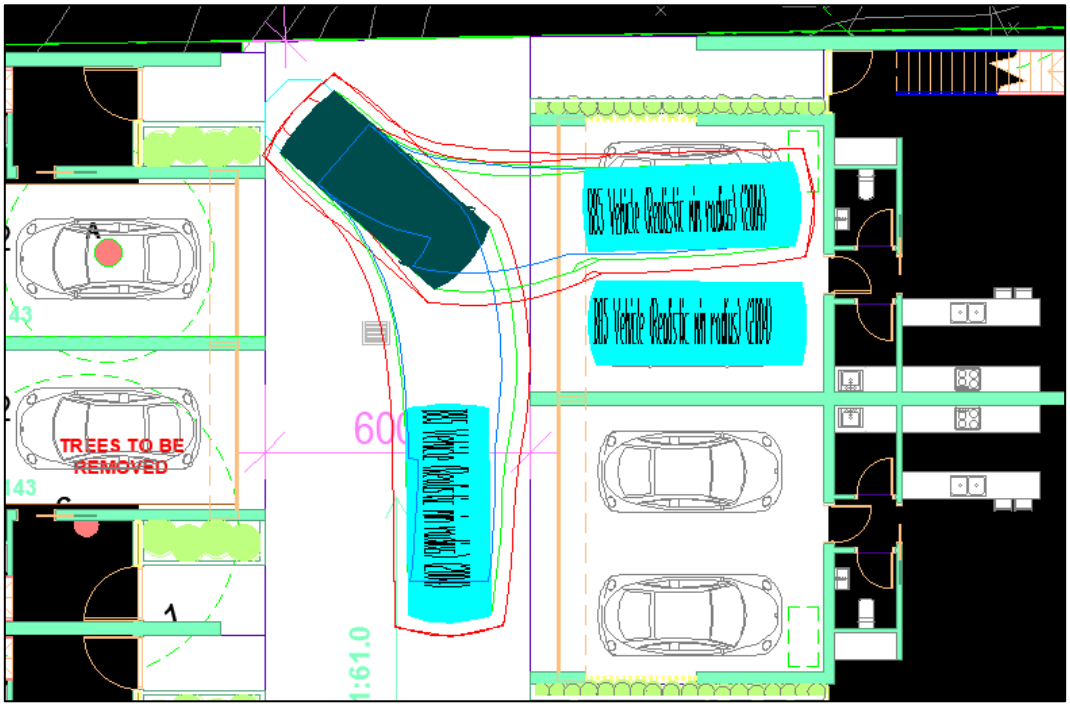




B85 ENTRY / EXIT INTO UNIT 7 SPACE 1

Successful – 2 Manoeuvres REVERSE IN / 1 Manoeuvre FORWARD OUT





B85 ENTRY / EXIT INTO UNIT 7 SPACE 2

Successful – 1 Manoeuvre FORWARD IN / 2 Manoeuvres REVERSE OUT

ALLIED TREE
CONSULTANCY
Level 5 and 8 Arboriculturist

Arboricultural Impact Assessment Report

For the site address
Lot 105 (D.P. 25391)
No. 35 Yellagong Street
WEST WOLLONGONG NSW

Prepared for
Acentria P/L

AUTHOR
Warwick Varley and Geoff Beisler

STATUS

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1.0 Introduction

1.1 The following Arborist report has been requested by *Acentria P/L* for the development proposal at No. 35 Yellagong Street, West Wollongong. This development includes the construction of a multi-residential dwelling development. This report includes twelve trees located on, and adjacent to the lot, and discusses the viability of these trees based on the proposed works.

1.2 This report will address for these trees, the:

- species' identification, location, dimensions, and condition;
- SULE (Safe Useful Life Expectancy) and STARS (Significance of a Tree Assessment Rating System) rating;
- discussion and impact of the proposed works on each tree;
- recommendations for the removal, retention and/or pruning;
- tree protection zones and protection specifications for trees recommended for retention.

1.3 The subject site resides within West Wollongong: for this reason, Wollongong City Council is the consenting authority for any tree works recommended in this report.

2.0 Standards

2.1 Allied Tree Consultancy provides an ethical and unbiased approach to all assignments, possessing no association with private utility arboriculture or organisations that may reflect a conflict of interest.

2.2 This report must be made available to all contractors during the tendering process so that any cost associated with the required works for the protection of trees can be accommodated.

2.3 It is the responsibility of the project manager to provide the requirements outlined in this report relative to the Protection Zones, Measures (Section 7.0) and Specifications (Section 8.0) to all contractors associated with the project before the initiation of work.

2.4 All tree-related work outlined in this report is to be conducted in accordance with the:

- Australian Standard – AS4373; Pruning of Amenity Trees.
- Guide to Managing Risks of Tree Trimming and Removal Work[1].
- All tree works must be carried out at a tertiary level (minimum Certificate-level 3) qualified and experienced (minimum of five years) arboriculturist.
- For any works in the vicinity of electrical lines, the arboriculturist must possess the ISSC26 endorsement (Interim guide for operating cranes and plant in proximity to overhead powerlines).

[1] Safe Work Australia; July 2016; Guide to Managing Risks of Tree Trimming and Removal Work, Australia

2.5 As a minimum requirement, all trees recommended for retention in this report must have removed all dead, diseased, and crossing limbs and branch stubs to be pruned to the branch collar. This work must comply with the local government tree policy (Wollongong City Council) and Section 2.4.

2.6 Any tree stock subject to conditions for works carried out in this report must be supplied by a registered Nursery that adheres to the AS 2303; 2015[2].

- All tree stock must be of at least 'Advanced' size (minimum 75lt) unless otherwise requested.
- All tree stock requested must be planted with adequate protection. This may include tree guards (protect stem and crown) and if planted in a lawn area, a suitable barrier (planter ring) of an area, at least, $1m^2$ to prevent grass from growing within the area adjacent to the stem.

3.0 Disclosure Statement

Trees are living organisms and, for this reason, possess natural variability. This cannot be controlled. However, risks associated with trees can be managed. An arborist cannot guarantee that a tree will be safe under all circumstances, nor predict the time when a tree will fail. To live or work near a tree involves some degree of risk, and this evaluation does not preclude all the possibilities of failure.

4.0 Methodology

4.1 The following tree assessment was undertaken using criteria based on the guidelines laid down by the International Society of Arboriculture.

4.2 The format of the report is summarised below;

4.2.1 Plan 1; Tree Location Relative to Site: This is an unscaled plan reproduced from the Survey Plan as referenced in Section 4.4.1, depicting the area of assessment.

4.2.2 Table 1; This table compiles the tree species, dimensions**,** brief assessment (history, structure, pest, disease or any other variables subject to the tree), significance, allocation of the zones of protection (i.e., Tree Protection Zone[3] ;TPZ and Structural Root Zone; SRZ) for each tree illustrated in Plan 1, Section 5.0. All measurements are in meters. An 'Action' is included and provides the nomination for retention/removal based on the tree location relative to the proposed design (drawing set, Section 4.4.2).

4.2.3 Discussion relating to the site assessment and proposed works regarding the trees.

[2] Australian Standard; 2015, AS2303, Tree stock for landscape use, Australia

[3] *Australian Standard, 4970; 2009* – Protection of Trees on Development Sites, Australia

4.2.4 Protection Specification; This Section (Section 8.0) details the requirements for that area designated as the Tree Protection Zone (TPZ), for those trees recommended for retention.

4.3 The opinions expressed in this report, and the material, upon which they are based, were obtained from the following process and data supplied:

4.3.1 Site assessment on the 19th October 2018 using the method of the Visual Tree Assessment[4]. This has included a Level 2 risk assessment, being a *Basic Assessment*[5]. The assessment has been conducted by Geoff Beisler[6] on behalf of *Allied Tree Consultancy*.

4.3.2 Trees included in this report are those that are 3m or greater in height.

4.3.3 All measurements, unless specified otherwise are taken from the tree centre.

4.3.4 Raw data from the preliminary assessment including the specimen's dimensions were compiled by the use of a diameter tape, height clinometer, angle finder, compass, steel probes, Teflon hammer, binoculars and recording instruments.

4.4 Documentation provided

The following documentation has been provided to Allied Tree Consultancy and utilised within the report.

4.4.1 Surveyor
Drawn by *JRK Surveys P/L*
Date: 13 June 2013
Reference: 13-116P1
Drawing No: Site Analysis Survey

4.4.2 Design
Drawn by *Design Workshop Australia*
Date: 12 April 2019
Reference: (Project No.) 1912
Drawing No: AI-06 (Revision J)

4.4.3 Engineer
Drawn by *MSL Consulting Engineers P/L*
Date: June 2019
Reference: 19124
Drawing NoC01 (Revision 1)

[4] Mattheck, C. Breloer, H.,1994, The Body Language of Trees – A handbook for failure analysis The Stationary Office, London
[5] Dunster J.A., 2013, Tree Risk Assessment Manual, International Society of Arboriculture, 2013, USA
[6] Consulting Arborist, Diploma of Arboriculture (level 5)

4.5 Limitations of the assessment/discussion process

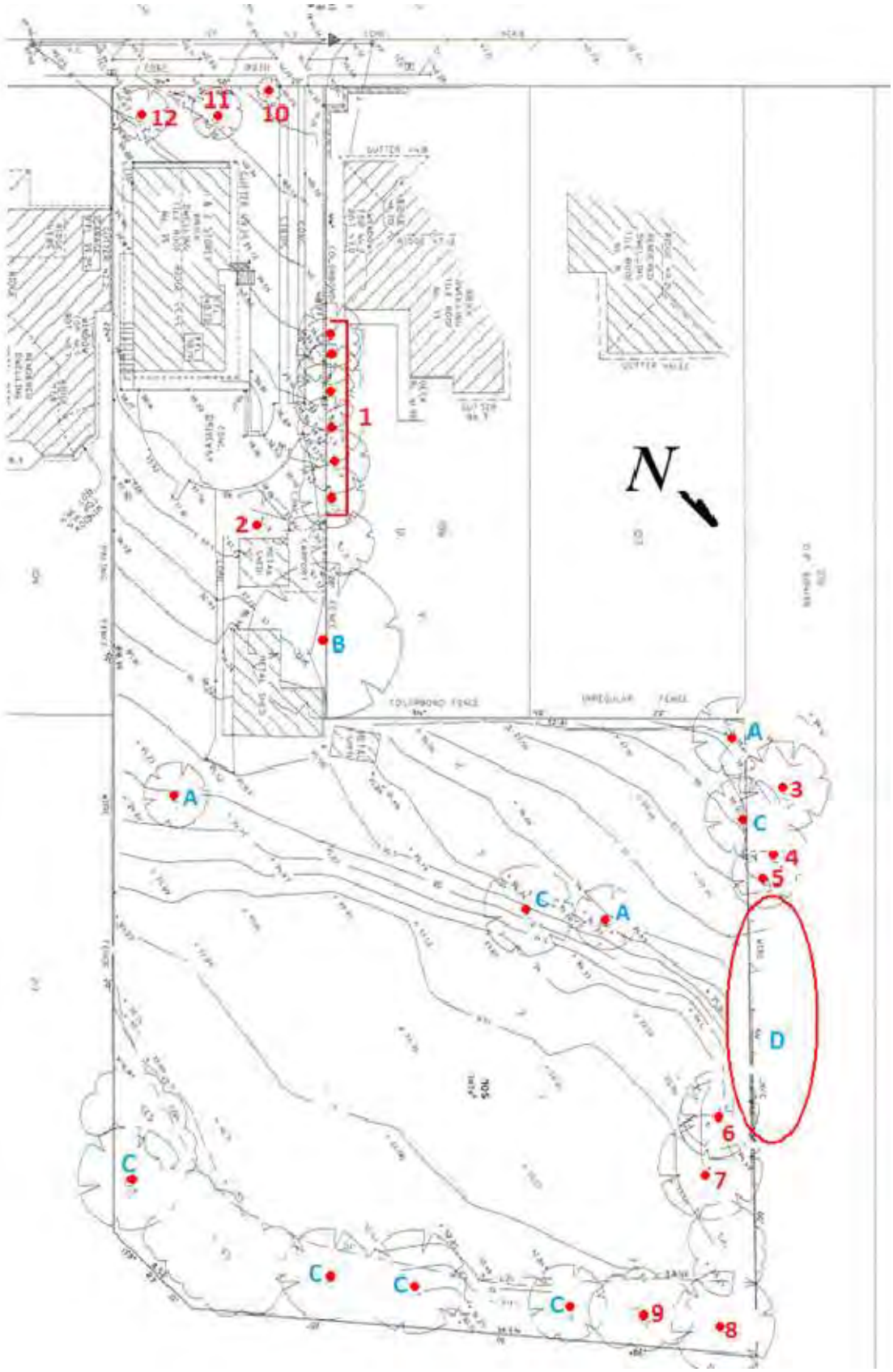
4.5.1 The north-eastern portion of the lot that is the rear yard is very overgrown, and access was limited to both this area and area outside of the yard where the drainage easement is proposed. Due to the difficulty of access, these areas have not been thoroughly assessed, and the trees contained in these areas have been subject to a limited assessment.

4.5.2 The assessment has considered only those target zones that are apparent to the author and the visually apparent tree conditions during the time of assessment.

4.5.3 Any tree regardless of apparent defects would fail if the forces applied to exceed the strength of the tree or its parts, for example, extreme storm conditions.

4.5.4 The assessment has been limited to that part of the tree, which is visible, existing from the ground level to the crown. Root decay can exist and in some circumstances, provide no symptoms of the presence. This assessment responds to all the symptoms provided by a tree, however, cannot provide a conclusive recommendation regarding any tree that may have extensive root decay that leads to windthrow without the appropriate symptoms.

5.0 Plan 1; Area of assessment illustrating tree location



Not to scale
Source: Adapted from *JRK Surveys P/L*, see Section 4.4.1

6.0 Table 1 – Tree Species Data

Terminology/references provided in Appendix A.

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality	SULE Rating	STARS Rating	TPZ	SRZ
1	*Cupressus macrocarpa* Monterey Cypress	9	0.25[A]	6 x 17	M	I	Sym.	A	**A2**	**MEDIUM**	**3.0**	**1.9**
Assessment		Tree No. 1 is a group planting of seven trees providing equal size, age, and spacing from one another. They are located adjacent to the boundary line and within the neighbouring lot, No. 33. They have been planted to form a screen planting, and the related habits have formed in proximity to one another. That is each tree poses a limited live crown ratio. The dripline extends across the boundary by 3m, and they have been crown lifted approximately 2m above the ground. These trees pose normal vitality.									See Section 7.1.4	
2	*Araucaria heterophylla* Norfolk Island Pine	17	0.82	12 x 12	M	D	Sym.	A	**A1**	**HIGH**	**9.8**	**3.0**
Assessment		Tree typical of species. Girdling root, east side. Multiple lower branches have been removed up to 5m; multiple branches stubs present. Several exposed and damaged surface roots, southern side.									See Section 7.1.5	
3	*Grevillea robusta* Silky Oak	10	0.30[C]	6 x 6	M	D	Sym.	A[C]	**A1**[C]	**MEDIUM**[C]	**3.6**	**2.0**
Assessment		This neighbouring tree offered limited assessment due to fences and overgrown environment. Tree presents as typical of species.									See Section 7.1.1	
4	*Grevillea robusta* Silky Oak	9	0.30[C]	5 x 5	M	D	Sym.	C[C]	**A4**[C]	**LOW**[C]	**3.6**	**2.0**
Assessment		This neighbouring tree offered limited assessment due to fences and overgrown environment. It appears to be 90% dead.									See Section 7.1.1 and 7.1.2	
5	*Melaleuca styphelioides* Prickly-leaved Paperbark	9	0.26[C]	5 x 6	M	C	NE	A	**A1**[C]	**HIGH**	**3.1**	**1.9**
Assessment		This neighbouring tree presents as typical of the species. Limited assessment due to overgrown environment.									See Section 7.1.1	

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality	SULE Rating	STARS Rating	TPZ	SRZ
6	*Eucalyptus saligna X botryoides* Wollongong Woollybutt	9	0.24 [C] 0.15	9 x 6	M	C	East	A	**D2** [C]	**MEDIUM**	**3.4**	**1.9**
Assessment		This tree presents strong easterly bias due to previous suppression. An apparent canker infection exists at 6m, eastern side at the union on a 2nd order branch. Limited assessment due to overgrown environment.									See Section 7.1.1	
7	*Eucalyptus saligna X botryoides* Wollongong Woollybutt	9	0.39 [C]	8 x 9	M	C	East	A	**A1** [C]	**MEDIUM**	**4.7**	**2.2**
Assessment		Presents as typical of the species. Limited assessment due to overgrown environment.									See Section 7.1.5	
8	*Eucalyptus saligna X botryoides* Wollongong Woollybutt	13	0.55 [C]	9 x 9	M	D	Sym.	A	**A2** [C]	**HIGH**	**6.6**	**2.6**
Assessment		Limited assessment due to overgrown environment. Evidence of previous failures and epicormic growth present.									See Section 7.1.4	
9	*Eucalyptus nicholii* Narrow-leaf Black Peppermint	10	0.29 [C]	6 x 6	M	D	East	-	**A4**	**LOW**	**3.5**	**2.0**
Assessment		This tree is dead. Fungal pathogen decay is evident in stem at 2m, western side. Limited assessment due to overgrown environment.									See Section 7.1.2	
10	*Cupressus sempervirens* Mediterranean Cypress	7	0.22	2 x 2	M	D	Sym.	A	**A1**	**MEDIUM**	**2.6**	**2.6**
Assessment		This tree provides the habit typical for the species and has been crown lifted approximately 2m.									See Section 7.1.1	
11	*Chamaecyparis obtusa* 'Crippsii' Golden Hinoki False Cypress	5	0.17 0.15 0.12	5 x 5	M	D	Sym.	A	**A2**	**MEDIUM**	**3.1**	**1.9**

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality	SULE Rating	STARS Rating	TPZ	SRZ
Assessment		This tree forms a screen planting together with tree No. 12. It provides the habit typical for the species.									See Section 7.1.5	
12	*Chamaecyparis obtusa* 'Crippsii' Golden Hinoki False Cypress	5	0.22	5 x 5	M	D	Sym.	A	**A2**	**MEDIUM**	**2.6**	**2.6**
Assessment		This tree forms a screen planting together with tree No. 11. It provides the habit typical for the species.									See Section 7.1.3	

A. Incomplete identification of species due to insufficiently available plant material
B. Diameter taken below 1.4m due to low stem bifurcation
C. estimate due to the overgrown area and/or limited access
D. deciduous species, void of foliage at the time of assessment
E. Level 3 assessment required to determine the accurate rating

7.0 Site Assessment

The area of study comprises a large 'L' shaped lot. The area has a medium gradient and northeastern aspect, though the rear portion is level. A brick dwelling exists at the front of the lot, and the rear of the lot has been used for livestock, however, is currently overgrown and comprises predominately of Kikuyu, exotic weed species and self-sown trees. The boundaries and particularly the northern and eastern boundary are heavily overgrown and are composed of large screens of privet and other exempt tree species. The northern boundary has a screen planting of silky oak extending adjacent and within the neighbouring lot. The majority of these trees have not been included in this report because the tree protection zones do not encroach into the area of proposed works. The trees included within this assessment are those where the Tree Protection Zones will encroach into the area of the proposed building envelope and drive access. All trees that have been indicated in the survey plan have been included in this report.

The trees labeled as A, B, C, and D, that have been included on the survey drawing (Plan 1) however excluded from this report because of the failure to conform to the description of a prescribed tree based on the Wollongong Councils DCP, exempt species[7].

Tree A: Privet (*Ligustrum lucidum*); <6m high

Tree B: Camphor Laurel (*Cinnamomum camphora*); 15 m high, see Section 7.1.5

Tree C: Silky Oak (*Grevillea robusta*); <10 m high

Tree D; a group planting of Silky Oaks (*Grevillea robusta*) and Melaleuca (*Melaleuca styphelioides)* Within the neighbouring lot. Ranging up to 10 m high and 0.3 m in diameter.

7.1 Proposed development

The proposed development consists of demolition of the existing site structures and the construction of the multi-residential unit development, drive access, and drainage infrastructure.

This report discusses the impact of the proposed design on the trees. Twelve (12) trees have been listed within this report based upon the vicinity of the lot. This has included neighbouring trees where any part of the zones of protection (TPZ, SRZ) to encroach into the lot. Recommendations based on the tree significance and condition, together with the impact on these trees regarding the development for this lot follow.

[7] Wollongong City Council, Wollongong Development Control Plan, 2009, Chapter E17; Preservation & Management of Trees and Vegetation, Appendix 1: Exempt Tree Species List, page 20

7.1.1 Trees and zones of protection (TPZ/SRZ) outside of the proposed design

Trees No. 3, 4, 5, 6 and 10

None of the proposed works conflict with the location of these trees or respective zones of protection. These trees can be retained without impact by the proposed design.

7.1.2 Trees providing a limited useful life expectancy

Trees No. 4 and 9

These trees provide low significance based on the species, habit, and rating and could be removed due to the low amenity value and limited useful life expectancy.

Tree No. 4 is a neighbouring asset, however, is an exempt species, therefore will require permission from the tree owner for removal.

Tree No. 9 is near dead and is not considered viable for retention irrespective of the design impact.

7.1.3 Trees directly conflicting with the design

Tree No. 9 and 12

This tree is located in the footprint of the proposed design and would require removal based on this premise alone. The conflict is summarised as follows;

Tree No. 9; within the footprint of the stormwater design

Tree No. 12; within the footprint of the common drive

7.1.4 Trees subject to a minor encroachment

Trees No. 1 and 8

These trees are not directly located in the footprint of the proposed design, however, are subject to a *minor encroachment*. That is, the proportion (<10%) of encroachment provided by design will not adversely impact on the tree. These trees could be retained relative to the design.

Tree No. 1; this neighbouring tree group is subject to a combination of no encroachment, minor encroachment for all but one of the seven trees (by the building footprint), where a major encroachment of 15% exists. Based on the adaption of these trees to the existing drive location, benefits from the grafted root zone and small proportion of encroachment (five percentage points) in excess of a minor encroachment, this tree group is considered to be capable of long term retention without adverse impact.

7.1.5 Trees subject to a major encroachment

Trees No. 2, 7 and 11

These trees are not directly located in the footprint of the proposed design, however, are located close and adjacent to the dwelling footprint and subject to a *major encroachment*, that is, in excess of 10% of the TPZ.

The extent and type of encroachment for each tree are discussed and the relative implications.

Tree No. 2: Encroachment: 49%; based on drawing AI-06 (Revision E) The encroachment is divided between three structures, and these are the proposed common driveway and ramp (twenty-three percentage points), communal open space (thirteen percentage points), and the unit U01 (thirteen percentage points). As part of the encroachment by the drive is the stormwater pipe/culvert that extends through the drive centre. This constitutes eight percentage points of the drives encroachment (twenty-one percentage points).

This tree offers a significant specimen planting and is considered viable for retention based on this design, although some design methodology is recommended to reduce the impact that allows for retention of the proposed footprint.

The proportion of encroachment appears excessive, although the outright impact on the tree will be dependent on the form of this encroachment and respective impact provided to the root system contained within the encroachment. Based on this premise, the following discussion refers to the encroachment and means for mitigating the impact.

The encroachment of (thirteen percentage points) by the unit U01 predominately consists of the rear deck which, based on the Section F (drawing A1-42) is suspended above natural grade. This encroachment, although major, is three percentage points in excess of a minor encroachment. However, the accumulative impact with that provided by the drive necessitates design measures that can reduce the overall impact. The means for support is not illustrated; however, is capable of allowing a footing type that retains the majority of the root system contained within the encroachment by Unit 1. Therefore the following condition is required for the footings supporting the rear of unit 1.

1. The footings shall be pier or screw type within the area of the TPZ, i.e., 9.8m radius from the tree.
2. No strip type excavation can occur in this area of the TPZ, i.e., 9.8m radius from the tree.

The encroachment of (thirteen percentage points) by the 'communal open space' consists of a split level deck which, based on the drawing A1-06, is suspended above natural grade. This encroachment, although major, is three percentage points in excess of a minor encroachment. However, the accumulative impact with that provided by the drive and unit 1 necessitates design measures that can reduce the overall impact. The

means for support is not illustrated; however, is capable of allowing a footing type that retains the majority of the root system contained within the encroachment by Unit 1. Therefore the following condition is required for the footings supporting the 'communal open space'.

3. The footings shall be pier or screw type within the area of the TPZ, i.e., 9.8m radius from the tree.

4. No strip type excavation can occur in this area of the TPZ, i.e., 9.8m radius from the tree.

5. The deck will be porous and allow water percolation and gas exchange with the natural grade.

The remaining encroachment that consumes twenty-three percentage points and is outside of the SRZ consists of the drive and ramp. Based on Section A (drawing A1-40), the drive grade occurs predominately above grade. Therefore accounting for a drive that is up to 150mm thick, will retain that portion of root system that resides in this area of encroachment. This will not impact on the stability, and accounting for a drive surface that is porous/flexible, will retain the vitality. Based on this premise, the existing drive/ramp footprint can be retained, although it will require the design to conform to the following conditions.

6. The area where the TPZ extends into the proposed drive/ramp retains the natural grade.

7. A flexible type drive/ramp surface that allows for water percolation in the area of the TPZ (9.8m radius) from this tree is employed. For example, porous pavers or *Filtapave*™.

8. The ramp can be timber construction. Otherwise, masonry construction will require to be supported by piers and not employ any strip type excavation.

9. Sub-surface utilities (electricity, communication, etc.) will be required to extend from the street to service the Units U02 to U11. Due to the existing encroachment on Tree No. 2, any further trenching for these utilities will be required to be limited to the gap between the southern boundary and drive centre, where the stormwater pipe/culvert are proposed.

Tree No. 7: Encroachment: 12%; based on drawing AI-06 (Revision E) The encroachment consists of the construction of the proposed unit 07. This is only two percentage points over a minor encroachment and is not considered overly detrimental to the tree. This does not consider the scaffolding required for construction nor other utilities, drainage, etc. that may also increase the encroachment.

Tree No. 11: Encroachment: 30%; based on drawing AI-06 (Revision E), the encroachment consists of the construction of the common driveway. This will present excessive root removal (TPZ and SRZ) that would unlikely to sustain the tree. This does not consider the scaffolding required for construction nor other utilities, drainage, etc. that may also increase the encroachment.

Tree B: Camphor Laurel (*Cinnamomum camphora*); Although exempt, discussion has suggested a potential shared asset with the neighbouring lot. The extent of encroachment has not been calculated, although consists of the 'communal open space' which consists of a split level deck which, based on the drawing A1-06, is suspended above natural grade. Therefore retaining the predominate root system. Although this deck is set back from the boundary, it will encroach into the SRZ, therefore based on the retention of this tree, the following condition is required to accommodate this tree.

10. No piers can be located in the area of the SRZ, assumed 3m radius from the tree centre.

7.2 Sub-surface utilities

No drawings have been provided for the proposed route of sub-surface utilities, other than stormwater. The stormwater design does not provide any further conflict to the trrees other than the tree (group) No. 1 and No. 9. Tree No. 9 has been addressed, Section 7.1.3. Tree No. 1, has a proposed swale extending parrallel with the boundary line (linear planting) and within the TPZ's on the Drawing C01 (Section 4.4.3). Based on the swale section on Drawing C03, the swale is earth type, that is no sealed surfaces with a depth of 69mm, therefore based on a mild cut and mild fill either side, the cut is minimal (i.e 35mm) and accounting for the existing drive, is not considered to provide any adverse impact on this tree group.

Any trenching, other than what has been allowed for should be avoided within the area of the TPZ's for any tree nominated for retention. Any proposed route shall be re-routed outside of the TPZ. Under boring may be required if a limitation for the route of a service is restricted to an area that falls within the TPZ from any tree. Any excavation in the area of a TPZ must be authorised and conditioned by the project arborist.

7.3 Protection measures

The following protection measures are required to be implemented for the following trees before initiation of site works (including demolition/excavation) and retained until the landscaping works are required unless otherwise specified.

7.3.1 Ground protection: Tree No. 2

Ground protection is required to be laid in the area where the proposed drive is located. This is based on the assumption that this area will provide the primary means for access to the rear of the lot. Access to the rear of the lot must be confined to one side of Tree No. 2 only. If alternative access is required as opposed to Plan 2, Appendix B, then the project arborist must allow for the design location of the protection measures.

7.3.2 Protective fence: Trees No. 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10

A protective fence is required to be installed to protect the TPZ from all site-related work and are recommended to be located in accordance with the requirements of the AS 4970, listed in Appendix C. The fence is required to be secured to the ground with pegs to avoid movement during construction. This must be installed prior to the commencement of any demolition, excavation or construction works and shall be maintained throughout the entire construction phase of the development, and until landscaping works (including the deck construction) and installation of the drive/cross-overs is required.

Mulch; Install a mulch of composted coarse wood chips to 50-75 mm depth (and no deeper) over the area of the TPZ. The mulch is required to extend over all areas of exposed ground. The mulch must be maintained at a minimum depth of 50-75 mm for the duration of the project.

The location of the protective measures has been illustrated in Plan 2, Appendix B.

7.3.3 Tree No. 2; Conditions of demolition

The following conditions are required during the demolition stages for the zones of protection of Tree No. 2.

1. The demolition process must remove all other site structures before removal of the concrete surfaces (including the portion of the drive) that are within the TPZ (9.8m radius). These will be the final structures removed from the site.
2. Machinery can be used for part of this removal, however, must always be retained to a hard surface (drive or slab). No machine should on any occasion work on a soil/lawn based surface within the area of the TPZ.
3. That part of the concrete surface that falls within the area of 4m radius from the girth of the tree must be removed via hand tools, e.g., Jackhammers, etc. removal of the remaining concrete must disturb as

little area beneath the drive surface as possible. That is, the removal of this area should not carry any soil with it.

4. If machinery is required to enter the TPZ where no hard surface exists, then ground protection methods are required to be employed. Any machinery used within this process must provide for a minimum height of 2500mm, and that sufficient clearance is offered beneath the branch structure and machine to avoid injury. No pruning can occur for access to machinery.
5. After removal of the concrete surface, a soil conditioner is required to be applied immediately over the TPZ previously covered by the slab.
   Soil Conditioner: A non synthetic type is recommended such as 'Seasol,' 'Tri-Kelp' and applied as a diluted root drench via a hose applicator, appropriate to the manufacturer's recommendations. In addition to the soil drench, a surfactant (wetting agent) and carbohydrate treatment, will aid with the wetting and movement of water in the ground. The carbohydrate treatment includes the addition of 25-50 gms of caster sugar per litre of water. These three ingredients can be combined and applied via a single application.

7.3.4 Conditions for compliance

The following conditions are required before any works proceed on site.

Site induction; All workers related to the construction process and before entering the site must be briefed about the requirements/conditions outlined in this report relative to the zone of protection, measures, and specifications before the initiation of work. This is required as part of the site induction process.

Project Arborist; A project arborist who conforms to the requirements of the AS 4970 is required to be nominated immediately after a *Notice of Determination* is issued, and they are to be provided with all related site documents.

7.4 Compliance Documentation

The following stages will require assessment and documentation (report, letter, certification) by the project arborist or person responsible for the specific work type, and the related documentation is to be issued to the principal certifying agent.

7.4.1 Table 2; Assessment/Certification stages

Stage	Work type	Document required
Pre- works	Installation of the protection measures, Section 7.3	Certificate*

During demolition	Project arborist is present during the removal of the concrete surfaces	Certificate*
During construction	Any further works required within the area of the TPZ, or decline related to the trees that have not been covered by this report.	Report Brief
During construction	Any crown modification including pruning or root disturbance.	Report Brief

Construction refers to the time between the initiation of demolition and until an occupation certificate is issued.

***Mandatory**

8.0 Protection Specification

The retention and protection of trees provide for the requirement of the Tree Protection Zone (TPZ) to conform to the conditions outlined below. These conditions provide the limitations of work permitted within the area of the Tree Protection Zone (TPZ) and must be adhered to unless otherwise stated.

1. Foundation/footing types should not be strip type, but utilise footing types that are sympathetic towards retaining root system that is, screw, pier, etc. Slab on the ground can be accommodated in some circumstances and will be nominated by the project arborist. The extent of encroachment will be dependent upon the tree species, soil type (texture and profile) and gradients.

2. Subsurface utilities can extend through the TPZ and Structural Root Zone (SRZ), however, are limited to the method of installation. That is under boring is permitted, however trenching is limited and depends on the proposed route within the TPZ. No trenching is permitted within the area of the TPZ unless stipulated by the project arborist.

3. Crown pruning can be accommodated, however, must conform to the AS 4373; *Pruning of Amenity Trees*, and not misshape the crown nor remove in excess of 10-15% of the existing crown, pending on the species, and vitality. The opportunity for, type and proportion of pruning will be required to be nominated by the project arborist.

4. Soil levels within the TPZ must remain the same. Any excavation within the TPZ must have been previously specified and allowed for by the project arborist:

   a) So it does not alter the drainage to the tree.

b) Under specified circumstances,

- Added fill soil does not exceed 100mm in depth over the natural grade. Construction methodologies exist that can allow grade increases in excess of 100mm, via the use of an impervious cover, an approved permeable material or permanent aeration system or other approved methods.

- Excavation cannot exceed a depth of more than 50mm within the area of the TPZ, not including the SRZ. The grade within the SRZ cannot be reduced without the consent from a project arborist.

5. No form of material or structure, solid or liquid, is to be stored or disposed of within the TPZ.

6. No lighting of fires is permitted within the TPZ.

7. All drainage runoff, sediment, concrete, mortar slurry, paints, washings, toilet effluent, petroleum products, and any other toxic wastes must be prevented from entering the TPZ.

8. No activity that will cause excessive soil compaction is permitted within the TPZ. That is, machinery, excavators, etc. must refrain from entering the area of the TPZ unless measures have been taken, and with consultation with the project, arborist to protect the root zone.

9. No site sheds, amenities or similar site structures are permitted to be located or extend into the area of the TPZ unless the project arborist provides prior consent.

10. No form of construction work or related activity such as the mixing of concrete, cutting, grinding, generator storage or cleaning of tools is permitted within the TPZ.

11. No part of any tree may be used as an anchorage point, nor should any noticeboard, telephone cable, rope, guy, framework, etc. be attached to any part of a tree.

12. (a) All excavation work within the TPZ will utilise methods to preserve root systems intact and undamaged. Examples of methods permitted are by hand tools, hydraulic, or pneumatic air excavation technology.

(b) Any root unearthed which is less than 50mm in diameter must be cleanly cut and dusted with a fungicide, and not allowed to dry out, with minimum exposure to the air as possible.

(c) Any root unearthed which is greater than 50mm in diameter must be located regarding their directional spread and potential impact. A project arborist will be required to assess the situation and determine future action regarding retaining the tree in a healthy state.

Project Arborist: person nominated as responsible for the provision of the tree assessment, arborist report, consultation with stakeholders, and certification for the development project. This person will be adequately experienced and qualified with a minimum of a level 5 (AQF); Diploma in Horticulture (Arboriculture)[8].

[8] Based upon the definition of a 'consulting arborist' from the AS 4970; Protection of trees on development sites; 2009, section 1.4.4, p 6.

9.0 Summary of tree impact

Based on the design supplied, the following summary provides the impacts imposed on the trees included in this report.

9.1 Trees No. 1, 2, 3, 4, 5, 6, 7, 8, 10 and B

These trees can be retained relative to the nominated zones of protection (TPZ, SRZ) and based on the requirements of the Protection Specification, Section 8.0. The following conditions are required for specific trees;

9.1.1 Tree No. 2

The following conditions is required for the footings supporting the rear of unit 1.

1. The footings shall be pier or screw type within the area of the TPZ, i.e., 9.8m radius from the tree.
2. No strip type excavation can occur in this area of the TPZ, i.e., 9.8m radius from the tree.

The following conditions is required for the footings supporting the 'communal open space'.

3. The footings shall be pier or screw type within the area of the TPZ, i.e., 9.8m radius from the tree.
4. No strip type excavation can occur in this area of the TPZ, i.e., 9.8m radius from the tree.
5. The deck will be porous and allow water percolation and gas exchange with the natural grade.

The following conditions is required for the drive/ramp footprint.

6. The area where the TPZ extends into the proposed drive/ramp retains the natural grade.
7. A flexible type drive/ramp surface that allows for water percolation in the area of the TPZ (9.8m radius) from this tree is employed. For example, porous pavers or *Filtapave*™.
8. The ramp can be timber construction. Otherwise, masonry construction will require to be supported by piers and not employ any strip type excavation.
9. Sub-surface utilities (electricity, communication, etc.) will be required to extend from the street to service the Units U02 to U11. Due to the existing encroachment on Tree No. 2, any further trenching for these utilities will be required to be limited to the gap between the southern boundary and drive centre, where the stormwater pipe/culvert are proposed.

9.1.2 Tree B

Although exempt, discussion has suggested a potential shared asset with the neighbouring lot. The following condition is required to accommodate this tree.

11. No piers can be located in the area of the SRZ, assumed 3m radius from the tree centre.

12. The footings shall be pier or screw type within the area of the TPZ, i.e., 9.8m radius from the tree.

13. No strip type excavation can occur in this area of the TPZ, i.e., 9.8m radius from the tree.

14. The deck will be porous and allow water percolation and gas exchange with the natural grade.

9.2 Trees No. 9, 11 and 12

The proposed design will adversely impact on these trees and would require removal to accommodate the proposal. Tree No. 9 provides poor form and a limited useful life expectancy and could be removed irrespective of the proposed works.

9.3 Sub-surface utilities

No drawings have been provided for the proposed route of sub-surface utilities, other than stormwater. Any trenching, other than what has been allowed for should be avoided within the area of the TPZ's for any tree nominated for retention. Any proposed route shall be re-routed outside of the TPZ. Under boring may be required if a limitation for the route of a service is restricted to an area that falls within the TPZ from any tree. Any excavation in the area of a TPZ must be authorised and conditioned by the project arborist.

9.4 Protection measures

Protection measures (outlined in Section 7.3 and 7.4) are required to be implemented for the trees nominated for retention (referenced in Section 9.1) and installed before initiation of site works (including demolition/excavation) and retained until the landscaping works are required unless otherwise specified.

All workers related to the construction process and before entering the site must be briefed about the requirements/conditions outlined in this report relative to the zone of protection, measures, and specifications before the initiation of work.

A project arborist is required to be nominated, and the stages and related certification or similar documentation is to be issued to the principal certifying agent.

The opinions expressed in this report by the author have been provided within the capacity of a Consulting Arborist. Any further explanation or details can be provided by contacting the author.

Assessed and Prepared by Geoff Beisler
Consulting Arborist
Level 5 Arborist
ISA Tree Risk Assessment Qualification

Prepared and checked by Warwick Varley
Consulting Arborist; Principal
Level 5 and 8; Arborist
ISA Tree Risk Assessment Qualification
IACA and ISA Member

10.0 Appendix A- Terminology Defined

Height
Is a measure of the vertical distance from the average ground level around the root crown to the top surface of the crown, and on palms - to the apical growth point.

DBH
Diameter at Breast Height – being the stem diameter in meters, measured at 1.4m from ground level, including the thickness of the bark.; Mult. refers to multiple stems, that is in excess of 4 stems.

Crown Spread
A two-dimension linear measurement (in metres) of the crown plan. The first figure is the north-south span, the second being the east-west measurement.

Age
Is the estimate of the specimen's age based upon the expected lifespan of the species. This is divided into three stages.

Young (Y)	Trees less than 20% of life expectancy.
Mature (M)	Trees aged between 20% to 80% life expectancy.
Over-mature (O)	Trees aged over 80% of life expectancy with probable symptoms of senescence.

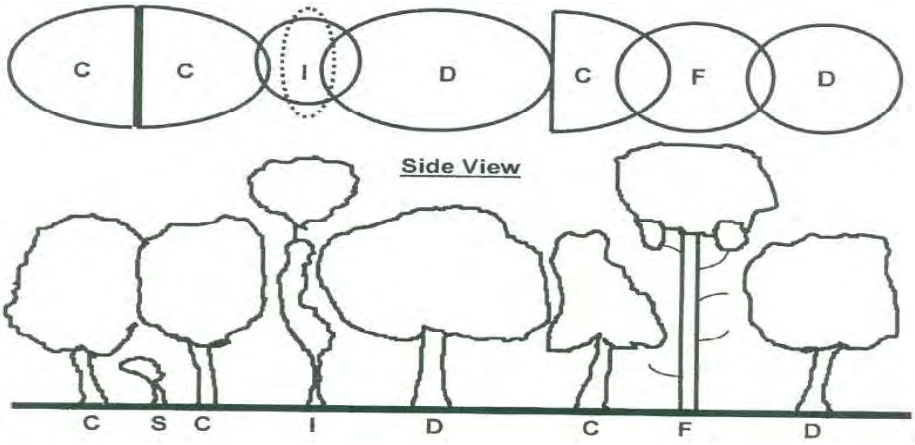
Crown Aspect
In relation to the root crown, this refers to the aspect the majority of the crown resides in. This will be either termed Symmetrical (Sym.) where the centre of the crown resides over the root crown or the cardinal direction the centre of the crown is biased towards, being either North (N), South (S), East (E) or West (W).

Vitality Rating
Is a rating of the health of the tree, irrespective and independent of the structural integrity, and defined by the 'ability for a tree to sustain its life processes' ((Draper, Richards, 2009). This is divided between three variables, and based on the assessment of symptoms including, but not limited to; leaf size, colour, crown density, woundwood development, adaptive growth formation, and epicormic growth.
A: Normal vitality, typical for the species
B: Below average vitality, possibly temporary loss of health, partial symptoms.
C: Poor vitality; obvious decline, potentially irreversible

Crown Class
Is the differing crown habits as influenced by the external variables within the surrounding environment. They are:

D	– *Dominant*	Crown is receiving uninterrupted light from above and sides, also known as emergent.
C	– *Codominant*	Crown is receiving light from above and one side of the crown.
I	– *Intermediate*	Crown is receiving light from above but not the sides of the crown.
S	– *Suppressed*	Crown has been shadowed by the surrounding elements and receives no light from above or sides.
F	– *Forest*	Characterised by an erect, straight stem (usually excurrent) with little stem taper and virtually no branching over the majority of the stem except for the top of the tree which has a small concentrated branch structure making up the crown.

Top View



D C, I & S, and side view, after (Matheny, N. & Clark, J. R. 1998, Trees Development, Published by International Society of Arboriculture, P.O. Box 3129, Champaign IL 61826-3129 USA, p.20, adapted from the Hazard Tree Assessment Program, Recreation and Park Department, City of San Francisco, California).

Levels of assessment

Level 1: Limited visual: a visual tree assessment for the purpose of managing large populations of trees within a limited time span and in order to identify obvious faults which would be considered imminent.

Level 2: Basic assessment: a standard performed assessment providing for a detailed visual assessment including all parts of the tree and surrounding environment and via the use of simple tools.

Level 3: Advanced assessment: specific type assessments conducted by either arborist who specialise with specific areas of assessment or via the use of specialised equipment. For example, aerial assessment by use of an EWP or rope/harness, or decay detection equipment.

All other definitions are referenced from;

Draper D.B., Richards P.A., 2009, Dictionary for Managing Trees in Urban Environments CSIRO Pub., Australia

Significance Rating, Significance of a Tree Assessment Rating System (S.T.A.R.S), IACA, 2010[9]

Tree Significance – Assessment Criteria

1. High Significance in landscape

- The tree is in good condition and good vitality;
- 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 vitality;
- 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 vitality;
- 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,

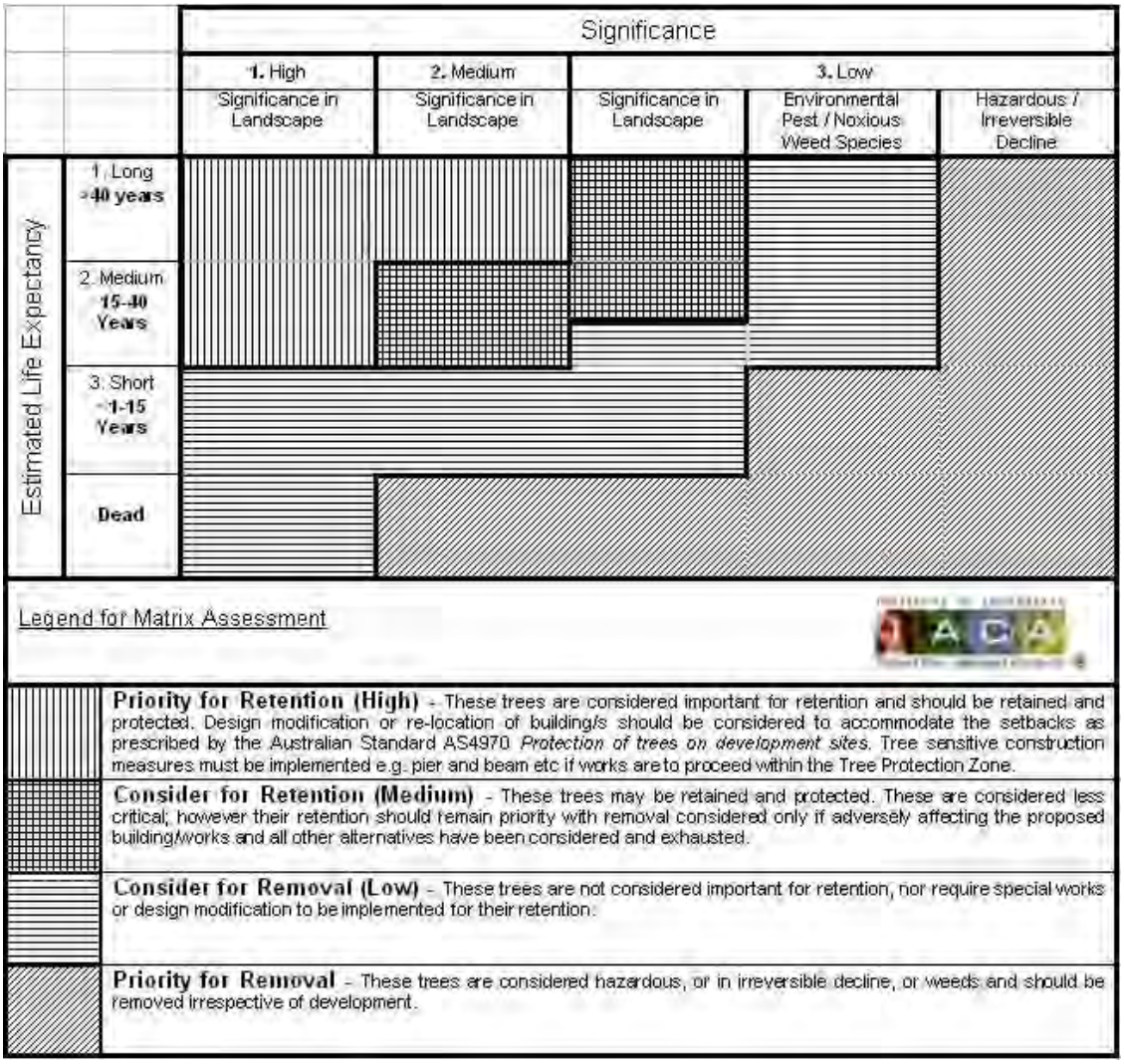
[9] IACA, 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

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.

Table 3; Tree Retention Value – Priority Matrix.



Safe Useful Life Expectancy – S.U.L.E (Barell 1995)

	1. Long	2. Medium	3. Short	4. Removal	5. Moved or Replaced
	Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.	Trees that appeared to be retainable at the time of assessment for 15 – 40 years with an acceptable level of risk.	Trees that appeared to be retainable at the time of assessment for 5 – 15 years with an acceptable level of risk.	Trees that should be removed within the next 5 years.	Trees which can be reliably moved or replaced.
A	Structurally sound trees located in positions that can accommodate future growth.	Trees that may only live between 15 and 40 years.	Trees that may only live between 5 and 15 more years.	Dead, dying, suppressed or declining trees through disease or inhospitable conditions.	Small trees less than 5m in height.
B	Trees that could be made suitable for retention in the long term by remedial tree care.	Trees that may live for more than 40 years but would be removed for safety or nuisance reasons.	Trees that may live for more than 15 years but would be removed for safety or nuisance reasons.	Dangerous trees through instability on recent loss of adjacent trees.	Young trees less than 15 years old but over 5m in heights
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	Trees that may live for more than 40 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.	Trees that may live for more than 15 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Damaged trees through structural defects including cavities, decay, included bark, wounds or poor form.	Trees that have been pruned to artificially control growth.
D		Trees that could be made suitable for retention in the medium term by remedial tree care.	Trees that require substantial remedial tree care and are only suitable for retention in the short term.	Damaged trees that are clearly not safe to retain.	
E				Trees that may live for more than 5 years but should be removed to prevent interference with more suitable individuals or to provide space for new plantings.	
F				Trees that are damaging or may cause damage to existing structures within 5 years.	
G				Trees that will become dangerous after removal of other trees for reasons given in (A) to (F).	

TPZ; Tree Protection Zone
Is an area of protection required for maintaining the trees vitality and long-term viability. Measured in meters as a radius from the trees centre. The requirements of this zone are outlined within the Protection Specification, Section 8.0, and are to be adhered to unless otherwise stated.

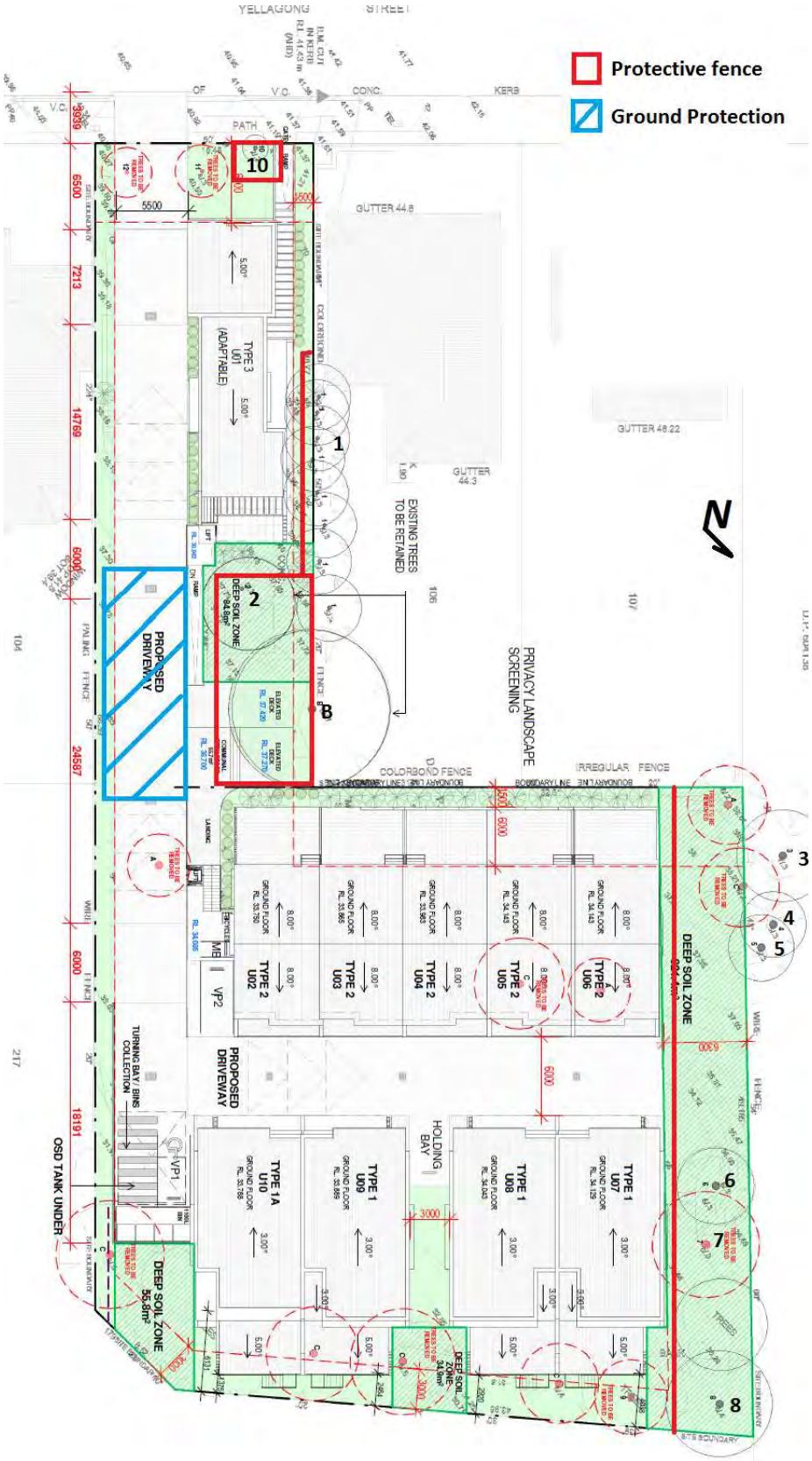
The size of the Tree Protection Zone (TPZ) has been calculated from the *Australian Standard, 4970; 2009* – Protection of Trees on Development Sites

The TPZ does not provide the limit of root extension, however, offers an area of the root zone that requires predominate protection from development works. The allocated TPZ can be modified by some circumstances; however will require compensation equivalent to the area loss, elsewhere and adjacent to the TPZ.

SRZ; Structural Root Zone
Is the area around the tree containing the woody roots necessary for stability. Measured in meters as a radius from the trees centre. The requirements of this zone are outlined within the Protection Specification, Section 8.0, and are to be adhered to unless otherwise stated.

Protection Measures
These are required for the protection of trees during demolition/construction activities. Protective barriers are required to be installed before the initiation of demolition and/or construction and are to be maintained up to the time of landscaping. Samples of the recommended protection measures are illustrated in Appendix C.

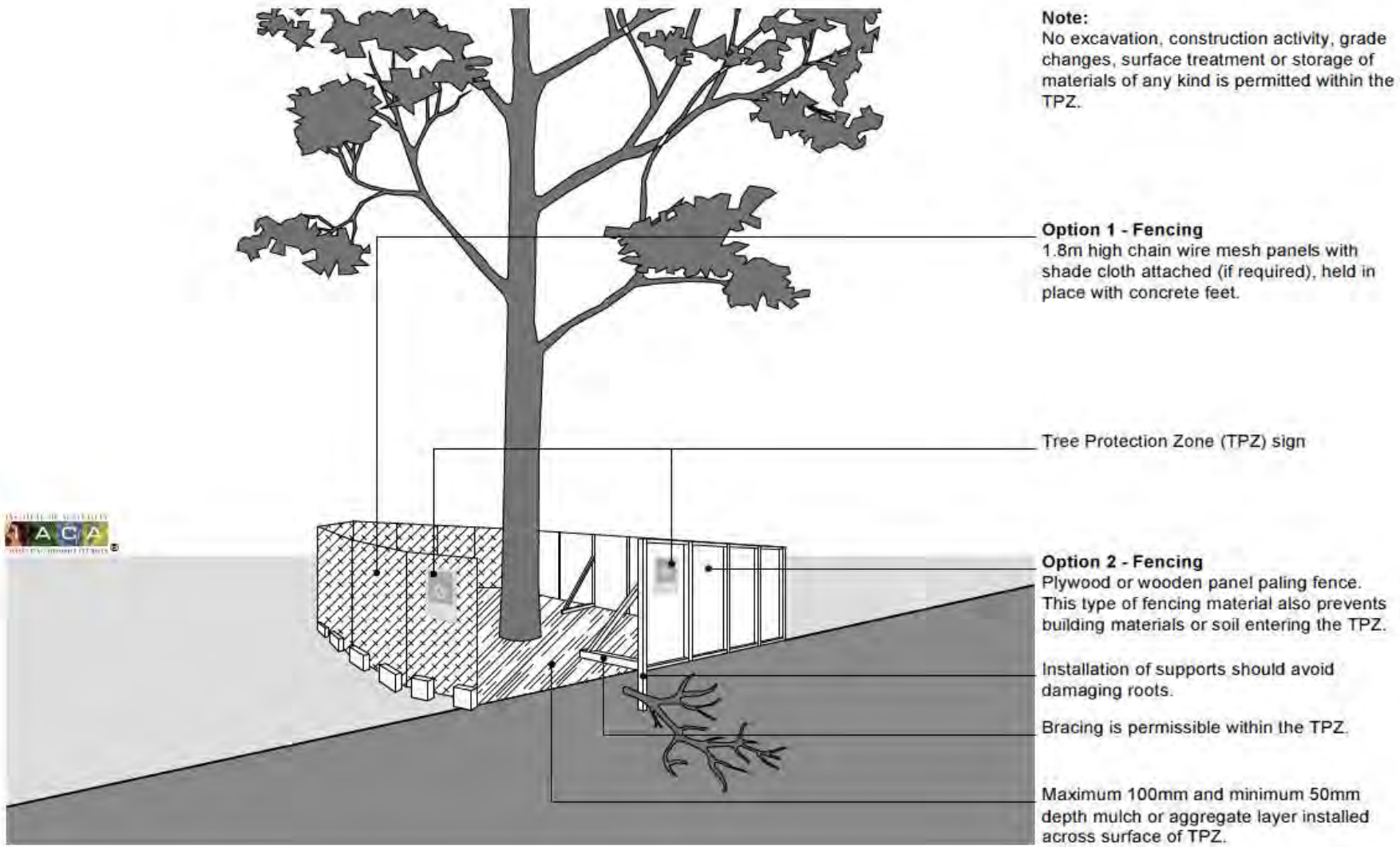
Appendix B- Plan 2; Zones and measures of protection



Not to scale

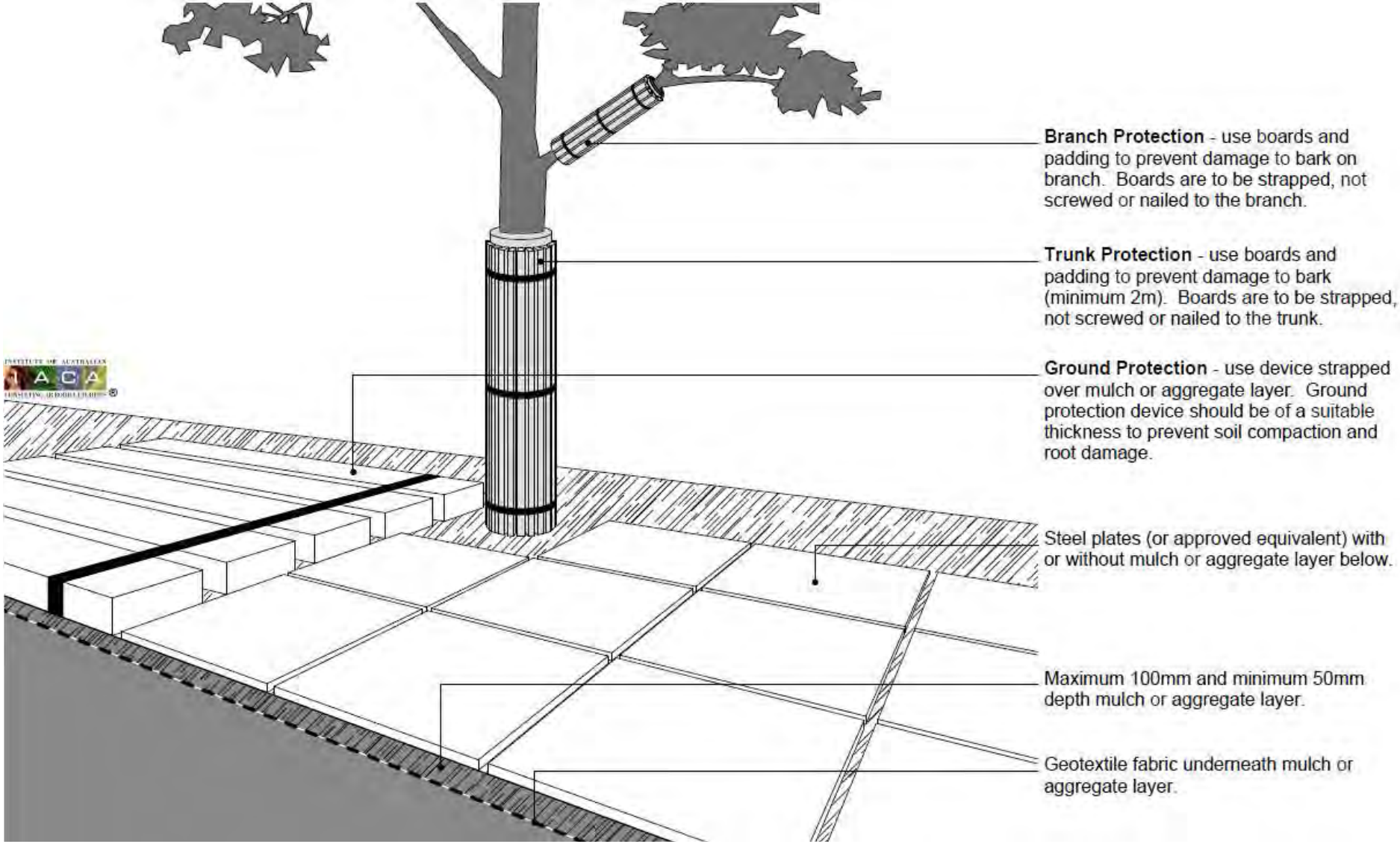
Source: Adapted from DWA, Drawing A1-06, See Section 4.4.2

Appendix C- Protection measures;
Protective fence



Tree protection zone sign; requirements

Stem and Ground protection



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EXCEPTION TO DEVELOPMENT STANDARD VARIATION STATEMENT

Minimum Site Width

Address: **35 Yellagong Street, West Wollongong**
Proposal: **Multi Dwelling Housing Development**
Date: **June 2019**

1.0 Introduction

The purpose of this variation statement is to outline the justification for seeking an exception to the minimum site width for multi dwelling housing (being a development standard) contained within the *Wollongong Local Environmental Plan 2009 (WLEP 2009).*

The advice herein relates to an application for the proposed demolition of existing structures and construction of a new multi dwelling housing (MDH) residential development, comprising of ten (10) x townhouses at 35 Yellagong Street, West Wollongong (the site).

The property is legally referred to as Lot 105 DP 25391.

In the main, the proposed development involves:-

- Demolition of existing structures;
- Construction of four (4) x three (3) bedroom double storey dwellings (Type 1);
- Construction of five (5) x three (3) bedroom triple storey dwellings (Type 2);
- Construction of one (1) x three (3) bedroom double storey adaptable housing dwelling (Type 3);
- On-site parking for a total of twenty two (22) cars, including twenty (20) resident parking spaces in the form of double garages for each dwelling, and two (2) visitor parking spaces;

- The provision of an external landscaped communal open space area; and
- Removal of selected trees, with the provision of associated supplementary replacement plantings/landscaping and stormwater drainage.

A separate approval will be obtained in future for strata title subdivision of the subject development.

The details of this proposal are shown within the development drawings prepared by Design Workshop Australia (attached to the application), which identifies the proposed site width in question.

The proposed development application seeks to provide an appropriate and balanced development/environmental outcome for the subject site, and the West Wollongong area as a whole. In doing so, an exception to a development standard contained within *Wollongong Local Environmental Plan (LEP) 2009* has been adopted. In this regard, the proposed development generally accords with all *LEP* controls, apart from a numerical variation being requested to the minimum site width development standards contained within *Clause 7.14 Minimum site width.*

The request is in writing to address the relevant provisions within *Clause 4.6*, to demonstrate that strict compliance with the development standard in unreasonable in the circumstances of the case, and that there are sufficient environmental planning grounds to justify the proposed variation sought.

This statement has been prepared in accordance with the NSW Department of Planning Infrastructure (DPI) guideline "*Varying Development Standards: A Guide*" dated August 2011. Applications to vary development standards should also address the 'five-part test' established by the NSW Land and Environment Court (LEC) to determine whether the objection is well founded.

The commentary provided herein outlines the development standard variation being proposed, which should be read in conjunction with the Statement of Environmental Effects and other documentation submitted to Council in support of the application.

Accordingly, the information below addresses the afore-mentioned requirements.

1.2 Overview

The land is zoned R2 Low Density Residential under the *WLEP 2009*. The zone objectives are as follows:

- *To provide for the housing needs of the community within a low density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*

The relevant zoning objectives outline a need to provide for the housing needs of the community and allow other uses to meet the day to day needs of residents (as above).

The proposed development is permissible within the R2 zone as Multi dwelling housing providing for the housing needs of the community.

Such a proposal is in high demand for the immediate area (from a land use perspective) and the site itself is very accessible from a patronage and public transport viewpoint. Thus, the proposed development directly accords with the objectives of this zone.

2.0 Details of the environmental planning instrument, the applicable development standard and proposed variation.

2.1 What is the applicable environmental planning instrument (EPI)?

The *Wollongong Local Environmental Pan 2009 (WLEP 2009).*

2.2 What is the development standard being varied?

The Minimum site width for multi dwelling housing contained in *Part 7 - Clause 7.14(1)* of the *WLEP 2009* which states:

"Development consent must not be granted for development for the purposes of multi dwelling housing unless the site area on which the development is to be carried out has a dimension of at least 18 metres."

In this regard, the site is a battle axe allotment and has a site width of 16.46m. The site width of 16.46m continues for 48.77m (being the access handle) where the site then widens to 49.07m.

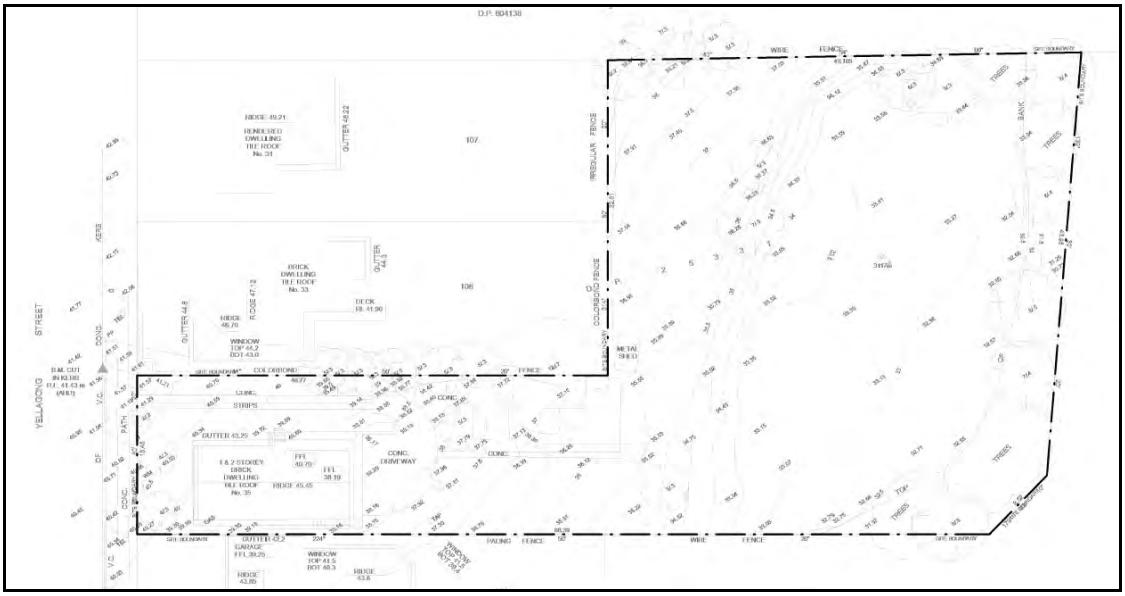

Figure 1: *Survey Plan (*Source: JRK Surveys)*

2.3 What are the objectives of the standard?

There are no stated objectives under the LEP, however, the objectives stated in *Section 5.1.1* of the *Wollongong Development Control Plan 2009 (WDCP 2009) - Chapter B1* in relation to minimum site width are considered most relevant in this instance, and provide for the following:

(a) *To allow for development of sites which are of sufficient size to accommodate the required building envelope, car parking and landscaping requirements; and*

(b) *To encourage amalgamation of allotments to provide for improved design outcomes.*

2.4 What is the percentage variation (between the proposal and the EPI)?

The minimum site width permitted is 18 metres. The application proposes a site width of 16.46m. As such, the proposal has a deficit of 1.54m, which represents a variation of 8.5%.

3.0 Assessment of Proposed Variation

3.1 Overview of *Clause 4.6*

Clause 4.6 provides a framework for varying the applicable development standards under a LEP.

The objectives of this clause are as follows:-

> *(a) to provide an appropriate degree of flexibility in applying particular development standards to particular development;*
>
> *(b) to achieve better outcomes for and from development by allowing flexibility in particular circumstances.*

Sub *Clauses (3)(a)* and *(3)(b)* state that development consent must not be granted unless the consent authority has considered a written request from the applicant that seeks to justify the contravention 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.*

Furthermore sub *Clause 4(a)(i)* and (*ii)* provide that development consent must not be granted 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.

In deciding whether concurrence is to be granted or assumed, the following considerations are relevant:-

(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.

3.2 Is compliance with the development standard unreasonable or unnecessary in the circumstances of the case?

Yes, compliance with the development standard is unreasonable in the circumstances, due to:

- The building potential is already limited by the shape of the allotment. Adopting the site width would mean a large part of the subject site would be excluded from any built form. Logically, restricting the built form allowable on the site is completely impractical for a site of this size in an area requiring additional housing and, therefore, totally unreasonable to consider in this instance.

- The proposed variation sought only relates to part of the site, with the other part exceeding the minimum 18 metres site with requirement.

- Strict application and compliance with the control would effectively prohibit a multi dwelling housing development being undertaken on the subject site, despite it being a permitted form of development within the R2 Low Density Residential zone.

- The reduced site width does not result in any undue privacy or overlooking impacts to adjoining properties, by virtue of the proposed architectural interface treatment to these edges (restricted window treatments and dwelling orientations to these boundaries, etc.).

- The proposed variation is only deemed minor in the context of the overall development and will not result in any adverse environmental or planning implications.

- The front portion of the site which fails to meet the minimum site width requirement (is 802.75m^2 and) essentially contains only 1 x dwelling with a gross floor area of 156.5m^2. Effectively, *WDCP 2009 Chapter B1* provides that dwelling houses may be permitted on residential land with no requirements for minimum site width, and therefore it is reasonable to suggest that this part of the site can contain 1 x townhouse as proposed.

- The afore-mentioned development standard requires strict compliance across the whole of the site (generally making allowance for traditional land parcels) and does not make any allowances for irregular shapes lots such as this.

Thus, deeming strict compliance with the minimum site width is unwarranted in the circumstances of this particular case.

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

Yes, there are sufficient environmental planning grounds in the circumstances of the case to justify contravening the development standard. These include:

- The proposed development resulting from this variation will result in no unacceptable adverse environmental impacts.

- The proposed development is a direct design response to the site width the intent to allow the site to respond to the demand for housing in the area.

- The proposed density of the site is considered appropriate for the location, and will not detrimentally affect the visual appearance of the area. The overall height and form of the development is consistent with expected future desired character strategies for the area.

- The proposed development complies with the maximum building height and FSR requirements for this R2 zoned location.

- The layout and built form of the proposed development is contemporary in character and has been designed to reflect the amenity the area.

- The development has been specifically designed to provide a suitable environment for all future inhabitants of the dwellings, whilst respecting the considerations of adjoining land uses.

- Acoustic privacy for future visitors and neighbouring land uses has been taken into account, with the proposed development being designed to limit noise intrusion into adjoining properties through the use of appropriate building materials and associated landscaping noise control treatments.

- The proposal satisfies the objectives and development controls in relation to minimum site width contained within *Clause 5.1* of *Chapter B1* of the *DCP*, as the site in itself is of sufficient size to accommodate the required building envelopes, parking and landscaping requirements.

- *Section 5.1.2* of *Chapter B1* of the *DCP* states that the 18 metre site width requirement can be varied for irregular shaped lots or where the development meets the intent of setbacks, private open space, visual amenity, solar access, built form and landscaping development controls. The proposed development satisfies the intent of all of the above-mentioned DCP development controls.

- Council are seeking to encourage multi dwelling housing in the locality and this form of development is identified in the desired future character statement for West Wollongong in *Chapter D1*.

- The Illawarra Shoalhaven Regional Plan identifies the need for 14,600 additional new homes within the Wollongong LGA by 2036. The proposed development would directly contribute to this target and provide housing to meet the needs of the community.

- The development as proposed will allow for the orderly and economic use of the subject land.

Overall, it is evident from the above commentary provided that there are sufficient planning grounds to justify contravening the site width development standard identified. To this end, strict compliance with the numerical development standards are both unwarranted and unnecessary in this instance.

3.4 Has the development standard been abandoned or destroyed (by Council's own actions) in departing from the standard?

There are many examples within the Woonona area of approved multi dwelling residential developments that fail to meet the 18 metre minimum site width requirement, however, the development standard cannot be said to be abandoned due to the age of these developments and consents, which are likely to precede the current *LEP*.

3.5 Does contravening the development standard raise any matters of significance for the State or regional environmental planning?

No, contravening the development standard in this case does not raise any maters of State or Regional planning significance.

3.6 Is the objection well founded?

For the reasons outlined in the previous sections above, the objection is considered to be well founded in this particular instance. Granting an exception to the development standard can therefore be supported in the circumstances of the case.

The proposed development will be consistent with the outcomes envisaged in the zoning and policy framework. The development is also compatible with the relevant objectives specified in *Section 1.3* of the *EPAA 1979.*

3.7 How would strict compliance hinder the attainment of the objectives specified in Section 1.3 (a) and (c) of the Act?

The objectives set down in *Section 1.3 (a)* and *(c)* are as follows:

> *(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources;*
>
> *(a) to promote the orderly and economic use and development of land;*

Compliance with the standard would not hinder the attainment of the above-mentioned objectives, which aim to encourage development that promotes the social and economic

welfare of the community and a better environment, and co-ordinate the orderly and economic use of land.

The development as proposed is consistent with these objectives as it allows for the orderly and economic use of the land.

Strict compliance with the development standard would require refusal of the proposed multi dwelling housing development, which is inconsistent with the above objectives as it would unreasonably restrict the development potential of the site.

3.8 Is there public benefit in maintaining the development standard?

Broadly speaking, there is public benefit in maintaining the development standard across the LGA as it encourages amalgamation and requires sites to be of a sufficient width to accommodate multi dwelling housing development.

However, fundamentally it does not allow for any variations for irregular shaped lots such as this, which generally comply with the development standard across a large portion of the site in the location where the majority of dwellings will occur.

4.0 Conclusion

The proposed variation is based on the reasons contained within this request for an exception to the *Minimum Site Width* requirement being a development standard contained within the *WLEP 2009*. The proposal will not result in any adverse impacts with regards to the amenity of the adjoining properties.

The proposed non-compliance is unlikely to result in any future precedents given the surrounding pattern of development and the combination of zoning and other associated controls currently in place. More specifically, the shape of the subject site is irregular and the considerations relative to varying this development standards are specific to the proposed development outcome and the environmental setting within which the site is situated.

In conclusion, the objection is considered to be well founded and compliance with the standard in unreasonable in the circumstances of the case.

Yours faithfully,
MARTIN MORRIS & JONES PTY LTD

LUKE ROLLINSON BUrbRegPlan DipArchTech MPIA
DIRECTOR – TOWN PLANNER

Attachment 3

Number of Storeys:

The proposal contravenes the number of storeys requirements outlined within the DCP, as detailed above. The proposed development exceeds the number of storeys permitted in the R2 low density zone (2 storeys) as shown in the architectural plans as the Type 2 unit. The Type 2 unit has 3 storeys comprising a ground level tandem garage, Level 1 living / kitchen / dining area and Level 2 bedrooms.

The objectives of this control are:

(a) To encourage buildings which integrate within the existing streetscape and the desired future character for the area.
(b) To minimise the potential impacts of overshadowing and overlooking on adjacent dwellings and open space areas.

The dwellings have been designed to respond to the topography of the site (i.e. the private open space is provided from Level 1 to a rear level courtyard). There is therefore no overshadowing or overlooking to adjacent dwellings. The ground level does not provide any habitable space and the overall height of the development is less than the height prescribed in the LEP.

The units, whilst not complying with the control achieve the objectives of the control. The development as proposed in this case has no significant adverse impacts on the use or presentation of the dwellings or neighbouring dwellings and is not of significance beyond the dwelling to which it relates.

Side Setbacks:

In terms of the side setback control, all building lines to the respective boundaries achieve a minimum 1.5m setback at ground level. At the upper level the majority of setbacks are completely compliant with the 0.8 x ceiling height calculation, apart from Unit 1 (upper level) to the western boundary (setback of 2.7 metres instead of the variable 3.7 to 3.84 metres calculable – due to topographic profile). In this regard, the wall encroaching within this setback is less than 8 metres in length and incorporates no window openings at this edge from any primary living areas.

The objectives of the above-mentioned guidelines are:-

"(a) To provide adequate setbacks from boundaries and adjoining dwellings to retain privacy levels, views, sunlight and daylight access and to minimise overlooking.

(b) To provide appropriate separation between buildings to achieve the desired urban form.

(c) To optimise the use of land at the rear of the property and surveillance of the street at the front of the property.

(d) To minimise overshadowing of adjacent properties and private or shared open space."

The design considerations employed to the finished floor levels and dwelling orientation of Unit 1 is such that adjoining residents will not be adversely impacted (in terms of either overlooking or solar access) by the slight setback encroachment to the western boundary. The encroachment is for a small amount of building line at the northern boundary (less than 8 metres in length), and will still maintain an appropriate building separation buffer between common boundary line.

Overshadowing impacts have been demonstrated by DWA in their Shadow Diagrams provided (attached to the application), and justify that the adjoining property to the north will have no adverse overshadowing effects created by this variation.

Given the minor nature of this setback encroachment, the proposed variation is deemed acceptable and justified. In this instance, it is considered the desired level of residential amenity expected by Council and the community has been achieved successfully, without the need to strictly adhere to these numerical setback provisions.

Wollongong Design Review Panel
Meeting minutes and recommendations DE-2018/88

Date	3 July 2018
Meeting location	Wollongong City Council Administration Offices
Panel members	(Chair) Iain Stewart
	(Member) Carlo Di Giulio
	(Member) Marc Deuschle
Apologies	Nil
Council staff	John Wood City Wide Development Manager Jim Ponton – Senior Development Project Officer
Guests/ representatives of the applicant	Daniel Thompson – Cardno NSW Michael St Clair - Cardno NSW Janusz Giermanski – AEQ Architects Leigh Pettigove – AEQ Architects B Aly - Owner
Declarations of Interest	Nil
Item number	2
DA number	DE-2018/88
Reasons for consideration by DRP	Voluntary - DRP advice
Determination pathway	Delegation unless triggered by Local Planning Panels Direction of 1 March 2018.
Property address	35 Yellagong Street West Wollongong
Proposal	Multi dwelling housing - eleven (11) units
Applicant or applicant's representative address to the design review panel	
Background	The site was Inspected by the Panel on 3 July 2018
Context and Neighbourhood Character	This townhouse development is a battle-axe site in a residential neighbourhood. Its battle-axe formation allows it to present a consistent street character and hides the extents of the development down slope. The townhouses will potentially benefit from excellent amenity as the development is adjacent an RE1 vegetated creek with a riparian character. It is recommended by the panel that this amenity be enhanced through good landscape design, townhouse orientation and layout, and the location of common area and shared space. The unit facing Yellagong street should address and be entered from the street. This is the accessible unit, so access path and levels will need to be resolved. The entrance hall is capable of being mirrored to address an approach on the north boundary from a gate and address on the street. It was recommended by the panel that the street character between units within the site would be greatly improved by replacing double garage doors with two staggered single garage doors for improved scale, street address and street activation.
Built Form and Scale	It is the panels recommendation that the common area and shared open space be relocated to the southeast of the site edge adjacent the RE1 zone. This permits enlargement of tree canopy extents and moves play areas for children away from the driveway and improves the vista/sightline into the site from the entrance. It also minimises acoustic impacts to adjoining private properties. The unit here on the southeastern corner can be moved back across to the western side of the street to complete the row of units there.

Density	The development is of an appropriate scale and density for the site. There is scope to preserve tree canopy and create good quality shared space and landscaped areas.
Sustainability	Remains to be demonstrated. Built form incorporates passive design elements, verandah, balcony, window and façade shading. Potential for integration of WSUD should be explored to prevent run-off leaving the site. Collection of roof water for irrigation should be integrated.
Landscape	The following recommendations were discussed: The potential to retain many of the existing trees, even some just until new trees are established, to maintain the significant tree canopy and riparian character along the eastern boundary of the site; To relocate the common open space to the southeastern corner and move U11 beside U02. The relocation of the COS means a better visual arrival, ensures a safer environment for users by disconnecting them form the road, and a better connection to the adjacent open space – visual and physical; To retain the proposed common open space around significant retained existing tree adjacent to the driveway but to have this be a more passive space. In conjunction with an adjustment to the driveway, this space could become a focal point of the site; The potential to relocate parking to discrete parallel bays flanking the entry driveway, even if driveway must narrow in parts. Given the levels of the site and adjacent properties, it should be investigated which side this parking could be on. Beyond these recommendations, it appears that boundary levels need more investigation with these plans showing large differences between the proposed and existing levels. This is especially evident along the southern boundary where the thin landscape strip can neither help marry the proposed and existing levels together, or survive if not designed properly. All areas should be planted not turfed. Only if a viable portion of lawn (>25m2) can be achieved in the COS should it be added.
Amenity	Bedroom doors should be discrete and accessed of corridors or lobbies where possible, in preference to being accessed directly off living areas e.g. TV/Play area in unit type 1. Remove the wall separating the study from the TV room, window-less rooms not endorsed by the panel. Windows on the north elevation of unit type 4 face the neighbour and will need to be secondary, at high level and designed defensively. For unit type 3 it was recommended by the panel that the void and ensuite bathroom be mirrored, so that the void contributes to the spatial design of the stair.

	Owing to this unit's proximity to the boundary it was recommended by the panel that the veranda pergola be situated on the upper level and fold down a screen to direct any gaze from the upper level balcony to the veranda below and so shield the neighbour and preserve visual privacy.
Safety	Relocating the entrance address of unit type 4 to the street improves street safety.
Housing Diversity and Social Interaction	Noted
Aesthetics	The façade design incorporates shading, suitable contextual materials and good proportions. The articulation of the street and replacement of double garage doors with staggered single garage doors will create a street context with better scale.
Key issues, further Comments & Recommendations	Prepare DA Submission with recommended amendments.


MAX HT. 41.160
NGL 36.477
TOTAL HEIGHT OF BUILDING ABOVE NGL 2683mm
MAX HT. 40.649
NGL 36.300
TOTAL HEIGHT OF BUILDING ABOVE NGL 4349mm
Type 3R
U06
FFL +36.725
Type 3
U05
Type 3
U04
Type 3
U03
Type 3L
U02
Type 1
U07
FFL +37.113
Type 1
U08
FFL +37.113
Type 1
U09
FFL +36.949
Type 1
U10
FFL +36.949
Type 2
U11
FFL +36.568
Type 4
U01
FFL +40.064
DRIVEWAY
DRIVEWAY
Existing tree to be retained
BBQ
4 500
4 522
4 345
4 800
8 881
6 331
6 393
2 790
2 700
A.003.1
A.003.2
A.003.3
A.003.4

ATTACHMENT 5 - CONDITIONS

The development application has been determined by granting deferred commencement consent subject to the following conditions:

(i) **The Development Consent shall not operate until Council has been satisfied as to the following matter:**

a **Deferred Commencement – Registered Easement**
The applicant must demonstrate that a minimum one (1) metre wide Easement to Drain Water has been registered over Lot 217 within DP 25391 in favour of Lot 105 within DP 25391. The easement must include sufficient area for headwall and scour/erosion protection. Evidence that the changes to the Title have been registered with the NSW Land Registry Services must be submitted to Council.

(ii) The applicant must satisfy Council, within 12 months of the date shown on the top of this consent, that the matters specified in condition number (i) have been complied with. Failure to satisfy Council within that time period will lapse this development consent.

(iii) If compliance with the matters contained in condition number (i) results in a substantial variation to the development approved deferred commencement, a new development application must be submitted.

Once Council is satisfied that the matters contained in condition number (i) have been complied with and the applicant has been notified in writing of such compliance, the following conditions shall apply in respect of the approved development:

The development proposed is integrated development and approval is required from the approval body listed below:

Natural Resources Access Regulator (NRAR)

Pursuant to Section 91A (3) of the Water Management Act 2000 – Controlled Activity Approval – General Terms of Approval issued by NRAR dated 8 March 2019 as attached shall form part of this Notice of Determination.

Conditions imposed by Council as part of this Integrated Development Consent are:

Approved Plans and Specifications

1 The development shall be implemented substantially in accordance with the details and specifications set out on Project No 1912 Drawing AI-06-P, AI-07-P and AI-50-P dated 17 October 2019 and AI-08-L to A-11-L, AI-20-L, AI-21-L, AI-30-L, AI-40 to AI-43-L and AI-51-L dated 17 July 2019 prepared by DWA and any details on the application form, and with any supporting information received, except as amended by the conditions specified and imposed hereunder.

General Matters

2 **Easement for drainage**
The applicant is required to apply to the Statutory Property Section of Council for an easement to drain water over the Council Community Land. There is an application fee of $2045 and compensation will be payable to Council for the easement. The applicant will be required to engage a registered surveyor to prepare the plan of drainage easement and this will need to be registered at the Land Registry Services.

3 **Tree Retention/Removal**

The developer shall retain the existing tree(s) indicated on the Landscape Plans, prepared by Taylor Brammer, issue C 6.08.19 and Arborist report prepared by Allied Tree Consultancy dated June 2019 consisting of tree(s) numbered group 1, 2, group B, 3, 4, 5, group D, 6, 8 and 10.

Any branch pruning, which has been given approval, must be carried out by a qualified arborist in accordance with Australian Standard AS4373-2007.

All tree protection measures are to be installed in accordance with Australian standard AS4970-2009 Protection of Trees on development Sites.

All recommendations in Arborist's Report by Allied Tree Consultancy page no 19-21 to be implemented including and not restricted to: remedial tree pruning, deadwooding, fencing and signage, sediment buffer, stem protection, establishing tree protection zones and watering and root hormone application if required.

Tree removal is to be restricted to 13 trees those numbered 7,9,11,12, group A and group C in the Arborist Report (Allied Tree Consultancy, June 2019). No other trees shall be removed without prior written approval of Council.

4 **Building Work - Compliance with the Building Code of Australia**

All building work must be carried out in compliance with the provisions of the Building Code of Australia.

5 **Construction Certificate**

A Construction Certificate must be obtained from Council or an Accredited Certifier prior to work commencing.

A Construction Certificate certifies that the provisions of Clauses 139-148 of the Environmental Planning and Assessment Amendment Regulations, 2000 have been satisfied, including compliance with all relevant conditions of Development Consent and the Building Code of Australia.

Note: The certifying authority must cause notice of its determination to be given to the consent authority, and to the council, by forwarding to it, within two (2) days after the date of the determination, the plans and documentation referred to in clause 142 (2) of the Environmental Planning and Assessment Regulation 2000.

6 **Mailboxes**

The developer must install mailboxes along street frontage of the property boundary in accordance with Australia Post Guidelines. Prominent house numbers are to be displayed, with a minimum number size of 150 mm in height for each number and letter in the alphabet.

7 **Occupation Certificate**

An Occupation Certificate must be issued by the Principal Certifying Authority prior to occupation or use of the development. In issuing an Occupation Certificate, the Principal Certifying Authority must be satisfied that the requirements of section 6.9 of the Environmental Planning and Assessment Act 1979, have been complied with as well as all of the conditions of the Development Consent.

Prior to the Issue of the Construction Certificate

8 **Flows from Adjoining Properties**

Flows from adjoining properties shall be accepted and catered for within the site. Finished ground and top of retaining wall levels on the boundary shall be no higher than the existing upslope adjacent ground levels. The above requirements must be clearly shown on construction certificate plans prior to the release of the construction certificate.

9 **Designated Overland Flow Paths**

Details of each overland flow path must be provided with the detailed drainage design. Each overland flow path shall be capable of catering for the 1 in 100 year storm event flows from the contributing catchment area. The overland flow path shall be free of any vegetation and/or structures that are likely to impede natural overland flow, or make provision for such

obstructions, so there will be no adverse flood impacts upon future lots and adjoining properties. Full Manning's calculations must be provided on the capacity of each overland flow path. All overland flow paths must be treated with appropriate scour/erosion protection measures in accordance with good engineering practice. These requirements shall be reflected on the Construction Certificate plans and supporting documentation.

10 **Scour Protection**

The stormwater outlet to the watercourse shall be treated with appropriate scour/erosion protection measures in accordance with good engineering practice. All scour protection measures and headwall structures within the watercourse shall be designed and constructed to match existing surface levels to ensure that there will be no change in flooding behaviour. All stormwater outlets shall be taken to the low flow channel and orientated in the direction of natural flow of the receiving watercourse. The final details of the proposed scour/erosion protection measures shall be undertaken by a suitably qualified civil engineer and reflected on Construction Certificate plans.

11 **Protection of Buildings from Ingress of Stormwater Runoff**

Detailed design of the development shall ensure that there will be no ingress of surface stormwater runoff into the proposed buildings. All building entrances shall be provided with a suitable freeboard above the adjacent local blocked pipe situation 100 year ARI water surface level. These requirements shall be reflected on the Construction Certificate plans and supporting documentation prior to the release of the Construction Certificate.

12 **Tree Protection for Tree 2 Araucaria Heterophylla**

The following conditions is required for the footings supporting the rear of Unit 1.

The footings shall be pier or screw type within the area of the tree protection zone, i.e. 9.8m radius from the tree. No strip type excavation can occur in this area of the tree protection zone.

The footings supporting the communal open space shall be pier or screw type within the area of the tree protection zone, i.e. 9.8m radius from the tree. No strip type excavation can occur in this area of the tree protection zone. The section of driveway area that is within the tree protection zone of tree 2 must be a flexible/permeable pavement type that allows for water percolation in the area of the tree protection zone.

These requirements shall be reflected on the Construction Certificate plans and supporting documentation prior to the release of the Construction Certificate.

13 **Driveway Fencing**

The fencing along the proposed driveway adjacent to the dwellings at 33 and 37 Yellagong Street shall satisfy the recommendations for fencing contained in the Carpark Noise Assessment Report prepared by Rodney Stevens Acoustics dated 5 June 2019. This requirement shall be reflected on the Construction Certificate plans.

14 **Present Plans to Sydney Water**

Approved plans must be submitted online using Sydney Water Tap, available through www.sydneywater.com.au to determine whether the development will affect Sydney Water's sewer and water mains, stormwater drains and/or easements, and if further requirements need to be met.

The Certifying Authority must ensure that Sydney Water has issued an approval receipt prior to the issue of a Construction Certificate.

Visit www.sydneywater.com.au or telephone 13 20 92 for further information.

15 The edge of the driveway must be provided with a hob or dish drain to prevent surface water flows from entering the adjoining property. This requirement shall be reflected on the Construction Certificate plans, prior to the release of the Construction Certificate.

16 The submission of a final Landscape Plan to the Principal Certifying Authority, prior to the release of the Construction Certificate. The final Landscape Plan shall address the following requirements:

a planting of indigenous plant species native to the Illawarra Region such as: *Syzygium smithii* (syn *Acmena smithii*) Lilly pilly, *Archontophoenix cunninghamiana* Bangalow palm, *Backhousia myrtifolia* Grey myrtle, *Elaeocarpus reticulatus* Blueberry ash, *Glochidion ferdinandii* Cheese tree, *Livistona australis* Cabbage palm tree, *Syzygium paniculatum* Brush cherry.
A further list of suitable suggested species may be found in Wollongong Development Control Plan 2009 – Chapter E6: Landscaping;

b a schedule of proposed planting, including botanic name, common name, expected mature height and staking requirements as well as number of plants and pot sizes;

c the location of all proposed and existing overhead and underground service lines. The location of such service lines shall be clear of the dripline of existing and proposed trees; and

d any proposed hard surface under the canopy of existing trees shall be permeable and must be laid such that the finished surface levels match the existing level. Permeable paving is to be installed in accordance with the manufacturer's recommendations.

The completion of the landscaping works as per the final approved Landscape Plan is required, prior to the issue of Occupation Certificate.

17 The submission of certification from a suitably qualified and experienced landscape designer and drainage consultant to the Principal Certifying Authority prior to the release of the Construction Certificate, confirming that the landscape plan and the drainage plan are compatible.

18 The implementation of a landscape maintenance program in accordance with the approved Landscape Plan for a minimum period of 12 months to ensure that all landscape work becomes well established by regular maintenance. Details of the program must be submitted with the Landscape Plan to the Principal Certifying Authority prior to release of the Construction Certificate.

19 **Tree Protection and Management**
The existing trees are to be retained upon the subject property and any trees on adjoining properties shall not be impacted upon during the excavation or construction phases of the development. This will require the installation and maintenance of appropriate tree protection measures, including (but not necessarily limited to) the following:

a Installation of Tree Protection Fencing - Protective fencing shall be 1.8 metre cyclone chainmesh fence, with posts and portable concrete footings. Details and location of protective fencing must be indicated on the architectural and engineering plans to be submitted to the Principal Certifying Authority prior to release of the Construction Certificate.

20 **Engineering Plans and Specifications - Retaining Wall Structures Greater than 1m**
The submission of engineering plans and supporting documentation of all proposed retaining walls greater than 1m to the Principal Certifying Authority for approval prior to the issue of the Construction Certificate. The retaining walls shall be designed by a suitably qualified and experienced civil and/or structural engineer. The required engineering plans and supporting documentation shall include the following:

a A plan of the wall showing location and proximity to property boundaries;

b An elevation of the wall showing ground levels, maximum height of the wall, materials to be used and details of the footing design and longitudinal steps that may be required along the length of the wall;

c Details of fencing or handrails to be erected on top of the wall;

d Sections of the wall showing wall and footing design, property boundaries, subsoil drainage and backfill material. Sections shall be provided at sufficient intervals to determine the impact of the wall on existing ground levels. The developer shall note that

the retaining wall, subsoil drainage and footing structure must be contained wholly within the subject property;

e The proposed method of subsurface and surface drainage, including water disposal. This is to include subsoil drainage connections to an inter-allotment drainage line or junction pit that discharges to the appropriate receiving system;

f The assumed loading used by the engineer for the wall design.

g Flows from adjoining properties shall be accepted and catered for within the site. Finished ground and top of retaining wall levels on the boundary shall be no higher than the existing upslope adjacent ground levels.

21 **Property Addressing Policy Compliance**

Prior to the issue of any construction certificate, the developer must ensure that any site addressing complies with Council's **Property Addressing Policy** (as amended). Where appropriate, the developer must also lodge a written request to Council's **Infrastructure Systems & Support – Property Addressing (propertyaddressing@wollongong.nsw.gov.au),** for the site addressing prior to the issue of the construction certificate. Please allow up to 3-5 business days for a reply. Enquiries regarding property addressing may be made by calling 4227 8660.

22 **Street Trees**

The developer must address the street frontage by installing street tree planting. The number and species for this development is one (1) *Tristaniopsis laurina* 200 litre container size, in accordance with AS 2303:2018 Tree stock for landscape use. Street trees are to be installed in accordance with Wollongong Development Control Plan 2009 – Chapter E6: Landscaping. 'Dial Before You Dig' must be consulted prior to any excavation on site. Pot holing must be carried out to determine service location. Tree pits must be adequately mulched, plants installed and staking installed to the satisfaction of WCC Manager of Works. Staking is to consist of min. 3 x 2400 x 50 x 50mm hardwood stakes driven min 600mm into firm ground. Hessian webbing is to be utilised to secure plant stock to industry standard.

These requirements shall be reflected on the Construction Certificate plans and any supporting documentation.

23 **Sizing of Drainage**

All roof gutters, downpipes, pits, and pipelines draining roof areas and other impervious surfaces with no deliberate overflow path to the on-site stormwater detention (OSD) facility, shall be designed to cater for a 1 in 100 year ARI storm event in accordance with AS 3500.3 – Plumbing and Drainage (Stormwater Drainage). Details of gutter/downpipe/pipeline sizes and locations shall be reflected on the Construction Certificate plans.

24 **Stormwater Drainage Design**

A detailed drainage design for the development must be submitted to and approved by the Principal Certifying Authority prior to the release of the Construction Certificate. The detailed drainage design must satisfy the following requirements:

a Be prepared by a suitably qualified civil engineer in accordance with Chapter E14 of Wollongong City Council's Development Control Plan 2009, Subdivision Policy, conditions listed under this consent, and generally in accordance with the concept plan/s lodged for development approval, being the Stormwater Drainage Plan, Job no. 19124, Drawing no. C01, Revision 1, by MSL Consulting Engineers, dated 7 May 2019.

b Include details of the method of stormwater disposal. Stormwater from the development must be piped to natural watercourse.

c Engineering plans and supporting calculations for the stormwater drainage system are to be prepared by a suitably qualified engineer and be designed to ensure that stormwater runoff from upstream properties is conveyed through the site without adverse impact on the development or adjoining properties. The plan must indicate the method of disposal of all stormwater and must include rainwater tanks, existing ground levels, finished surface levels on all paved areas, estimated flow rates, invert levels and sizes of all pipelines.

d Overflow paths shall be provided to allow for flows of water in excess of the capacity of the pipe/drainage system draining the land, as well as from any detention storage on the land. Blocked pipe situations with 1 in 100 year ARI events shall be incorporated in the design. Overflow paths shall also be provided in low points and depressions. Each overflow path shall be designed to ensure no entry of surface water flows into any building and no concentration of surface water flows onto any adjoining property. Details of each overflow path shall be shown on the detailed drainage design.

25 **On-Site Stormwater Detention (OSD) Design**

The developer must provide on-site stormwater detention (OSD) storage for stormwater runoff from the development. The design and details of the OSD system must be provided in conjunction with the detailed drainage design and approved by the Principal Certifying Authority prior to the release of the Construction Certificate. The OSD design and details must satisfy the following requirements:

a Must be prepared by a suitable qualified engineer in accordance with Chapter E14 of the Wollongong DCP 2009.
b Must include details of the Site Storage Requirement (SSR) and Permissible Site Discharge (PSD) values for the site in accordance with Section 12.2.4 of Chapter E14 of the Wollongong DCP2009.
c The OSD facility must be designed to withstand the maximum loadings occurring from any combination of traffic (with consideration to residential and heavy vehicles), hydrostatic, earth, and buoyancy forces. Details must be provided demonstrating these requirements have been achieved.
d The OSD facility shall incorporate a minimum 900mm x 900mm square lockable grate for access and maintenance purposes, provision for safety, debris control screen, and a suitably graded invert to the outlet to prevent ponding.
e Must include discharge control calculations (i.e. orifice/weir calculations) generally in accordance with Section 12.2.6 and 12.5.4 of Chapter E14 of the Wollongong DCP2009.
f Details of the orifice plate including diameter of orifice and method of fixing shall be provided.
g Must include details of a corrosion resistant identification plaque for location on or close to the OSD facility. The plaque shall include the following information and shall be installed prior to the issue of the occupation certificate:
    - The structure is an OSD facility, being part of the stormwater drainage network, and is not to be tampered with.
    - Identification number DA2018/1630;
    - Any specialist maintenance requirements.
h Must include a maintenance schedule for the OSD system, generally in accordance with Chapter E14 of the Wollongong DCP2009.

26 **Council Footpath Reserve Works – Driveways and Crossings**

All redundant vehicular crossings and laybacks rendered unnecessary by this development must be reconstructed to normal kerb and gutter or existing edge of carriageway treatment to match the existing. The verge from the back of kerb to the boundary must be removed and the area appropriately graded, topsoiled and turfed in a manner that conforms with adjoining road reserve. The area forward of the front boundary must be kept smooth, even and free from any trip hazards. All alterations of public infrastructure where necessary are at the developer's expense.

All new driveway laybacks and driveway crossings must be designed in accordance with Wollongong City Council Standards. Details and locations are to be shown on the Construction Certificate Plans.

27 **Fencing along Pooraka Avenue Reserve**

Fencing proposed along the boundary with Council reserve must be open form that is sympathetic to park users while providing security to the residents.

Details verifying compliance with this requirement must be provided to the Certifying Authority prior to issue of the Construction Certificate.

28 **Car Parking and Access**
The development shall make provision for a total of 22 car parking spaces, 1 motorcycle parking space, a minimum of 4 secure (Class B) residential bicycle spaces, and a minimum of 1 visitor bicycle parking space (Class C). This requirement shall be reflected on the Construction Certificate plans. Any change in above parking numbers shown on the approved DA plans shall be dealt with via a section 4.55 modification to the development. The approved car parking spaces shall be maintained to the satisfaction of Council, at all times.

29 The parking dimensions, internal circulation, aisle widths, kerb splay corners, head clearance heights, ramp widths and grades of the car parking areas are to be in conformity with the current relevant Australian Standard AS2890.1, except where amended by other conditions of this consent. Details of such compliance are to be reflected on the Construction Certificate plans.

30 Bicycle parking facilities must have adequate weather protection and provide the appropriate level of security as required by the current relevant Australian Standard AS2890.3 - Bicycle Parking Facilities. This requirement shall be reflected on the Construction Certificate plans.

31 **Obscure Glazing for all Bathroom and WC Windows**
The bathroom and WC windows for each dwelling in the development shall be frosted or opaque glass. This requirement shall be reflected on the Construction Certificate plans.

32 **Endeavour Energy Requirements**
The submission of documentary evidence from Endeavour Energy to the Principal Certifying Authority is required confirming that satisfactory arrangements have been made with Endeavour Energy for the provision of electricity supplies to the development, prior to the release of the Construction Certificate.

Note: Applications should be made to Customer Connections – South Coast, Endeavour Energy PO Box 811 Seven Hills NSW 1730.

33 **Telecommunications**
The submission of documentary evidence from an approved telecommunications carrier to the Principal Certifying Authority confirming that underground telecommunication services are available for this development is required prior to the issue of the Construction Certificate.

34 **External Clothes Drying Facilities**

In the event that external clothes drying facilities are proposed, full details of the screening and the location of these facilities shall be reflected on the Construction Certificate plans and the final landscape plan.

35 **Development Contributions**
Pursuant to Section 4.17 of the Environmental Planning and Assessment Act 1979 and the Wollongong City-Wide Development Contributions Plan (2018), a monetary contribution of $32,830.00 (subject to indexation) must be paid to Council towards the provision of public amenities and services, prior to the release of any associated Construction Certificate.

This amount has been calculated based on the estimated cost of development and the applicable percentage rate.

The contribution amount will be subject to indexation until the date of payment. The formula for indexing the contribution is:

Contribution at time of payment = $C x (CP2/CP1)

Where:

$C is the original contribution as set out in the Consent

CP1 is the Consumer Price Index; All Groups CPI; Sydney at the time the consent was issued

CP2 is the Consumer Price Index; All Groups CPI; Sydney at the time of payment

Details of CP1 and CP2 can be found in the Australian Bureau of Statistics website – Catalogue No. 6401.0 - Consumer Price Index, Australia.

The following payment methods are available:

METHOD	HOW	PAYMENT TYPE
Online (Full payment only)	http://www.wollongong.nsw.gov.au/applicationpayments Your Payment Reference: 1067725	• Credit Card
In Person	Wollongong City Council Administration Building - Customer Service Centre Ground Floor 41 Burelli Street, WOLLONGONG	• Cash • Credit Card • Bank Cheque
PLEASE MAKE BANK CHEQUE PAYABLE TO: Wollongong City Council (Personal or company cheques are not accepted)		

A copy of the Wollongong City-Wide Development Contributions Plan (2018) and accompanying Fact Sheet may be inspected or obtained from the Wollongong City Council Administration Building, 41 Burelli Street, Wollongong during business hours or on Council's web site at www.wollongong.nsw.gov.au

Prior to the Commencement of Works

36 **Tree Removal**

Prior to removal, the trees approved for removal under this development consent shall be closely inspected for native vertebrate fauna occupation, and if occupied by native vertebrate fauna, then the NSW Wildlife Information, Rescue and Education Service (WIRES) shall be contacted for advice (phone 1300 094 737).

37 **Sign – Supervisor Contact Details**

Before commencement of any work, a sign must be erected in a prominent, visible position:

a stating that unauthorised entry to the work site is not permitted;

b showing the name, address and telephone number of the Principal Certifying Authority for the work; and

c showing the name and address of the principal contractor in charge of the work site and a telephone number at which that person can be contacted at any time for business purposes.

This sign shall be maintained while the work is being carried out and removed upon the completion of the construction works.

38 **Demolition Works**

The demolition of the existing structures shall be carried out in accordance with Australian Standard AS2601 (2001): The Demolition of Structures or any other subsequent relevant Australian Standard and the requirements of the SafeWork NSW.

No demolition materials shall be burnt or buried on-site. The person responsible for the demolition works shall ensure that all vehicles leaving the site carrying demolition materials have their loads covered and do not track soil or waste materials onto the road. Any unforeseen hazardous and/or intractable wastes shall be disposed of to the satisfaction of the Principal Certifying Authority. In the event that the demolition works may involve the obstruction of any road reserve/footpath or other Council owned land, a separate application shall be made to Council to enclose the public place with a hoarding or fence over the footpath or other Council owned land.

39 **Demolition Notification to Surrounding Residents**

Demolition must not commence unless at least two (2) days written notice has been given to adjoining residents of the date on which demolition works will commence.

40 **Consultation with SafeWork NSW – Prior to Asbestos Removal**
A licensed asbestos removalist must give written notice to SafeWork NSW at least five (5) days before licensed asbestos removal work is commenced.

41 **Temporary Sediment Fences**
Temporary geotextile fabric sediment fences must be correctly installed on the site, prior to the commencement of any excavation or construction works in accordance with "Managing Urban Stormwater: Soils and Construction", 4th edition, Landcom, 2004. The temporary sediment fences shall be maintained throughout the entire, demolition, excavation and construction phases of the development and until the site has become stabilised (includes landscaping).

42 **All-weather Access**
An all-weather stabilised access point must be provided to the site to prevent sediment leaving the site as a result of vehicular movement. Vehicular movement should be limited to this single accessway.

43 **Sediment Control Measures**
Sediment-laden runoff from the site shall be controlled at all times subsequent to commencement of construction works. Sediment control measures shall be maintained at all times and checked for adequacy at the conclusion of each day's work, and after any rain event of 10 mm or more.

44 **Certification from Arborist - Adequate Protection of Trees to be Retained**
A qualified arborist is required to be engaged for the supervision of all on-site excavation or land clearing works. The submission of appropriate certification from the appointed arborist to the Principal Certifying Authority is required which confirms that all trees and other vegetation to be retained are protected by fencing and other measures, prior to the commencement of any such excavation or land clearing works.

45 **Works in Road Reserve - Minor Works**
Approval, under Section 138 of the Roads Act must be obtained from Wollongong City Council's Development Engineering Team prior to any works commencing or any proposed interruption to pedestrian and/or vehicular traffic within the road reserve caused by the construction of this development.

The application form for Works within the Road Reserve – Section 138 Roads Act can be found on Council's website. The form outlines the requirements to be submitted with the application, to give approval to commence works under the roads act. It is advised that all applications are submitted and fees paid, five (5) days prior to the works within the road reserve are intended to commence. The Applicant is responsible for the restoration of all Council assets within the road reserve which are impacted by the works/occupation. Restoration must be in accordance with the following requirements:

a All restorations are at the cost of the Applicant and must be undertaken in accordance with Council's standard document, "Specification for work within Council's Road reserve".
b Any existing damage within the immediate work area or caused as a result of the work/occupation, must also be restored with the final works.

46 **Supervising Arborist – Tree Inspection and Installation of Tree Protection Measures**
Prior to the commencement of any demolition, excavation or construction works, the supervising arborist must certify in writing that tree protection measures have been inspected and installed in accordance with the arborist's recommendations and relevant conditions of this consent.

47 **Temporary Toilet/Closet Facilities**
Toilet facilities are to be provided at or in the vicinity of the work site on which work involved in the erection or demolition of a building is being carried out 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 a standard flushing toilet; and

b connected to either:
  i the Sydney Water Corporation Ltd sewerage system or
  ii an accredited sewage management facility or
  iii an approved chemical closet.

The toilet facilities shall be provided on-site, prior to the commencement of any works.

48 **Dilapidation Report**
The developer shall submit a Dilapidation Report recording the condition of the existing streetscape, street trees, adjoining properties and adjoining reserve prior to work commencing and include a detailed description of elements and photographic record.

49 **Survey Report – Siting of Development within Property Boundaries**
A survey report prepared by a registered surveyor is required to be submitted to the Principal Certifying Authority to ensure that the proposed development is located on the correct allotment and at the approved distances from the boundaries. This must be verified by pegging the site prior to commencement of works.

During Demolition, Excavation or Construction

50 **No Adverse Run-off Impacts on Adjoining Properties**
The design and construction of the development shall ensure there are no adverse effects to adjoining properties, as a result of flood or stormwater run-off. Attention must be paid to ensure adequate protection for buildings against the ingress of surface run-off.

Allowance must be made for surface run-off from adjoining properties. Any redirection or treatment of that run-off must not adversely affect any other property.

51 **Copy of Consent to be in Possession of Person carrying out Tree Removal**
The Developer/Applicant must ensure that any person carrying out tree removal is in possession of this development consent and/or the approved landscape plan, in respect to the tree(s) which has/have been given approval to be removed in accordance with this consent.

52 **Provision of Taps/Irrigation System**
The provision of common taps and/or an irrigation system is required to guarantee that all landscape works are adequately watered. The location of common taps and/or irrigation system must be implemented in accordance with the approved Landscape Plan.

53 **Avoidance of Cruelty and Harm to Fauna**
During tree removal works, all care shall be taken to avoid cruelty and harm to fauna.

54 **Injured Fauna**
In the event any native fauna are injured during tree removal works, then the NSW Wildlife Information, Rescue and Education Service (WIRES) shall be contacted (phone 1300 094 737) for assistance.

55 **Survey Report for Height Levels**
A Survey Report must be submitted to the Principal Certifying Authority verifying that the proposed Units (U02 to U06) does not exceed the maximum height restriction of 9 metres from existing ground level as per the approved plans under this consent.

56 **Vegetative Waste**
Vegetative waste shall be disposed of lawfully.

57 **Waste Inventory Report**
A Waste Inventory report must be maintained on-site during demolition work. The waste inventory is a register of all materials and waste removed from the site during the demolition work. The register must record each load or movement of material and waste from the site and must include at a minimum the following information:

a the description of the material (including identified hazardous material);
b an estimate of the quantity by volume and weight;

c the name of the transporter and the registration details of the relevant vehicle; and
d the intended destination of the material.

58 **Restricted Hours of Construction Work**
The developer must not carry out any work, other than emergency procedures, to control dust or sediment laden runoff outside the normal working hours, namely, 7.00 am to 5.00 pm, Monday to Saturday, without the prior written consent of the Principal Certifying Authority and Council. No work is permitted on public holidays or Sundays.

Any request to vary these hours shall be submitted to the **Council** in writing detailing:

a the variation in hours required (length of duration);
b the reason for that variation (scope of works);
c the type of work and machinery to be used;
d method of neighbour notification;
e supervisor contact number;
f any proposed measures required to mitigate the impacts of the works.

Note: The developer is advised that other legislation may control the activities for which Council has granted consent, including but not limited to, the Protection of the Environment Operations Act 1997.

59 **Site Management**
Stockpiles of sand, gravel, soil and the like must be located to ensure that the material:

a Does not spill onto the road pavement and
b is not placed in drainage lines or watercourses and cannot be washed into these areas.

60 Any waste material or construction material accidentally or otherwise spilled, tracked or placed on the road or footpath area during construction without the prior approval of Council's Regulation and Enforcement Division shall be immediately swept up, or immediately removed by "dry" methods. Collected material shall be disposed of in a way that prevents its mobilisation. Evidence that any approval to place material on the road or road reserve shall be available for inspection by Council officers on site at any time.

61 Drains, gutters, access ways and roadways must be maintained free of sediment and any other material.

62 Building operations such as brick cutting, the washing of tools or paint brushes, or other equipment and the mixing of mortar must not be carried out on the roadway or public footpath or any other locations which could lead to the discharge of materials into the stormwater drainage system or natural watercourse.

63 **Dust Suppression Measures**
Activities occurring during the demolition, excavation and construction phases of the development must be carried out in a manner that will minimise the generation of dust.

64 **Asbestos – Removal, Handling and Disposal Measures/Requirements Asbestos Removal by a Licensed Asbestos Removalist**
The removal of any asbestos material must be carried out by a licensed asbestos removalist if over 10 square metres in area of non-friable asbestos, or if any type of friable asbestos in strict accordance with SafeWork NSW requirements (<http://www.safework.nsw.gov.au>).

65 **Asbestos Clearance Certificate**
A Clearance Certificate to certify that the site is free of asbestos is to be submitted to Council by a licensed asbestos assessor within fourteen (14) days of the completion of demolition works.

66 **Asbestos Waste Collection, Transportation and Disposal**
Asbestos waste must be prepared, contained, transported and disposed of in accordance with SafeWork NSW and NSW Environment Protection Authority requirements. Asbestos waste must only be disposed of at a landfill site that can lawfully receive this this type of waste. A receipt must be retained and submitted to the Principal Certifying Authority, and a copy

submitted to Council (in the event that Council is not the Principal Certifying Authority), prior to commencement of the construction works.

67 **Provision of Waste Receptacle**
The developer must provide an adequate receptacle to store all waste generated by the development, pending disposal. The receptacle must be regularly emptied and waste must not be allowed to lie or accumulate on the property other than in the receptacle. Consideration should be given to the source separation of recyclable and re-usable materials.

68 **Excess Excavated Material – Disposal**
Excess excavated material shall be classified according to the NSW Environment Protection Authority's Waste Classification Guidelines – Part 1: Classifying Waste (2014) prior to being transported from the site and shall be disposed of only at a location that may lawfully receive that waste.

69 **BASIX**
All the commitments listed in each relevant BASIX Certificate for the development must be fulfilled in accordance with Clause 97A(2) of the Environmental Planning & Assessment Regulation 2000.

A relevant BASIX Certificate means:

- A BASIX Certificate that was applicable to the development when this development consent was granted (or, if the development consent is modified under section 4.55 of the Environmental Planning & Assessment Act 1979, a BASIX Certificate that is applicable to the development when this development consent is modified); or
- if a replacement BASIX Certificate accompanies any subsequent application for a construction certificate, the replacement BASIX Certificate; and
- BASIX Certificate has the meaning given to that term in the Environmental Planning & Assessment Regulation 2000."

70 **Protection of excavation**

No part of any construction works, including any excavation shall encroach onto any adjoining property at any time.

The exposed side of any excavation adjoining a property boundary must be protected from collapse at all times.

Earthworks and excavation must comply with Part 3.1.1 of the Building Code of Australia.

Prior to the Issue of the Occupation Certificate

71 **Drainage**
The developer must obtain a certificate of Hydraulic Compliance (using Council's M19 form) from a suitably qualified civil engineer, to confirm that all stormwater drainage and on-site detention works have been constructed in accordance with the approved plans. In addition, full works-as-executed plans, prepared and signed by a Registered Surveyor must be submitted. These plans and certification must satisfy all the stormwater requirements stated in Chapter E14 of the Wollongong DCP2009. This information must be submitted to the Principal Certifying Authority prior to the issue of the final Occupation Certificate.

72 **Restriction on Use – On-site Detention System**
The applicant must create a restriction on use under the Conveyancing Act 1919 over the on-site detention system. The following terms must be included in an appropriate instrument created under the Conveyancing Act 1919 for approval of Council:

"The registered proprietor of the lot burdened must not make or permit or suffer the making of any alterations to any on-site stormwater detention system on the lot(s) burdened without the prior consent in writing of the authority benefited. The expression 'on-site stormwater detention system' shall include all ancillary gutters, pipes, drains, walls, kerbs, pits, grates, tanks, chambers,

basins and surfaces designed to temporarily detain stormwater as well as all surfaces graded to direct stormwater to those structures.

Name of the authority having the power to release, vary or modify the restriction referred to is Wollongong City Council."

The instrument, showing the restriction, must be submitted to the Principal Certifying Authority for endorsement prior to the issue of the final Occupation Certificate and the use of the development.

73 **Retaining Wall Certification**
The submission of a certificate from a suitably qualified and experienced structural engineer or civil engineer to the Principal Certifying Authority is required, prior to the issue of the Occupation Certificate or commencement of the use. This certification is required to verify the structural adequacy of the retaining walls and that the retaining walls have been constructed in accordance with plans approved by the Principal Certifying Authority.

74 **Compensatory Plantings**

The developer must make compensatory provision for the trees required to be removed as a result of the development. In this regard, six (6) 200 litre container mature plant stock shall be placed in appropriate locations within the property boundary of the site. The suggested species are *Hibiscus tiliaceus 'Rubra' Hymenosporum flavum, Waterhousia floribunda.*

75 **Positive Covenant – On-Site Detention Maintenance Schedule**
A positive covenant shall be created under the Conveyancing Act 1919, requiring the property owner(s) to undertake maintenance in accordance with the Construction Certificate approved On-Site Stormwater Detention System and Maintenance Schedule (application number to be referenced).

The instrument, showing the positive covenant must be submitted to the Principal Certifying Authority for endorsement prior to the issue of the final Occupation Certificate and the use of the development.

76 **On-Site Detention – Structural Certification**
The submission of a certificate from a suitably qualified practising civil and/or structural engineer to the Principal Certifying Authority is required prior to the issue of the final Occupation Certificate. This certification is required to verify the structural adequacy of the on-site detention facility and that the facility has been constructed in accordance with the approved Construction Certificate plans.

77 A Section 73 Certificate must be submitted to the Principal Certifying Authority prior to occupation of the development/release of the plan of subdivision.

78 **BASIX**
A final occupation certificate must not be issued unless accompanied by the BASIX Certificate applicable to the development. The Principal Certifying Authority must not issue the final occupation certificate unless satisfied that selected commitments have been complied with as specified in the relevant BASIX Certificate. NOTE: Clause 154B of the Environmental Planning and Assessment Regulation 2000 provides for independent verification of compliance in relation to certain BASIX commitments.

79 **Access Certification**
Prior to the occupation of the building, the Principal Certifying Authority must ensure that a certificate from an "accredited access consultant" has been issued certifying that the building complies with the requirements of AS 1428.1.

80 **Acoustic compliance**
Prior to the occupation of the building, the Principal Certifying Authority must ensure that a acoustic compliance report prepared by an acoustic consultant has been issued in accordance with the recommendations in Report prepared by Rodney Stevens Acoustics dated 5 June 2019.

Operational Phases of the Development/Use of the Site

81 With the exception of Unit 1, waste collection from the street is not permitted at any time.

82 Waste collection for all units (except Unit 1) is to be carried out from within the site by a vehicle no larger than a Medium Rigid Vehicle (max 8.8 metres in length) from the designated loading/unloading facility enabling forward exit in no more than a 3-point turn.

83 **Loading/Unloading Operations/Activities**
All loading/unloading operations are to take place at all times wholly within the confines of the site or within the road reserve under an approved traffic control plan.

84 **Privacy screens**
Privacy screens required and approved as part of this development consent must remain in place and be maintained in a sound condition throughout the life of the development.

Natural Resources Access Regulator

Contact: Luke Barron
Phone: 02 4224 9725
Email: luke.barron@nrar.nsw.gov.au

Our ref: IDAS1112282
Our file: V18/534-5#78
Your ref: DA2018/1630

The General Manager
Wollongong City Council
PO Box 76
UNANDERRA, NSW, 2526

Attention: Brigit Mathai

08 March 2019

Dear Sir/Madam

Re: Integrated Development Referral – General Terms of Approval
Development Reference: DA2018/1630
Description: Residential demolition of existing structures, tree removal and construction of multi dwelling housing – eleven (11) units with associated carparking and infrastructure.
Location: 35 Yellagong Steet, West Wollongong, NSW, 2500

I refer to your recent letter regarding an integrated Development Application (DA) proposed for the above location. Attached, please find the Natural Resource Access Regulator (NRAR) General Terms of Approval (GTA) for part of the proposed development requiring a Controlled Activity approval under the *Water Management Act 2000* (WM Act), as detailed in the subject DA.

Please note Council's statutory obligations under section 91A (3) of the *Environmental Planning and Assessment Act 1979* (EPA Act) which requires a consent, granted by a consent authority, to be consistent with the general terms of any approval proposed to be granted by the approval body.

If the proposed development is approved by Council, NRAR request these GTA's be included (in their entirety) in Council's development consent. Please also note NRAR requests notification:

- If any plans of documents are amended and these amendments significantly change the proposed development or result in additional works or activities (i) in the bed of any river, or lake or estuary; (ii) on the banks of any river, lake or estuary; (iii) on land within 40 metres of the highest bank of a river, lake or estuary; or (iv) any excavation which interferes with an aquifer.

  NRAR will ascertain from the notification if the amended plans require review of or variation/s to the GTA. This requirement applies even if the amendment is part of Council's proposed consent conditions and do not appear in the original documentation.

- If Council receives an application under s96 of the EPA Act to modify the development consent and the modifications change the proposed work or activities described in the original DA.

- Of any legal challenge to the consent.

As the proposed work or activity cannot commence before the applicant applies for and obtains an approval, NRAR recommends the following condition be included in the development consent:

The attached GTA issued by NRAR do not constitute an approval under the *Water Management Act 2000*. The development consent holder must apply to NRAR for a Controlled Activity approval **after consent** has been issued by Council **and before** the commencement of any work or activity.

A completed application form must be submitted to NRAR together with any required plans, documents, application fee, security or bank guarantee (if required) and proof of Council's development consent. Finalisation of an approval can take up to eight (8) weeks from the date the application and all required supporting documentation is received.

Application forms are available from the NRAR website at:

www.water.nsw.gov.au › Water licensing › Approvals

NRAR requests that Council provide a copy of this letter to the development consent holder.

NRAR also requests a copy of the determination for this development application be provided by Council as required under section 91A (6) of the EPA Act.

Yours sincerely

Alison Collaros
Water Regulation Officer
Water Regulatory Operations
Natural Resources Access Regulator

Natural Resources Access Regulator

General Terms of Approval

for proposed development requiring approval under s89, 90 or 91 of the Water Management Act 2000

Reference Number:	IDAS1112282
Issue date of GTA:	08 March 2019
Type of Approval:	Controlled Activity
Description:	Residential demolition of existing structures, tree removals and construction of multi dwelling housing - eleven (11) units with associated carparking and infrastructure
Location of work/activity:	35 Yellagong Street WEST WOLLONGONG NSW 2500
DA Number:	DA2018/1630
LGA:	Wollongong City Council
Water Sharing Plan Area:	Greater Metropolitan Region Unregulated River Water Sources

The GTA issued by NRAR do not constitute an approval under the *Water Management Act 2000*. The development consent holder must apply to NRAR for the relevant approval **after development consent** has been issued by Council **and before** the commencement of any work or activity.

Condition Number	Details
	Design of works and structures
GT0009-00010	Before commencing any proposed controlled activity on waterfront land, an application must be submitted to Natural Resources Access Regulator, and obtained, for a controlled activity approval under the Water Management Act 2000.
GT0019-00003	Any proposed excavation on waterfront land must be undertaken in accordance with a plan submitted as part of a controlled activity approval, to be approved by Natural Resources Access Regulator.
	Erosion and sediment controls
GT0014-00007	A. The consent holder must ensure that any proposed materials or cleared vegetation, which may: i. obstruct water flow, or ii. wash into the water body, or iii. cause damage to river banks, are not stored on waterfront land, unless in accordance with a plan held by Natural Resources Access Regulator as part of a controlled activity approval. B. When the carrying out of the controlled activity has been completed, surplus materials must be removed from waterfront land.
GT0021-00004	The proposed erosion and sediment control works must be inspected and maintained throughout the construction or operation period of the controlled activity and must not be removed until the site is fully stabilised.
	Plans, standards and guidelines
GT0002-00678	A. This General Terms of Approval (GTA) only applies to the proposed controlled activity described in the plans and associated documents found in Schedule 1, relating to Development Application 2018/1630 provided by Council to Natural Resources Access Regulator. B. Any amendments or modifications to the proposed controlled activity may render the GTA invalid. If the proposed controlled activity is amended or modified, Natural Resources Access Regulator, Parramatta Office, must be notified in writing to determine if any variations to the GTA will be required.
GT0008-00031	A. Before the proposed controlled activity can commence, a riparian corridor must be clearly marked, protected and maintained in accordance with a plan submitted as part of the controlled activity approval, and approved by Natural Resources Access Regulator. B. The corridor must extend for: i. a width of 10 m,

Natural Resources Access Regulator

General Terms of Approval

for proposed development requiring approval under s89, 90 or 91 of the Water Management Act 2000

Reference Number:	IDAS1112282
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Water Sharing Plan Area:	Greater Metropolitan Region Unregulated River Water Sources

	measured horizontally landward from the highest bank of the river, and ii. the length of the site directly affected by the controlled activity.
GT0010-00006	All documents submitted to Natural Resources Access Regulator as part of an application for a controlled activity approval must be prepared by a suitably qualified person.
GT0012-00004	Any proposed controlled activity must be carried out in accordance with plans submitted as part of a controlled activity approval application, and approved by Natural Resources Access Regulator.
GT0030-00008	The application for a activity; controlled activity approval must include plans prepared in accordance with Natural Resources Access Regulator's guidelines located on the website https://www.industry.nsw.gov.au/water/licensing-trade/approvals/controlled-activities.
	Rehabilitation and maintenance
GT0023-00001	Vegetation clearance associated with the proposed controlled activity must be limited to where the controlled activity is to be carried out, as shown on the approved plan(s).
	Reporting requirements
GT0016-00003	The consent holder must inform Natural Resources Access Regulator in writing when any proposed controlled activity carried out under a controlled activity approval has been completed.

SCHEDULE 1

The plans and associated documentation listed in this schedule are referred to in general terms of approval (GTA) issued by NRAR for integrated development associated with DA2018/1630 as provided by Council:

- Statement of Environmental Effects
- Site Plan
- Concept Stormwater Management Plan
- Concept Landscape Plan