WLPP No.	Item 3
DA No.	DA-2018/1032
Proposal	Residential - Demolition of existing dwelling and outbuildings and construction multi dwelling housing and Subdivision - strata title - four lots
Property	18 Hopetoun Street, Woonona NSW 2517 Lot B DP 157627
Applicant	MMJ Wollongong (Luke Rollinson)
Responsible Team	Development Assessment and Certification – City Wide Planning Team (JW + JW)

ADDENDUM REPORT

This report should be read in conjunction with the Council Assessing Officer's report as presented to the Wollongong Local Planning Panel on the 24 July 2019 and 20 March 2019 at **Attachment 4**.

1 BACKGROUND AND EXECUTIVE SUMMARY

Reason for consideration by Local Planning Panel

The amended proposal has been referred to the Wollongong Local Planning Panel **for determination** pursuant to Section 3 of Schedule 2 of the Local Planning Panels Direction of 1 March 2018, as the application involves a variation of greater than 10% at Clause 7.14 Minimum site width of Wollongong Local Environmental Plan 2009.

Background

This matter was reported to the WLPP meeting on the 20 March 2019 and then subsequently on the 24 July 2019. A copy of the Panel's 24 July 2019 recommendation is included as **Attachment 1**. The Panel determined again to defer the matter to allow the applicant an opportunity to address the following issues:

1. *Retention of the Jacaranda Tree in the rear yard. This will require the redesign of unit 3 and 4.*
2. *Improved presentation to the street which will require changes to window size and placement, colours and finishes.*
3. *Improvements in quality of materials and finishes and articulation throughout the development to reduce bulk and scale.*
4. *Breakup of the mass of unit 1 and 2 at least at the upper level. This will require a reduction in number of bedrooms or reduced bedroom sizes.*
5. *Reconsider the size of the living space when compared against the number of bedrooms. The bedroom numbers should be reduced to be more consistent with the size of the living spaces.*
6. *Increase the separation between the living area of units 1 and 2 and the driveway consistent with the landscaping requirements ofWDCP2009 Section 5.8.2.5(h).*
7. *Studies should be relocated to first floor or deleted to maximise living area.*
8. *The laundry and WC on the north elevation of unit 3 and 4 should be relocated away from the northern aspect.*
9. *Any upper level rumpus room should have access to light and ventilation.*
10. *Amendments that rectify mistakes on the plans such as ensuites not having doors etc.*

11. *Amended plans are to include:*

    - *Long section through the whole site showing existing and proposed ground levels;*
    - *Site plans that shows the building layout at ground and first floor in relation to all boundaries to include setbacks;*
    - *RL's on all floor plans.*

12. *Revised landscape plan and arborist report.*

The Panel is of the view that any amendments should not result in additional floor space or encroachment to landscaped areas

On receipt of amended plans a further report be prepared and submitted to the Panel.

Proposal

The proposal seeks consent for the following:

- Demolition of the existing structures on the site
- Construction of four (4) townhouses separated into two blocks of two (2)
- Subdivision – Strata title – four (4) lots.

Permissibility

The proposed demolition and construction of multi dwelling housing is permissible in the R2 Low Density Residential zone of the Wollongong Local Environmental Plan (WLEP) 2009. Subdivision and demolition is permissible on land to which the WLEP 2009 applies.

Planning Controls

The following planning controls apply to the proposal:

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 (WDCP) 2009

Other policies

- Wollongong City Wide Development Contributions Plan 2018

For the original assessment refer to Council Assessing Officer's reports as presented to the Wollongong Local Planning Panel on the 20 March 2019 and 24 July 2019 at **Attachment 4**.

Consultation

The amended proposal was notified in accordance with Council's Notification Policy and 4 submissions by way of objection were received. The submissions received are discussed at Section 3 of this report.

Council's Traffic, Stormwater, and Landscape have reviewed the amended proposal and provided satisfactory referral comments.

RECOMMENDATION

Development Application DA-2018/1032 be **approved by way of deferred commencement** (drainage easement registration), subject to the conditions contained in **Attachment 3**.

2 APPPLICANTS RESPONSE TO THE WLPP RECOMMENDATIONS

The applicant has provided amended plans and additional information in response to the concerns raised by the Panel including:

- New Tree Survey,
- amended Architectural Plans,
- amended Arborists Report, and
- amended Landscape Plan

The applicant provided the following correspondence in a letter of response to Council dated 2 September 2019:

1. ***Retention of the Jacaranda Tree in the rear yard. This will require the redesign of unit 3 and 4.***

   The design of Units 3 and 4 have been amended to ensure retention of the Jacaranda tree as requested, with the respective changes shown within the updated Architectural Plans by Ingenuity Home Design. The arborist report by Allied Tree Consulting has also been updated to reflect this change. Refer to amended documents as part of the resubmission package.

2. ***Improved presentation to the street which will require changes to window size and placement, colours and finishes.***

   The Unit 1 façade is now shown within updated Architectural Plans by Ingenuity Home Design – with the POS screen, increased window size, additional window and additional cladding variation.

3. ***Improvements in quality of materials and finishes and articulation throughout the development to reduce bulk and scale.***

   Numerous variations to the cladding materials along the eastern and western façades of Units 1 and 2 are shown on updated Architectural Plans by Ingenuity Home Design, which now breakup the façade expanses through better articulated elements as requested.

4. ***Breakup of the mass of unit 1 and 2 at least at the upper level. This will require a reduction in number of bedrooms or reduced bedroom sizes.***

   The revised Architectural Plans by Ingenuity Home Design now show a break in the upper level between Units 1 and 2, in order to reduce the mass of both the eastern and western elevations.

5. ***Reconsider the size of the living space when compared against the number of bedrooms. The bedroom numbers should be reduced to be more consistent with the size of the living spaces.***

   The number of bedrooms in relation to the dwellings proposed has been reviewed by the developer and in conjunction with local real estate agents. It is understood the panel's comments relate to Units 1 and 2 and are considered in conjunction with previous panel request to break up the mass of the upper level of these dwellings also.

   As suggested, the mass of the upper level of these dwellings has been already achieved through the breaking up of the façade connections and added articulation elements throughout. This has been achieved without reduction in the number of bedrooms for these two dwellings, as the feedback from local real estate experts suggests the living spaces (both internal and external) are commensurate with the number of bedrooms proposed.

6. ***Increase the separation between the living area of units 1 and 2 and the driveway consistent with the landscaping requirements ofWDCP2009 Section 5.8.2.5(h).***

   The breakup of the lower level façades and types of materials have provide opportunities to increase the landscape beds in question. In this regard, Unit 1 has a landscape with of 600mm between the dwelling and the driveway, whilst Unit 2 has a landscape width of 500mm accordingly.

   It is noted that the referenced section of the DCP does not stipulate a preferred distance/width. We have provided a 500 mm minimum in consultation with Council, as deemed appropriate to enable reasonable plant growth. Notwithstanding, it is considered that the trafficable impact along this eastern façade will not be detrimental to the living spaces, and in fact, the size of these windows have been increased to create better internal amenity and natural light throughout the morning periods. Given the proposed development yield is only 4 dwellings, we do not anticipate that traffic movements past these living areas will have a dramatic impact on residential amenity.

7. ***Studies should be relocated to first floor or deleted to maximise living area.***

   The studies have been removed altogether.

8. ***The laundry and WC on the north elevation of unit 3 and 4 should be relocated away from the northern aspect.***

   The laundry and WC within Units 3 and 4 have been redesigned and are shown within the revised Architectural Plans by Ingenuity Home Design.

9. ***Any upper level rumpus room should have access to light and ventilation.***

   Roof windows/skylights have been added to the upper level of Units 3 and 4. Natural ventilation is achieved through crossflow from bedroom windows accordingly.

10. ***Amendments that rectify mistakes on the plans such as ensuites not having doors etc.***

    The drafting errors previously shown have been rectified within the revised Architectural Plans by Ingenuity Home Design.

11. ***Amended plans are to include:***

    - ***Long section through the whole site showing existing and proposed ground levels;***
    - ***Site plans that shows the building layout at ground and first floor in relation to all boundaries to include setbacks;***
    - ***RL's on all floor plans.***

    The revised Architectural Plans by Ingenuity Home Design now show:

    - *an updated Driveway Long Section Plan with finished garage ground floor levels for each dwelling;*
    - *an updated Site Plan that shows both the ground floor and first floor building lines; and*
    - *RLs on all floor plans for each level.*

12. ***Revised landscape plan and arborist report.***

    Both the Landscape Concept Plan by Captivate Landscape and Arborist Report by Warwick Varley (Allied Tree Consulting) have been updated accordingly.

    This has been provided to Council. (**Attachment 2**)

3 COUNCIL'S ASSESSING OFFICER'S COMMENTS

Council's Assessing Officer has reviewed the Panel's recommendations from the 24 July WLPP meeting and the Applicant's response to the issues raised and provides the following comments.

1. ***Retention of the Jacaranda Tree in the rear yard. This will require the redesign of unit 3 and 4.***

   Unit 3 and 4 have been redesigned to incorporate the retention of the Jacaranda Tree in the rear yard. The proposed design involves an encroachment into the Tree Protection Zone of greater than 10% however the majority of the encroachment is through the private open space which can be mitigated with conditions of consent for permeable paving or raised decking. Councils Landscape Officer reviewed the amended landscape plan and amended arborists report and was satisfied with the application, providing conditions of consent.

   It is considered that the applicant has addressed the Panels concerns in relation to Item 1.

2. ***Improved presentation to the street which will require changes to window size and placement, colours and finishes.***

   The Unit 1 façade has been amended, the proposal now provides an articulation of finishes and colours with a greater window facing the street.

   It is considered that the applicant has addressed the Panels concerns in relation to Item 2.

3. ***Improvements in quality of materials and finishes and articulation throughout the development to reduce bulk and scale.***

   The applicant has amended the façade and exteriors of Units 1 and 2. Articulation has been provided through variations in claddings and finishes, the façade of Unit 1 has also been further articulated with built form amendments.

   It is considered that the applicant has addressed the Panels concerns in relation to Item 3.

4. ***Breakup of the mass of unit 1 and 2 at least at the upper level. This will require a reduction in number of bedrooms or reduced bedroom sizes.***

   A break up of mass has been provided by the applicant in the form of separation between the upper levels of unit 1 and 2 without needing to reduce bedroom numbers and size. It is considered that the applicant has provided a reduced bulk and scale on the upper level between Units 1 and 2.

   It is considered that the applicant has addressed the Panels concerns in relation to Item 4.

5. ***Reconsider the size of the living space when compared against the number of bedrooms. The bedroom numbers should be reduced to be more consistent with the size of the living spaces.***

   The applicant has not amended the number of bedrooms nor increased the area of living spaces

   The applicant is relying on their submission at **Attachment 2** for this matter.

6. ***Increase the separation between the living area of units 1 and 2 and the driveway consistent with the landscaping requirements of WDCP2009 Section 5.8.2.5(h).***

   The applicant has amended the plans to provide a landscape strip of 600mm width to Unit 1 and 500mm width to Unit 2 between the living areas and driveways.

   It is considered that the applicant has addressed the Panels concerns in relation to Item 6.

7. ***Studies should be relocated to first floor or deleted to maximise living area.***

   The studies have been removed.

   It is considered that the applicant has addressed the Panels concerns in relation to Item 7.

8. ***The laundry and WC on the north elevation of unit 3 and 4 should be relocated away from the northern aspect.***

   The laundries and WC of Units 3 and 4 have been relocated from the northern elevation to the western and eastern elevations of the dwellings. Providing a satisfactory outcome for the internal amenity of the living areas.

   It is considered that the applicant has addressed the Panels concerns in relation to Item 8.

9. ***Any upper level rumpus room should have access to light and ventilation.***

   The upper level rumpus rooms have been provided with skylights, their location has not been moved to provide ventilation without the opening bedroom 4 and 1 of units 3 and 4 for crossflows.

   It is considered that the applicant has addressed part of the Panels concerns and relies on their submission to satisfy the Panel concerns in relation to Item 9.

10. ***Amendments that rectify mistakes on the plans such as ensuites not having doors etc.***

    Drafting errors have been removed and amended plans provided.

    It is considered that the applicant has addressed the Panels concerns in relation to Item 10.

11. ***Amended plans are to include:***

    - ***Long section through the whole site showing existing and proposed ground levels;***
    - ***Site plans that shows the building layout at ground and first floor in relation to all boundaries to include setbacks;***
    - ***RL's on all floor plans.***

    Amended plans have been provided to Council in Attachment 2

    It is considered that the applicant has addressed the Panels concerns in relation to Item 11.

12. ***Revised landscape plan and arborist report.***

    A revised landscape plan and arborists report with accurate representation of the trees on the site have been provided to Council in **Attachment 2**. Councils Landscape Officer has reviewed the amended proposal, and arborists report and provided a satisfactory referral.

    It is considered that the applicant has addressed the Panels concerns in relation to Item 12.

SUBMISSIONS

Details of the amended proposal were notified in accordance with Council's Notification Policy. The application received 4 submissions. The issues raised in the submissions are summarised below:

Table 1: Submissions

Concern	Comment
1. LEP Variation – site width: • Inappropriate scale/density of the development for the site	The scale and density of the development has been reduced via the submission of amended plans following the 24 July Panel meeting. Despite seeking an exception to the minimum site width controls for multi-dwelling housing, the proposal is

Concern	Comment
	otherwise compliant with WLEP 2009 development standards. The development also generally complies with Council's Development Control Plan 2009 (WDCP) in relation to height, building setbacks, parking, manoeuvring, landscaped area and deep soil provisions required for such a proposal. The development is proposed to be stepped to follow the slope of the land and minimise excavation which is considered an appropriate response. Restricting development in this street or Woonona in general, as well as, any existing traffic problems are wider strategic matters outside the scope of the current DA. The proposal is permissible on the land under the Wollongong Local Environmental Plan 2009 (WLEP).
2. Amenity impacts to neighbouring properties: • Overshadowing • Privacy	The amended proposal was redesigned to address matters raised during the Wollongong Local Planning Panel meeting on 24 July 2019. The proposal as amended is considered likely to be of a lesser impact on the amenity of neighbouring properties. The submitted shadow diagrams demonstrate compliance with Council's solar access requirements to neighbouring properties. The neighbouring properties would retain the minimum 3 hours of solar access to their living rooms and 50% of their private open space in mid-winter. The solar access diagrams are provided at **Attachment 2**. The proposal has been designed to minimise overlooking across side boundaries. The upper floors will comprise of bedroom areas, with higher use rooms (being living areas and kitchens) proposed on the lower floors. The amended proposal provides highlight windows on the western facing windows to ameliorate potential overlooking impacts to the adjoining property. The proposal also provides landscaping on the boundary to ameliorate overlooking from the ground floor.
3. Design and Storage of the proposed development : • Design and proximity to neighbour • Heritage value of street and locality	The scale of the development has been reduced via the submission of amended plans. A contemporary design is proposed; however, as this is not a heritage conservation area, the contemporary form is considered acceptable taking into account compliant height, number of storeys, floor space ratio, and required setbacks (front, rear, side) to the building. On balance, the proposal is not considered to be inconsistent with the existing or future desired character of the area.
4. Overdevelopment of Hopetoun Street and Traffic implications	The proposed development provides for the required number of car parking spaces and manoeuvring for residents and visitors, pursuant to Schedule 2 of

Concern	Comment
• The street is already congested due to apartments, townhouses and businesses • Traffic and safety impacts of use of the street by customers and residents • Manoeuvring on the site will lead to increased congestion on the road network and on-street parking • Bins on the street	Chapter E3 of WDCP 2009. Restricting development in Woonona and existing traffic problems are wider strategic matters outside the scope of the current DA. The proposal is permissible on the land under WLEP 2009 and complies with maximum floor space ratio and height. Councils Traffic Officer has also considered the proposal with regard to access to the site, traffic impacts and raised no objection. The proposed location of bins on the street kerb complies with the controls within Chapter B1, on the two bin fortnight the proposals frontage is less than 50% of bins. It is considered that this complies with the objectives and development controls within WDCP 2009 Chapter B1. The existing issues with bins on the street kerb and gutter are outside the scope of this current DA to mitigate.
5. Environmental concerns: • Arborist Report inconsistencies and impacts on Jacaranda Tree • The loss of north easterly summer breeze	Conditions are recommended with regard to the demolition stage of the development to ensure compliance and provided at **Attachment 3**. An amended Arborists report was provided following the 24 July Panel meeting. Within Appendix B of the report, the Jacaranda Tree is identified on the site, with a Tree Protection Zone of 4.8 metres and Structural Root Zone of 2.3 metres. Unit 3 is identified to encroach into the TPZ by less than 10%, however the Private Open Space does also encroach into the TPZ which can be mitigated. The arborists report does have incorrect dates on the plans, but the landscape plan reflects the true location of the Jacaranda Tree with the total encroachment into the TPZ area of the tree identified. Councils landscape Officer has reviewed the arborists report and landscape plan and provided a satisfactory referral. The layout of the amended proposal with two blocks increases solar access to adjoining properties and will provide cross breezes through the site. This issue was raised at the 20 March 2019 and 24 July 2019 WLPP meetings, with the panel requiring the applicant to amend the plans to provide a break in the building. The proposal has addressed the Panel's concerns and recommendations.

Frequency of Issues Raised:

Issue No.	1	2	3	4	5
Frequency	1	1	2	4	1

CONSULTATION

INTERNAL CONSULTATION

Council's Traffic and Landscape Officers have reviewed the application and provided satisfactory referral comments. Conditions of consent were recommended in each instance.

4 CONCLUSION

This application has been assessed as satisfactory having regard to the Heads of Consideration under Section 4.15 of the Environmental Planning and Assessment Act 1979.

It is considered the exception to the WLEP 2009 development standard for minimum site width is capable of support.

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.

It is considered the proposed development has been designed appropriately given the constraints and characteristics of the site, 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-2018/1032 be **approved by way of deferred commencement** (registration of drainage easement), subject to the conditions contained in **Attachment 3**.

6 ATTACHMENTS

1 WLPP recommendations of 24 July 2019

2 Plans, Arborists Report and Applicants Submission

3 Revised Conditions

4 WLPP Reports of 20 March 2019;

and 24 July 2019 meetings.

Click on red lines above for links to previous reports

Attachment 1

DETERMINATION AND STATEMENT OF REASONS

WOLLONGONG CITY COUNCIL – WOLLONGONG LOCAL PLANNING PANEL (WLPP)

DATE OF DETERMINATION	24 July 2019
PANEL MEMBERS	Alison McCabe (Chair), Helena Miller, Steven Layman, Bernard Hibbard (Community Representative)

Public meeting held at Wollongong City Council, Level 9 Function Room, 41 Burelli Street, Wollongong on 24 July 2019 opened at 5:00pm and closed at 6:21pm.

MATTER DETERMINED
DA-2018/1032, Lot B DP 157627, 18 Hopetoun Street, Woonona NSW 2517.

PUBLIC SUBMISSIONS
The Panel was addressed by four (4) submitters.

The Panel also heard from the applicant's Town Planner and Building Designer.

PANEL CONSIDERATION AND DECISION
The Panel considered the matters listed at item 7, and the material presented at the meeting and the matters observed at site inspections listed at item 8 in Schedule 1.

The Panel acknowledges that the applicant has undertaken a number of amendments in response to the Panel's previous consideration of this matter. However the Panel is not satisfied that the amendments have adequately addressed reasons numbered 1, 2 and 8.

As part of the Panels review it was apparent that the plans incorrectly showed the Jacaranda tree intended for removal. This is not supported by the Panel and requires redesign of the proposal. The Panel is of the view that the development has not yet adequately responded to the site constraints specifically in respect to the noncompliance to the minimum site width control.

The Panel recommends that the application be deferred to allow a further redesign that addresses the following matters:

1. Retention of the Jacaranda Tree in the rear yard. This will require the redesign of unit 3 and 4.
2. Improved presentation to the street which will require changes to window size and placement, colours and finishes.
3. Improvements in quality of materials and finishes and articulation throughout the development to reduce bulk and scale.
4. Breakup of the mass of unit 1 and 2 at least at the upper level. This will require a reduction in number of bedrooms or reduced bedroom sizes.
5. Reconsider the size of the living space when compared against the number of bedrooms. The bedroom numbers should be reduced to be more consistent with the size of the living spaces.
6. Increase the separation between the living area of units 1 and 2 and the driveway consistent with the landscaping requirements of WDCP2009 Section 5.8.2.5(h).
7. Studies should be relocated to first floor or deleted to maximise living area.
8. The laundry and WC on the north elevation of unit 3 and 4 should be relocated away from the northern aspect.
9. Any upper level rumpus room should have access to light and ventilation.
10. Amendments that rectify mistakes on the plans such as ensuites not having doors etc.
11. Amended plans are to include:
    - Long section through the whole site showing existing and proposed ground levels;

- Site plans that shows the building layout at ground and first floor in relation to all boundaries to include setbacks;
- RL's on all floor plans.

12. Revised landscape plan and arborist report.

The Panel is of the view that any amendments should not result in additional floor space or encroachment to landscaped areas

On receipt of amended plans a further report be prepared and submitted to the Panel.

The decision was unanimous.

PANEL MEMBERS	
 Alison McCabe (Chair)	 Helena Miller
 Steven Layman	 Bernard Hibbard (Community Representative)

SCHEDULE 1		
1	DA NO.	DA-2018/1032
2	PROPOSED DEVELOPMENT	Residential – Demolition of existing dwelling and outbuildings and construction multi dwelling housing and Subdivision – strata title – four lots
3	STREET ADDRESS	18 Hopetoun Street, Woonona NSW 2517
4	APPLICANT	Applicant – MMJ – represented by Luke Rollinson
5	REASON FOR REFERRAL	Section 3 of Schedule 2 – LEP variation of greater than 10% for site width Cl 7.14 of WLEP 2009
6	RELEVANT MANDATORY CONSIDERATIONS	· Environmental planning instruments: o State Environmental Planning Policy No 55 – Remediation of Land o State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 o Wollongong Local Environment Plan 2009 · Wollongong Section 94A Development Contributions Plan · Development control plans: o Wollongong Development Control Plan 2009 · The likely impacts of the development, including environmental impacts on the natural and built environment and social and economic impacts in the locality · The suitability of the site for the development · Any submissions made in accordance with the *Environmental Planning and Assessment Act 1979* or regulations · The public interest, including the principles of ecologically sustainable development
7	MATERIAL CONSIDERED BY THE PANEL	· Council assessment report dated 24 July 2019. · Written submissions during public exhibition: 6 · Verbal submissions at the public meeting: 4
8	SITE INSPECTIONS BY THE PANEL	Site inspection 24/07/2019 Attendees: o Panel members: Alison McCabe (Chair), Helena Miller, Steven Layman, Bernard Hibbard (Community Representative) o Council assessment staff: John Wood, Jacob Williams, Maria Byrne
9	COUNCIL RECOMMENDATION	Approve
10	DRAFT CONDITIONS	Attached to the council assessment report

EXISTING CARPORT

EXISTING CARPORT

EXISTING CARPORT

EXISTING CARPORT

EXISTING SINGLE STOREY UNITS

28.0 29.0 30.0 31.0 32.0 33.0 34.0

BENCH MARK
T.of.K R.L.34.33

73'285
359°58'50"

27.92

LOT B

D.P. 157627

1279.61m²

GARAGE

SINGLE STOREY DWELLING
F.R.L 34.45

33.97

15'240
89°16'50"

19'977
91°03'00"

38'929
179°58'50"

34.04

SHED

5'623
271°22'00"

34'356
179°58'50"

32.0 33.0 34.0

EXISTING RESIDENCE

27.97 28.0 29.0 30.0 31.03 31.0

HOPETOUN STREET

EXISTING TWO STOREY UNIT BLOCK

ORIGINAL SURVEY

SCALE 1:250 @A3

CLIENT:	Itsbuilt
JOB ADDRESS:	18 HOPETOUN STREET, WOONONA
JOB NUMBER:	20180029
DATE:	22/08/2019
ISSUE:	F
	SHEET 2 of 21

bdaa ACCREDITED BUILDING DESIGNER

Phone 0403 939 193
www.ingenuityhomedesign.com.au
bryce@ingenuityhomedesign.com.au

Ingenuity Home Design

SITE CALCULATIONS

SITE	**1279.6 m²**
UNIT 1	
Lower Floor Area	46.5 m²
Garage	39.4 m²
Upper Floor Area	70.2 m²
TOTAL	116.3 m²
UNIT 2	
Lower Floor Area	48.0 m²
Garage	39.4 m²
Upper Floor Area	72.2 m²
TOTAL	120.2 m²
UNIT 3	
Lower Floor Area	58.5 m²
Garage	36.0 m²
Upper Floor Area	88.4 m²
TOTAL	146.9 m²
UNIT 4	
Lower Floor Area	58.5 m²
Garage	36.0 m²
Upper Floor Area	88.4 m²
TOTAL	146.9 m²
TOTAL AREA	530.3 m²
FSR	0.41:1

SUMMER WINDS

EXISTING CARPORT

EXISTING CARPORT

EXISTING CARPORT

EXISTING CARPORT

EXISTING SINGLE STOREY UNITS

TOTAL AREA OF LANDSCAPING 456.2m²

BENCH MARK T.of.K R.L.34.33

HOPETOUN STREET

28.0 | 9990 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 | 8190 | 34.0

73'285
359°58'50"

1800mm high colorbond fence

2460 | 5000 | 5100 | 1500 | 6000 | 5500

LOT B
D.P. 157627
1279.61m²

19'977
91°03'00"

15'240
89°16'50"

UNIT 4
Garage Floor 29.914
Lower Floor 29.484
Upper Floor 32.740

UNIT 3
Garage Floor 29.914
Lower Floor 29.484
Upper Floor 32.740

UNIT 2
Garage Floor 32.328
Lower Floor 32.414
Upper Floor 35.264

UNIT 1
Garage Floor 32.828
Lower Floor 33.172
Upper Floor 36.022

5m x 4m Principal Private Open Space

RWT (under POS)

Visitor Parking 2.6m x 5.5m

CL | RWT | gate

4400 | 2200

1800mm high colorbond fence

38'929
179°58'50"

courtyard fence

6.0m x 0.75m Bin Collection Area

TPZ ENCROACHMENT AREA 6.6m² (9.1%)

SRZ 2.3m RADIUS (NO ENCROACHMENT)

TPZ 4.8m RADIUS

1800mm high POS Privacy Screen

600mm(max) high retaining wall. Top of wall 31.50mAHD

5'623
271°22'00"

34'356
179°58'50"

9100

EXISTING RESIDENCE

Jacaranda Tree location as confirmed by field survey by Wild Geospatial 05/08/19

Bicycle Parking facilities in accordance with AS 2890.3
2 Resident & 1 Visitor - accessed from street

WINTER WINDS

EXISTING TWO STOREY UNIT BLOCK

PATH

sunrise 21 June | 22 December sunrise

sunset 21 June | 22 December sunset

N U S

STAINED TIMBER OR POWDER COATED ALUMINIUM SLATS

350 | 1800 | 350 | 1800 | 350

900 | 900

selected facebrick to match Unit 1

NOTE:- WIDTH LESS THAN 1.5M HAVE NOT BEEN INCLUDED IN THE OPEN SPACE AREA CALCULATIONS

SITE/ SITE ANALYSIS PLAN

SCALE 1:250 @A3

UNIT 1-COURTYARD FENCE

SCALE NTS

CLIENT:	Itsbuilt
JOB ADDRESS:	18 HOPETOUN STREET, WOONONA
JOB NUMBER:	20180029
DATE:	22/08/2019
ISSUE:	F
	SHEET 3 of 21

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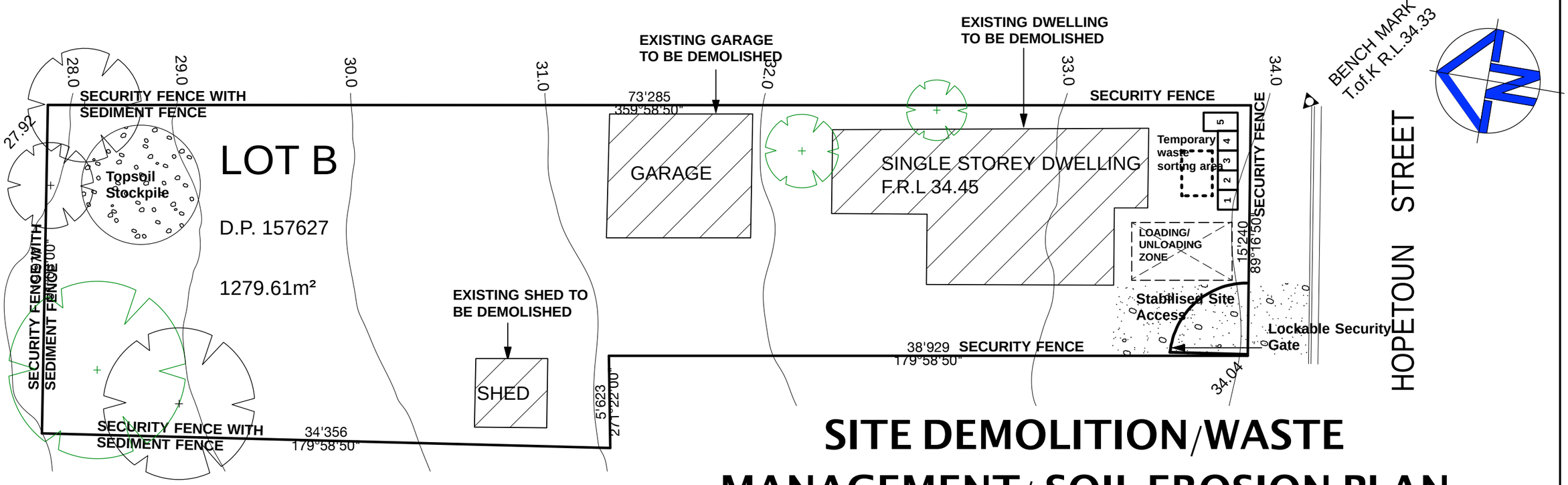
Ingenuity Home Design



SITE DEMOLITION/WASTE MANAGEMENT/ SOIL EROSION PLAN

SCALE 1:200 @A3

Demolition and Construction Material

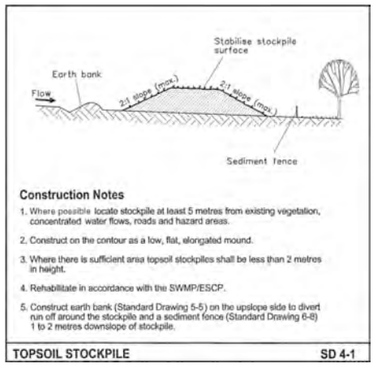
Type of Waste	REUSE Estimated Volume (m^3) or Weight (t)	RECYCLING Estimated Volume (m^3) or Weight (t)	DISPOSAL Estimated Volume (m^3) or Weight (t)	Specify method of onsite reuse, contractor and recycling outlet and/or waste depot to be used
Excavation Material	131m^3			Used as fill on site
Timber		19m^3		Used as formwork / sold
Concrete	10m^3			To be used as fill under driveway
Bricks			27m^3	Dispose via skip and waste removal contractor to Wollongong Waste and Resource Recovery Park
Tiles			8.5m^3	Dispose via skip and waste removal contractor to Wollongong Waste and Resource Recovery Park
Metal			1m^3	Dispose via skip and waste removal contractor to Wollongong Waste and Resource Recovery Park
Glass			2m^3	Dispose via skip and waste removal contractor to Wollongong Waste and Resource Recovery Park
Plasterboard			3m^3	Dispose via skip and waste removal contractor to Wollongong Waste and Resource Recovery Park
Fixtures and Fittings			1m^3	Dispose via skip and waste removal contractor to Wollongong Waste and Resource Recovery Park
Packaging		Qty Unknown		Recycle paper and cardboard packaging via recycling centre. Return timber pallets to supplier where appropriate. Dismantle and dispose otherwise via skip and waste removal contractor
Containers (cans, plastic, glass)		Qty Unknown		Recycle containers via recycling centre
Paper / Cardboard		Qty Unknown		Recycle paper and cardboard packaging via recycling centre
Residual Waste		Qty Unknown		Dispose via skip and waste removal contractor to Wollongong Waste and Resource Recovery Park
Hazardous / Special Waste			N/A	

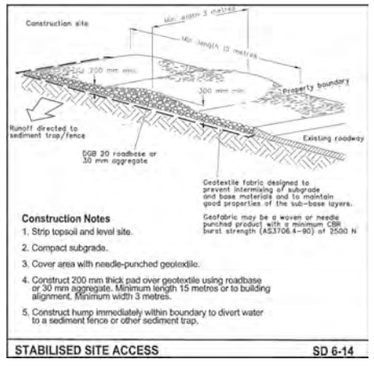
WASTE BAYS

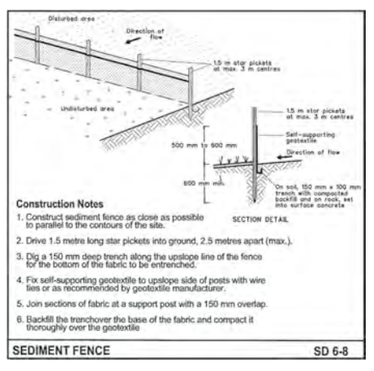
1. BRICK / CONCRETE WASTE BAY
2. TIMBER WASTE BAY
3. PLASTERBOARD WASTE BAY
4. METAL WASTE BAY
5. GENERAL WASTE BAY

- Trees to be removed

WASTE BAYS 1-4 ARE TO BE CONSTRUCTED USING SHADE CLOTH OR SEDIMENT FENCING. WHERE THE WASTE STREAM IS MADE UP OF LIGHT MATERIAL SUCH AS PAPER AND CARDBOARD, THE WASTE BAYS MUST CONSIST OF A CONTAINER FOR THE STORAGE OF THIS MATERIAL.







NOTES:

1. Site works will not start until erosion and sediment control works outlined in clauses 2 to 4 below, are installed and functional.
2. The entry to and dep[arture of vehicles from the site will be confined to one stabilised point. Barrier fencing will be used to restrict all vehicular movements to that point. Stabilisation will be achieved by constructing a stabilised site access following SD 6-14.
3. Sediment fences will be installed as shown on this plan.
4. Top soil from the construction area will be stripped and stockpiled in the location shown for later use in landscaping the site.
5. Approved bins for all waste types will be provided and arrangements made for regular collection and disposal.
6. Guttering to be connected to water tank and stormwater system as soon as practicable.
7. Topsoil to be spread and all disturbed areas to be stabilised within 4 weeks of completion of works.
8. All erosion and sediment controls to be checked at least weekly and after rain to ensure tey are maintained in a fully functional condition.

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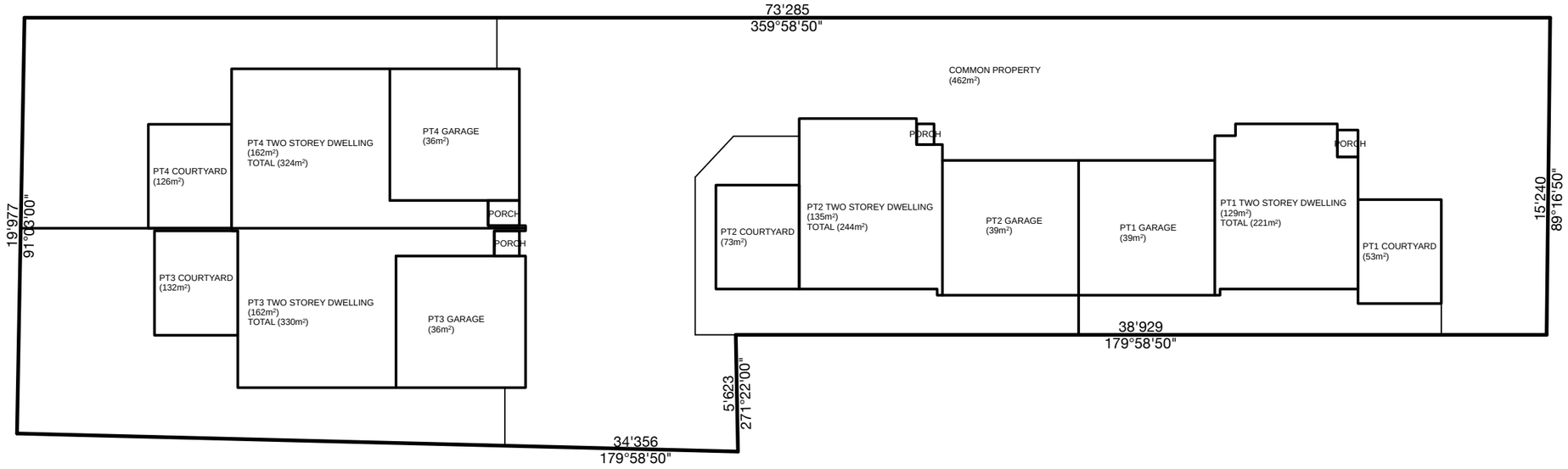

HOPETOUN STREET

PROPOSED STRATA SUBDIVISION

SCALE 1:250 @A3

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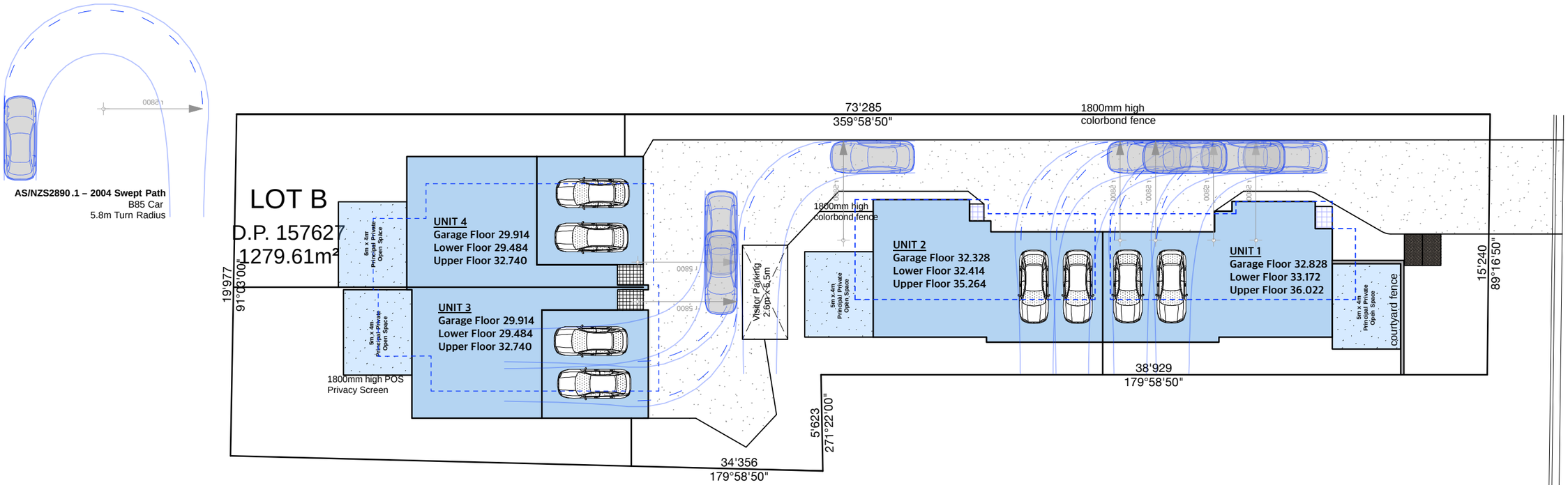
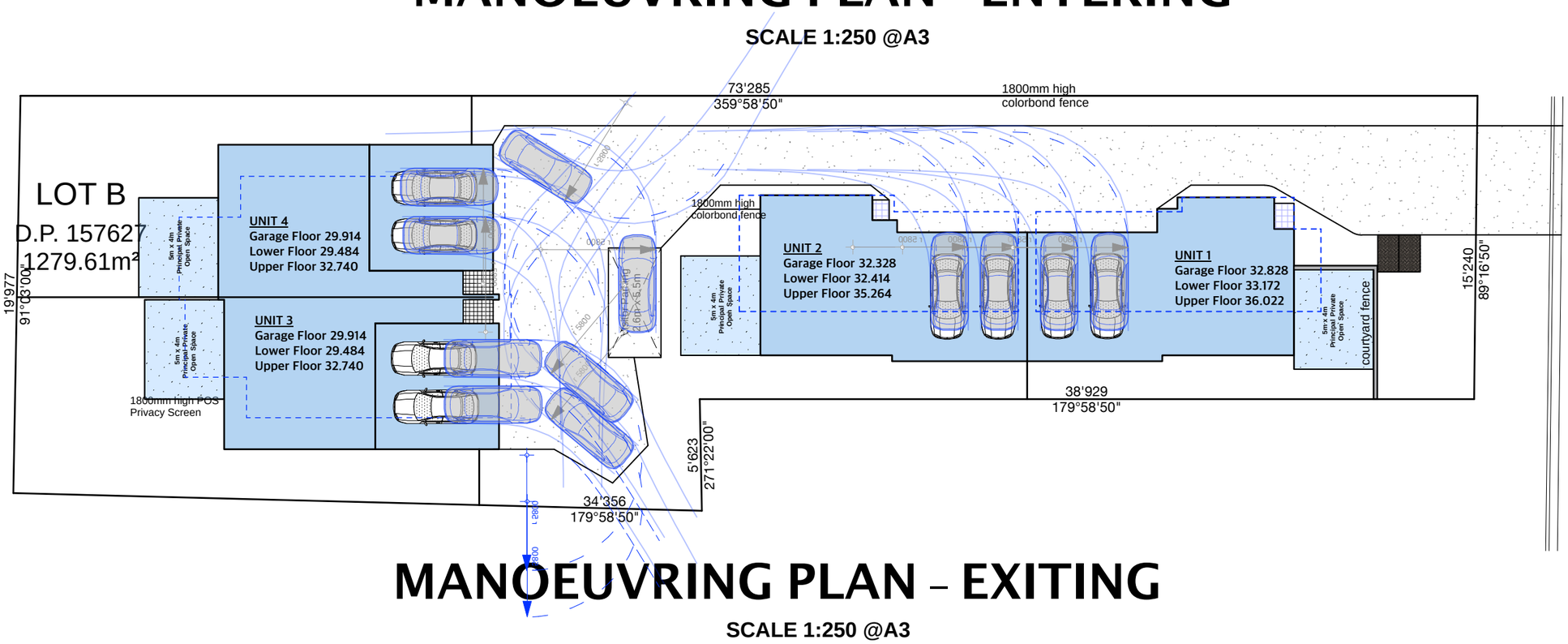


MANOEUVRING PLAN – ENTERING

SCALE 1:250 @A3



MANOEUVRING PLAN – EXITING

SCALE 1:250 @A3

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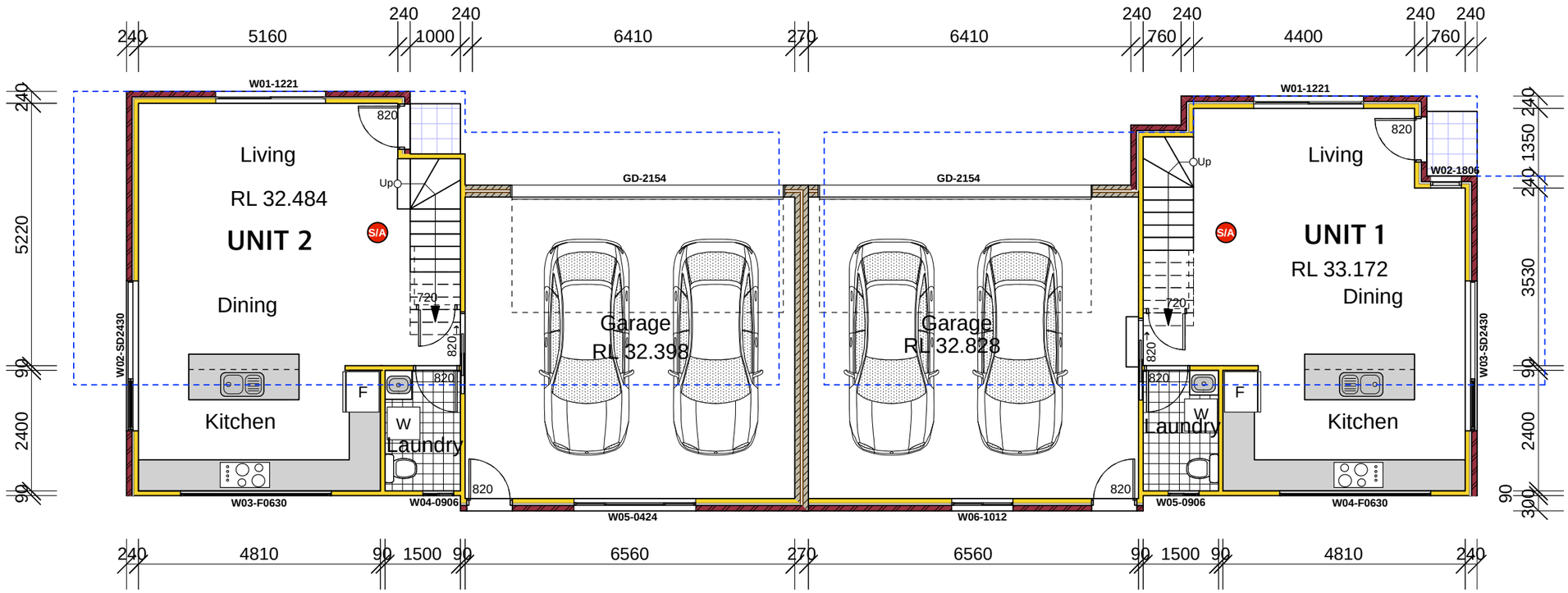
UNIT 1 & 2



LOWER FLOOR PLAN

SCALE 1:100 @A3

W3-1206 ← WINDOW SIZE

↑ DENOTES BASIX WINDOW REFERENCE

S/A DENOTES SMOKE ALARM TO AS3786 'HARD-WIRED' TO ELECTRICITY MAINS. (THE LOCATION OF COMPLIANT SMOKE ALARMS MUST BE IN ACCOPRDANCE WITH THE PROVISIOND OF PART 3.7.2 OF THE BUILDING CODE OF AUSTRALIA).

Window Schedule - Unit 1

Number	Type	Width (mm)	Height (mm)	Area m2	Orientation	Shading Device	Frame and Glass Type
1	Aluminium Sliding	2100	1200	2.52	E	No Eave	Standard Aluminium, Single Clear
2	Aluminium Awning	1800	600	1.08	E	1300mm Balcony	Standard Aluminium, Single Clear
3	Aluminium Sliding	3000	2400	7.2	S	1300mm Balcony	Standard Aluminium, Single Clear
4	Aluminium Fixed	3000	600	1.8	W	450mm Eave	Standard Aluminium, Single Clear
5	Aluminium Sliding	600	900	0.54	W	450mm Eave	Standard Aluminium, Single Clear
6	Aluminium Sliding	1200	1000	1.2	W	450mm Eave	Standard Aluminium, Single Clear
7	Aluminium Sliding	1800	1000	1.8	E	450mm Eave	Standard Aluminium, Single Clear
8	Aluminium Sliding	1800	1000	1.8	E	450mm Eave	Standard Aluminium, Single Clear
9	Aluminium Fixed	600	1500	0.9	E	450mm Eave	Standard Aluminium, Single Clear
10	Aluminium Sliding	1500	900	1.35	E	450mm Eave	Standard Aluminium, Single Clear
11	Aluminium Sliding	600	900	0.54	E	450mm Eave	Standard Aluminium, Single Clear
12	Aluminium Fixed	1200	600	0.72	S	450mm Eave	Standard Aluminium, Single Clear
13	Aluminium Awning	2400	1200	2.88	S	450mm Eave	Standard Aluminium, Single Clear
14	Aluminium Sliding	2400	450	1.08	W	450mm Eave	Standard Aluminium, Single Clear

All recessed downlights in the thermal envelope to be sealed. All exhaust fans to be fitted with dampers and insulation installed up to cover

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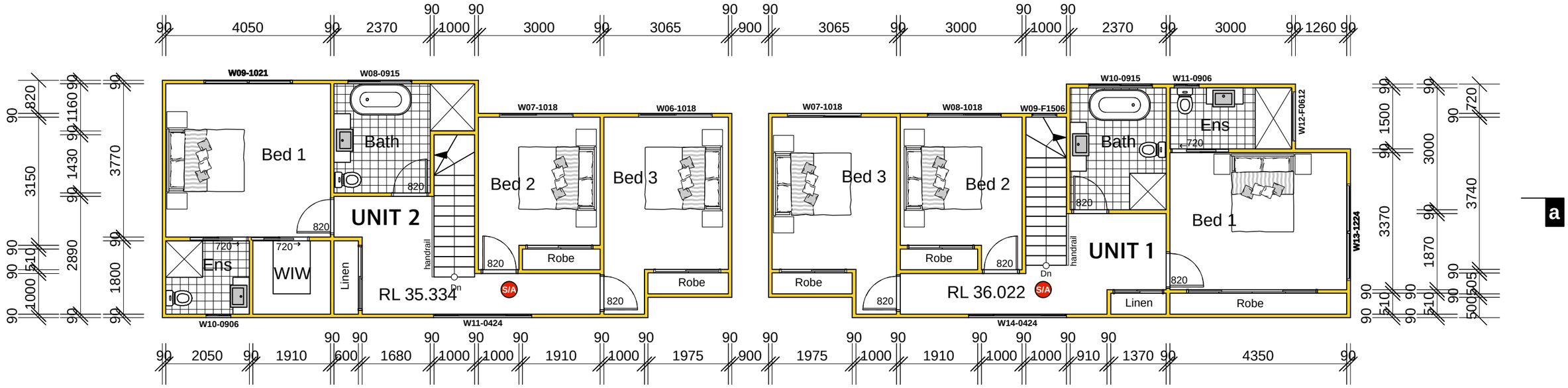
UNIT 1 & 2



a

UPPER FLOOR PLAN

SCALE 1:100 @A3

W3-1206 ← WINDOW SIZE

↑ DENOTES BASIX WINDOW REFERENCE

S/A DENOTES SMOKE ALARM TO AS3786 'HARD-WIRED' TO ELECTRICITY MAINS. (THE LOCATION OF COMPLIANT SMOKE ALARMS MUST BE IN ACCOPRDANCE WITH THE PROVISIOND OF PART 3.7.2 OF THE BUILDING CODE OF AUSTRALIA).

Window Schedule - Unit 2

Number	Type	Width (mm)	Height (mm)	Area m2	Orientation	Shading Device	Frame and Glass Type
1	Aluminium Sliding	2100	1200	2.52	E	No Eave	Standard Aluminium, Single Clear
2	Aluminium Sliding	3000	2400	7.2	N	1300mm Balcony	Standard Aluminium, Single Clear
3	Aluminium Fixed	3000	600	1.8	W	450mm Eave	Standard Aluminium, Single Clear
4	Aluminium Sliding	600	900	0.54	W	450mm Eave	Standard Aluminium, Single Clear
5	Aluminium Sliding	2400	450	1.08	W	450mm Eave	Standard Aluminium, Single Clear
6	Aluminium Sliding	1800	1000	1.8	E	450mm Eave	Standard Aluminium, Single Clear
7	Aluminium Sliding	1800	1000	1.8	E	450mm Eave	Standard Aluminium, Single Clear
8	Aluminium Sliding	1500	900	1.35	E	450mm Eave	Standard Aluminium, Single Clear
9	Aluminium Sliding	2100	1000	2.1	E	450mm Eave	Standard Aluminium, Single Clear
10	Aluminium Sliding	600	900	0.54	W	450mm Eave	Standard Aluminium, Single Clear
11	Aluminium Sliding	2400	450	1.08	W	450mm Eave	Standard Aluminium, Single Clear

All recessed downlights in the thermal envelope to be sealed. All exhaust fans to be fitted with dampers and insulation installed up to cover

CLIENT: Itsbuilt

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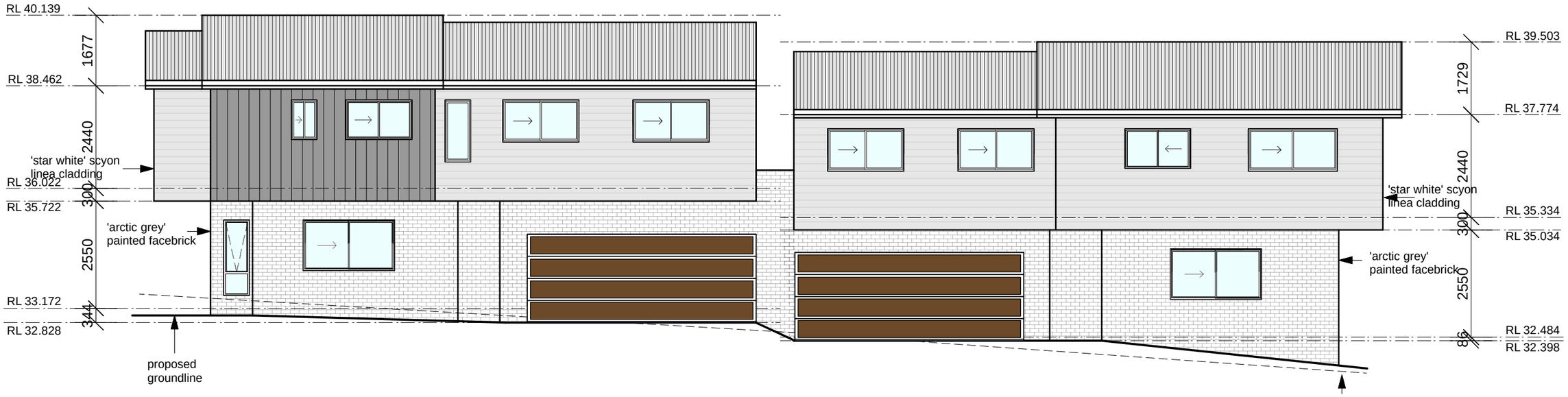
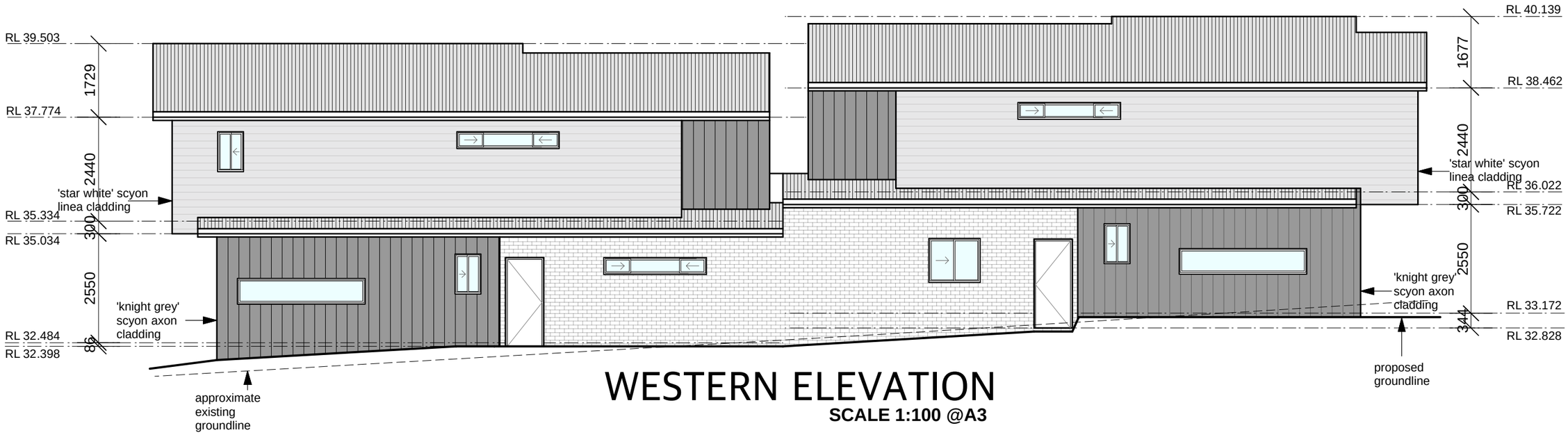


EASTERN ELEVATION

SCALE 1:100 @A3



WESTERN ELEVATION

SCALE 1:100 @A3

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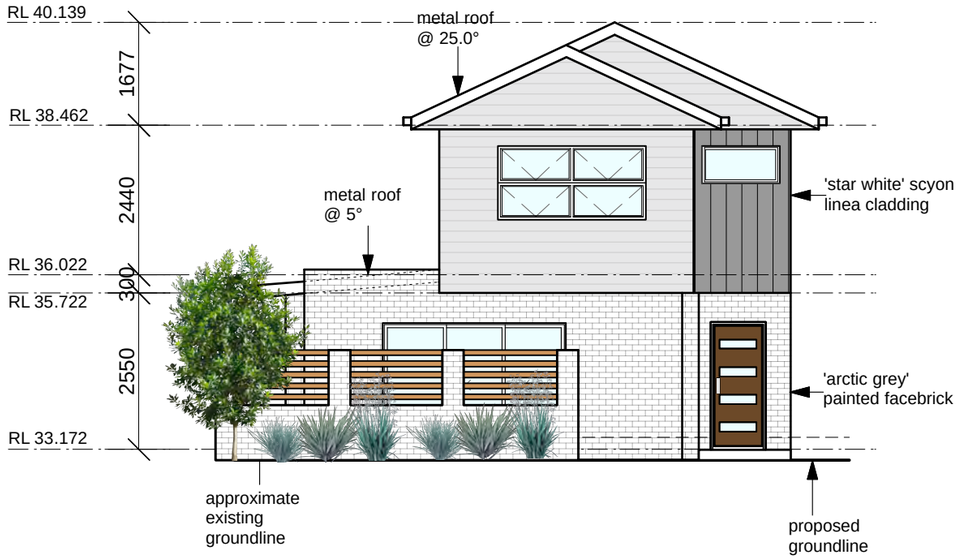
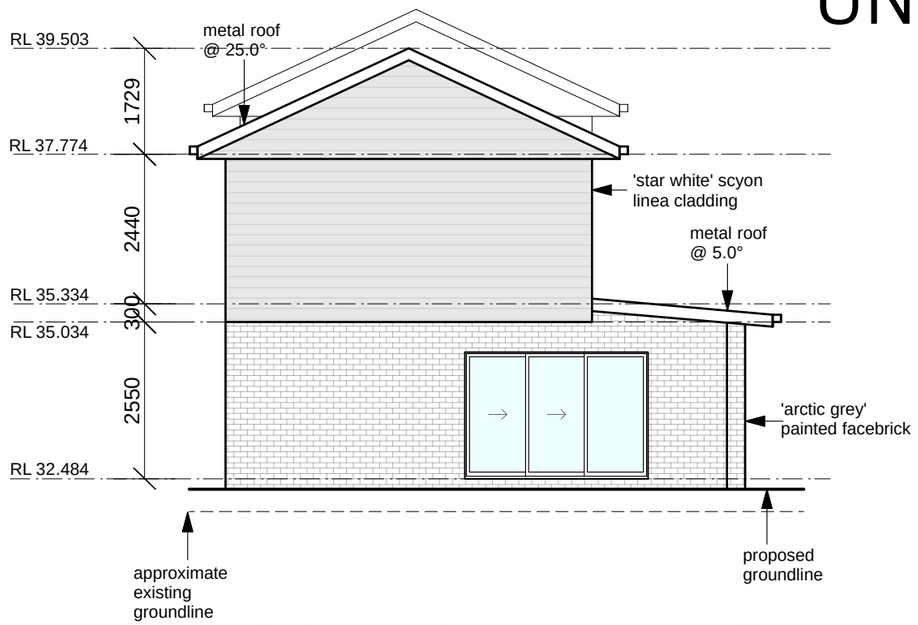
UNITS 1 & 2



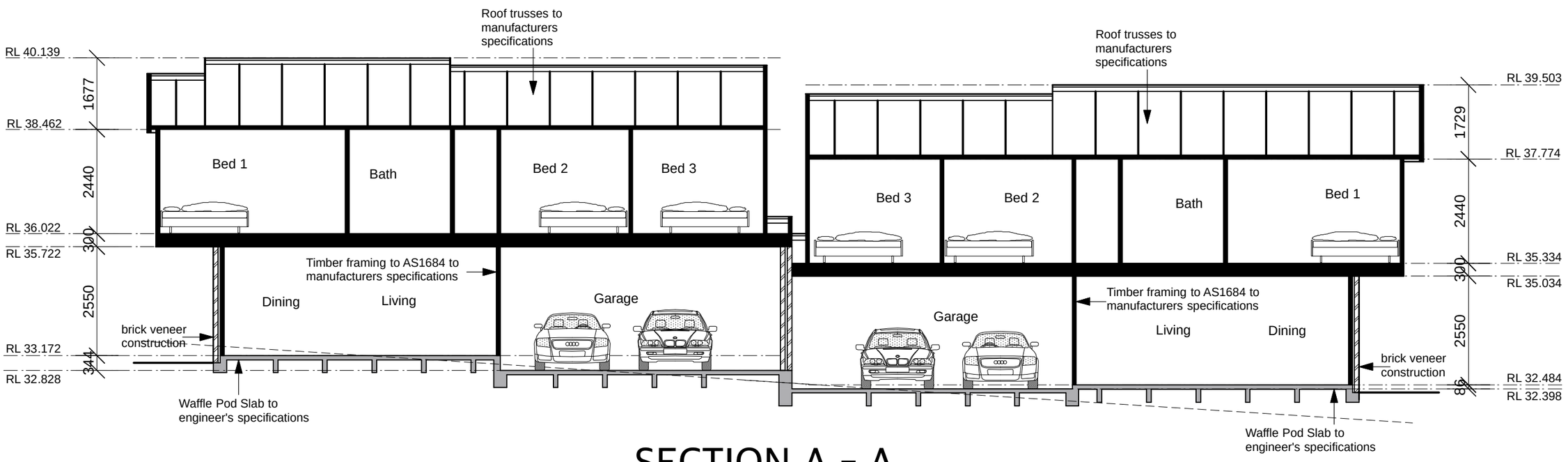
SOUTHERN ELEVATION

SCALE 1:100 @A3



NORTHERN ELEVATION

SCALE 1:100 @A3



SECTION A – A

SCALE 1:100 @A3

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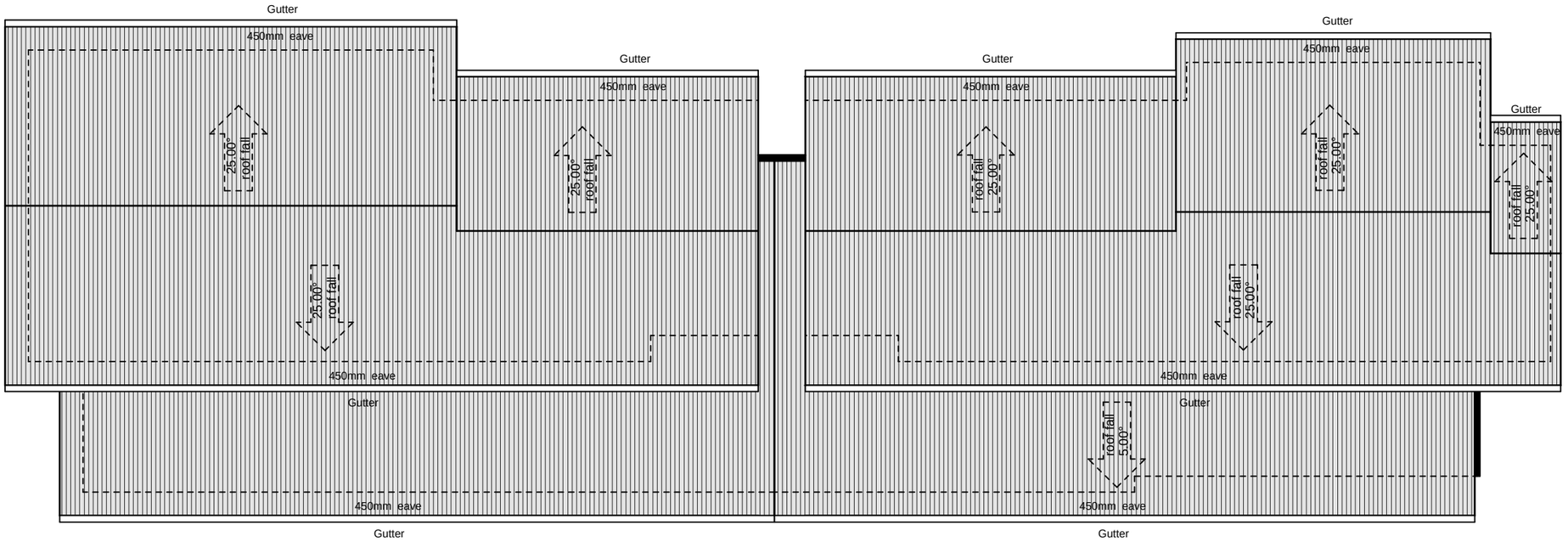


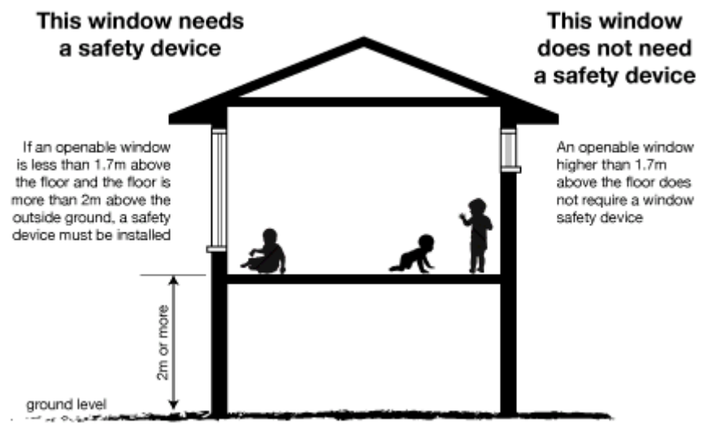
ROOF PLAN

SCALE 1:100 @A3

An openable window will need a safety device installed if:

1. the lowest part of the window is less than 1.7m above the floor; and
2. the internal floor under the window is 2m or more above the outside surface.

The safety devices must be able to limit the maximum window opening to 12.5cm, must be robust, and must be childproof. Suitable window safety devices would include window locks or safety screens, but not ordinary insect screens.



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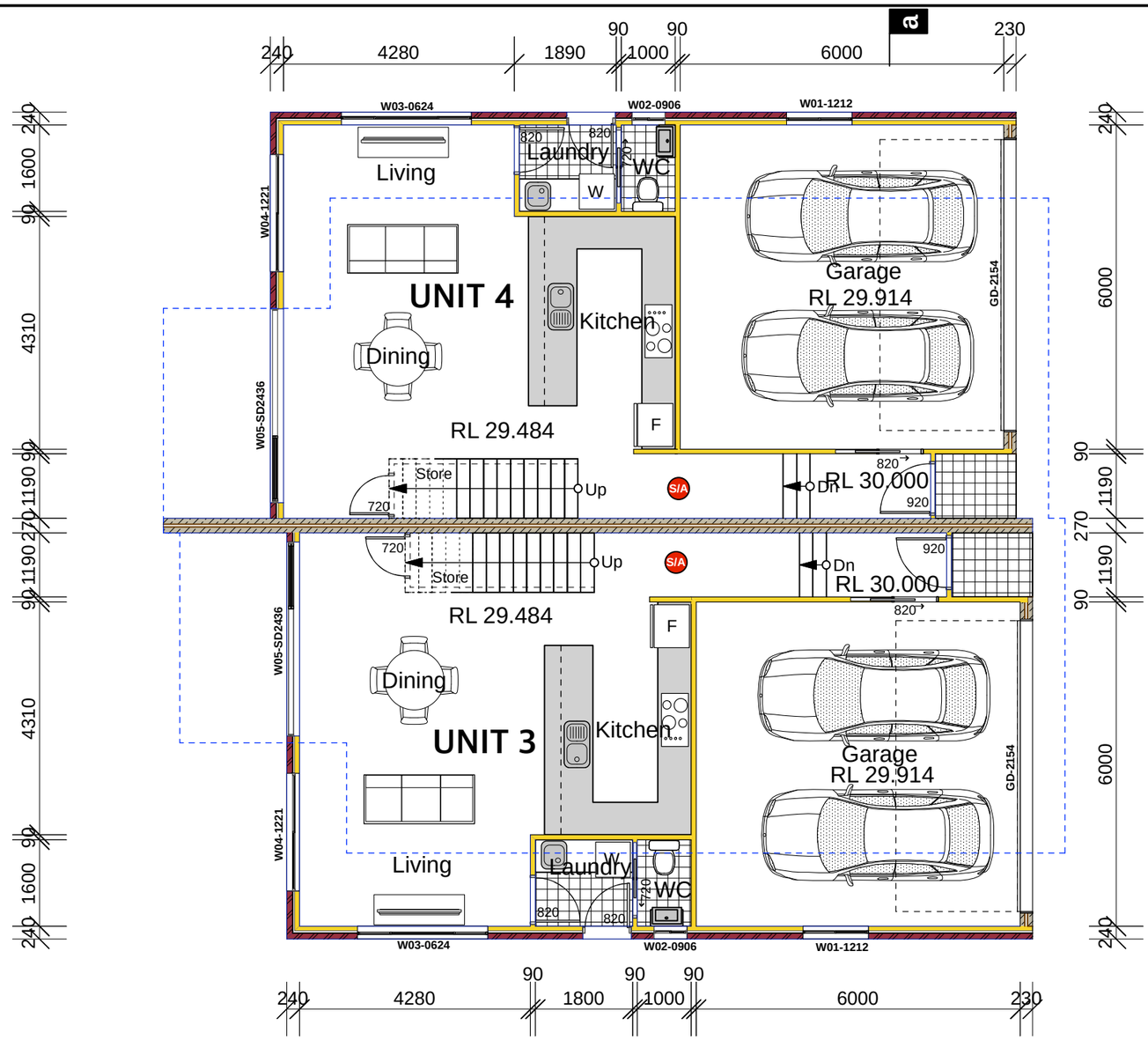
UNITS 3 & 4



LOWER FLOOR PLAN

SCALE 1:100 @A3

W3-1206 ← WINDOW SIZE

DENOTES BASIX WINDOW REFERENCE

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All recessed downlights in the thermal envelope to be sealed. All exhaust fans to be fitted with dampers and insulation installed up to cover

Window Schedule - Unit 3

Number	Type	Width (mm)	Height (mm)	Area m2	Orientation	Shading Device	Frame and Glass Type
1	Aluminium Sliding	1200	1200	1.44	W	450mm Eave	Standard Aluminium, Single Clear
2	Aluminium Sliding	600	900	0.54	W	450mm Eave	Standard Aluminium, Single Clear
3	Aluminium Sliding	2400	600	1.44	W	450mm Eave	Standard Aluminium, Single Clear
4	Aluminium Sliding	2100	1200	2.52	N	450mm Eave	Standard Aluminium, Single Clear
5	Aluminium Sliding	3600	2400	8.64	N	2000mm Awning	Standard Aluminium, Single Clear
6	Aluminium Awning	1200	900	1.08	S	No Eave	Standard Aluminium, Single Clear
7	Aluminium Awning	2400	1200	2.88	S	No Eave	Standard Aluminium, Single Clear
8	Aluminium Sliding	1500	900	1.35	W	450mm Eave	Standard Aluminium, Single Clear
9	Aluminium Sliding	1800	1000	1.8	W	450mm Eave	Standard Aluminium, Single Clear
10	Aluminium Sliding	1800	1000	1.8	W	450mm Eave	Standard Aluminium, Single Clear
11	Aluminium Sliding	1800	1000	1.8	W	450mm Eave	Standard Aluminium, Single Clear

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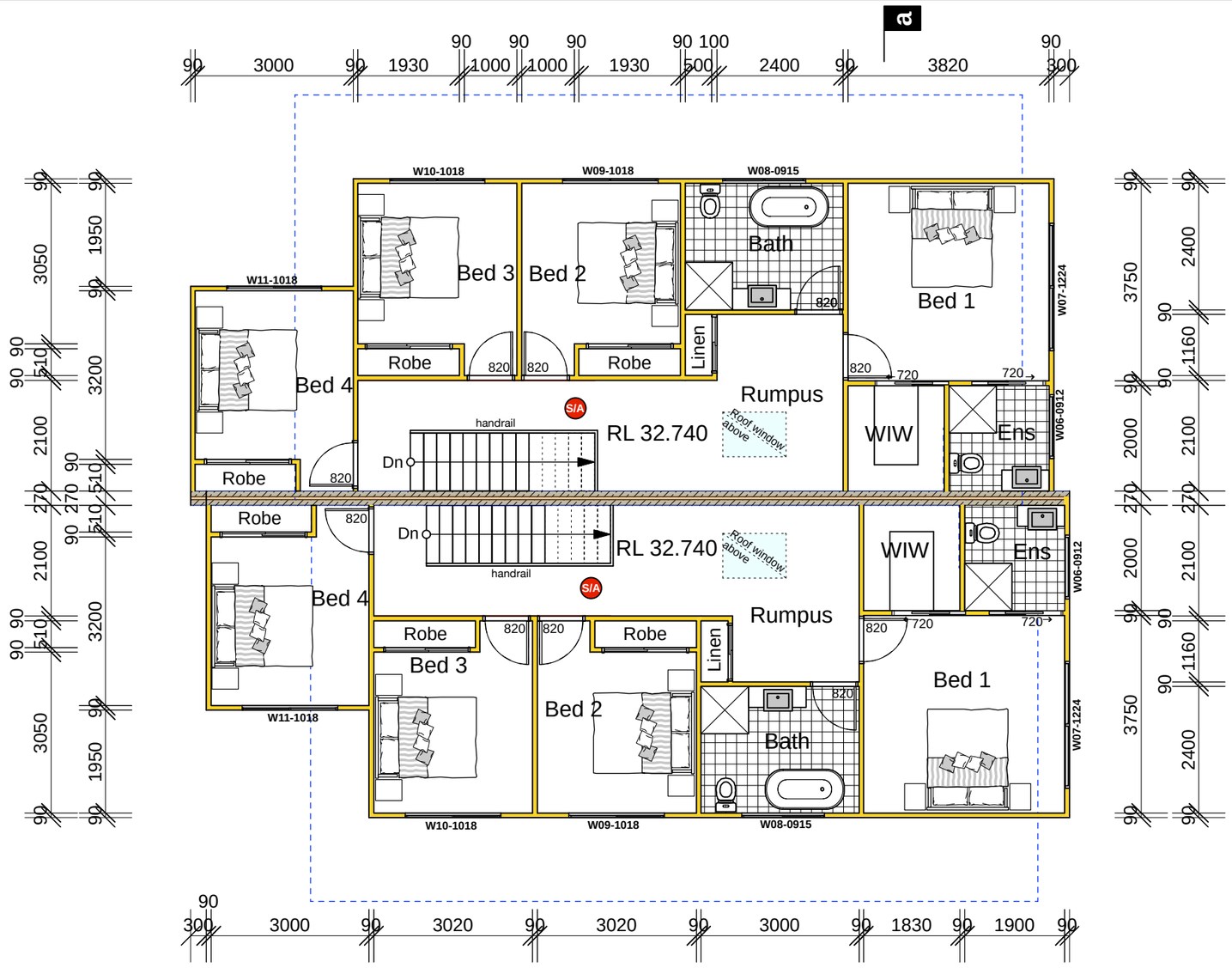
UNITS 3 & 4



UPPER FLOOR PLAN

SCALE 1:100 @A3

W3-1206 ← WINDOW SIZE

DENOTES BASIX WINDOW REFERENCE

S/A DENOTES SMOKE ALARM TO AS3786 'HARD-WIRED' TO ELECTRICITY MAINS. (THE LOCATION OF COMPLIANT SMOKE ALARMS MUST BE IN ACCOPRDANCE WITH THE PROVISIOND OF PART 3.7.2 OF THE BUILDING CODE OF AUSTRALIA).

All recessed downlights in the thermal envelope to be sealed. All exhaust fans to be fitted with dampers and insulation installed up to cover

Window Schedule - Unit 4

Number	Type	Width (mm)	Height (mm)	Area m2	Orientation	Shading Device	Frame and Glass Type
1	Aluminium Sliding	1200	1200	1.44	E	450mm Eave	Standard Aluminium, Single Clear
2	Aluminium Sliding	600	900	0.54	E	450mm Eave	Standard Aluminium, Single Clear
3	Aluminium Sliding	2400	600	1.44	E	450mm Eave	Standard Aluminium, Single Clear
4	Aluminium Sliding	2100	1200	2.52	N	450mm Eave	Standard Aluminium, Single Clear
5	Aluminium Sliding	3600	2400	8.64	N	2000mm Awning	Standard Aluminium, Single Clear
6	Aluminium Awning	1200	900	1.08	S	No Eave	Standard Aluminium, Single Clear
7	Aluminium Awning	2400	1200	2.88	S	No Eave	Standard Aluminium, Single Clear
8	Aluminium Sliding	1500	900	1.35	E	450mm Eave	Standard Aluminium, Single Clear
9	Aluminium Sliding	1800	1000	1.8	E	450mm Eave	Standard Aluminium, Single Clear
10	Aluminium Sliding	1800	1000	1.8	E	450mm Eave	Standard Aluminium, Single Clear
11	Aluminium Sliding	1800	1000	1.8	E	450mm Eave	Standard Aluminium, Single Clear

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UNITS 3 & 4

SOUTHERN ELEVATION

SCALE 1:100 @A3

EASTERN ELEVATION

SCALE 1:100 @A3

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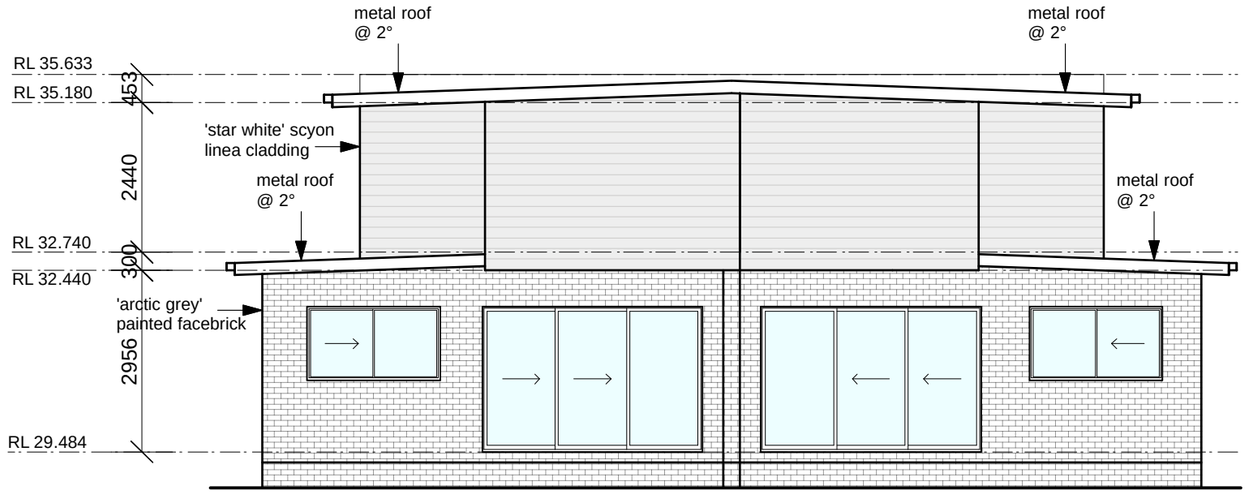
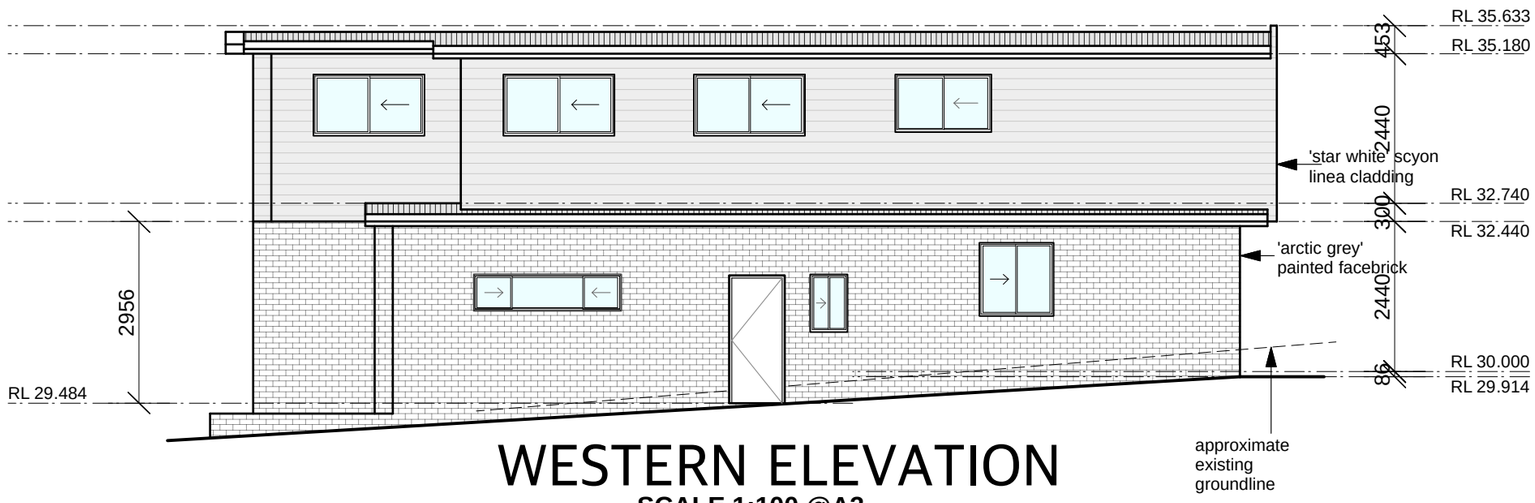
UNITS 3 & 4



NORTHERN ELEVATION

SCALE 1:100 @A3



WESTERN ELEVATION

SCALE 1:100 @A3

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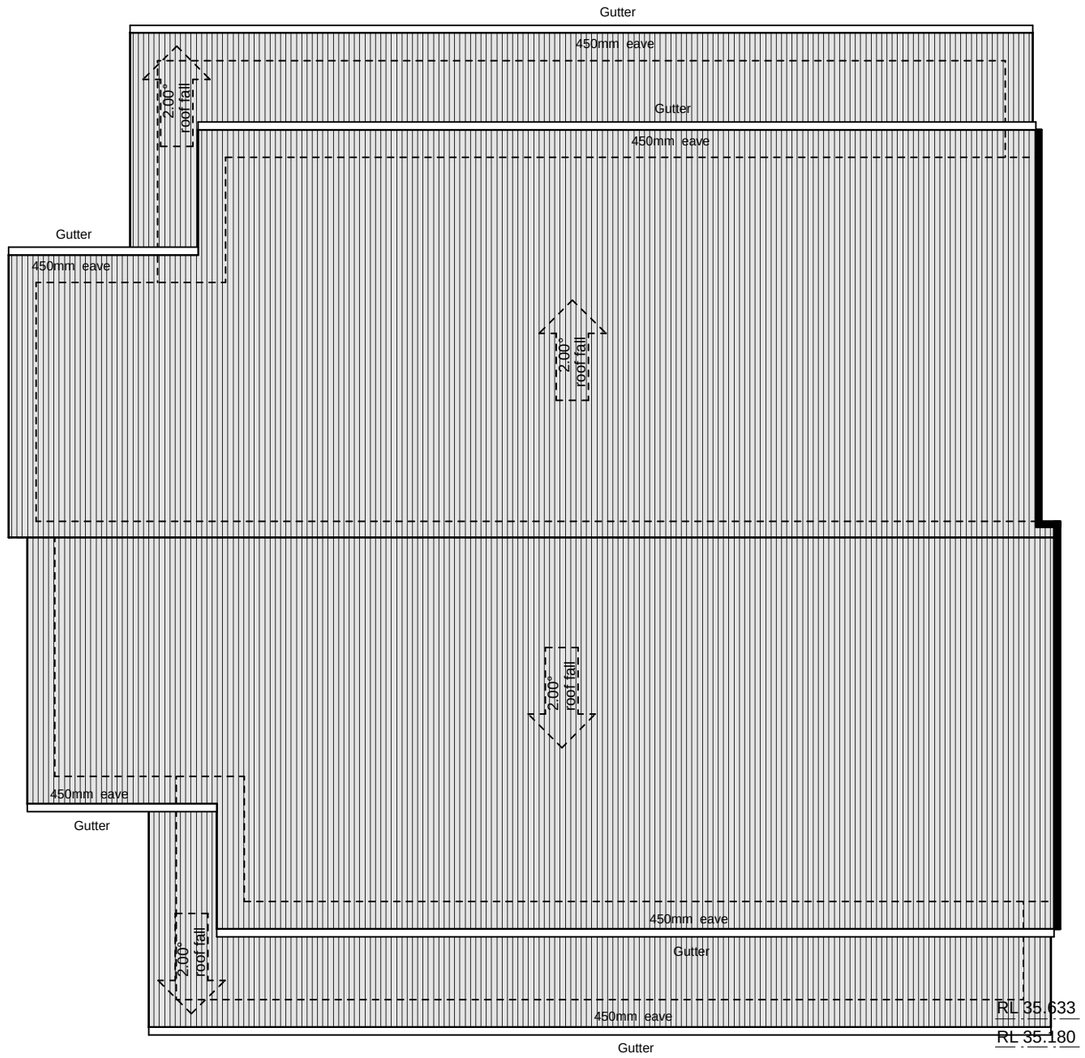
Ingenuity Home Design

UNITS 3 & 4



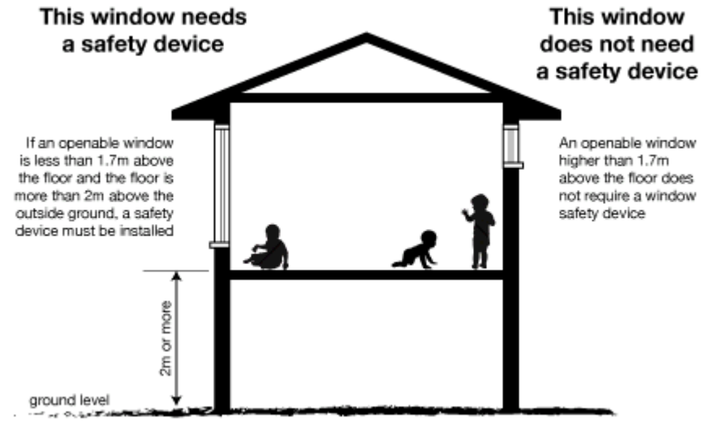
SCALE 1:100 @A3

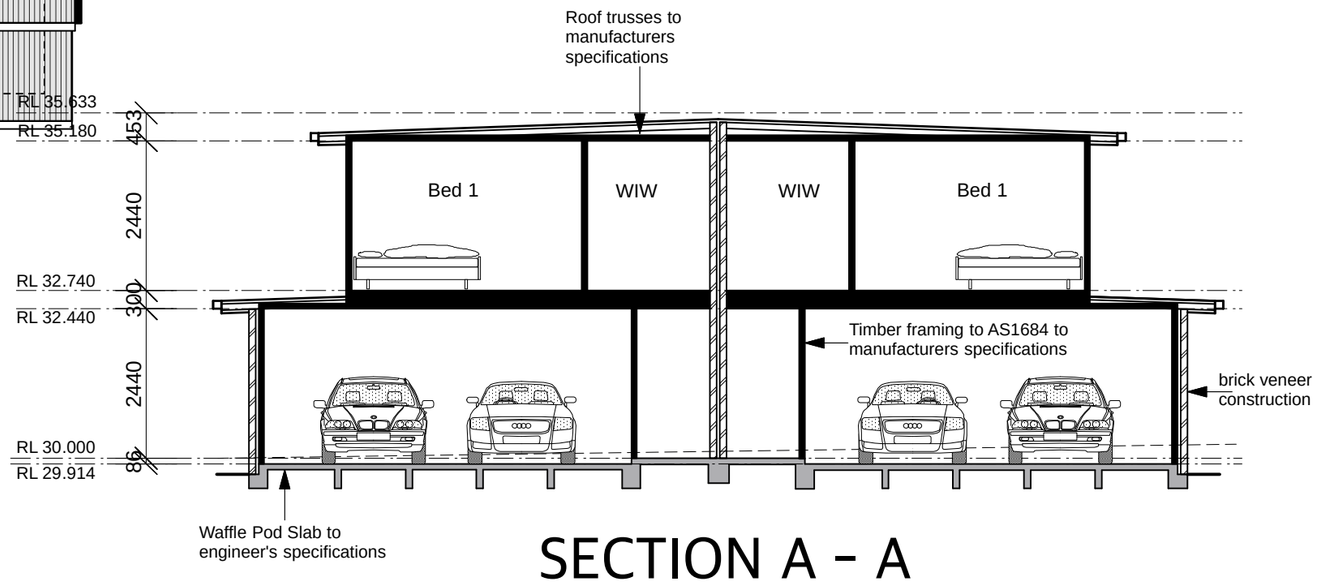
ROOF PLAN

An openable window will need a safety device installed if:

1. the lowest part of the window is less than 1.7m above the floor; and
2. the internal floor under the window is 2m or more above the outside surface.

The safety devices must be able to limit the maximum window opening to 12.5cm, must be robust, and must be childproof. Suitable window safety devices would include window locks or safety screens, but not ordinary insect screens.





SECTION A - A

SCALE 1:100 @A3

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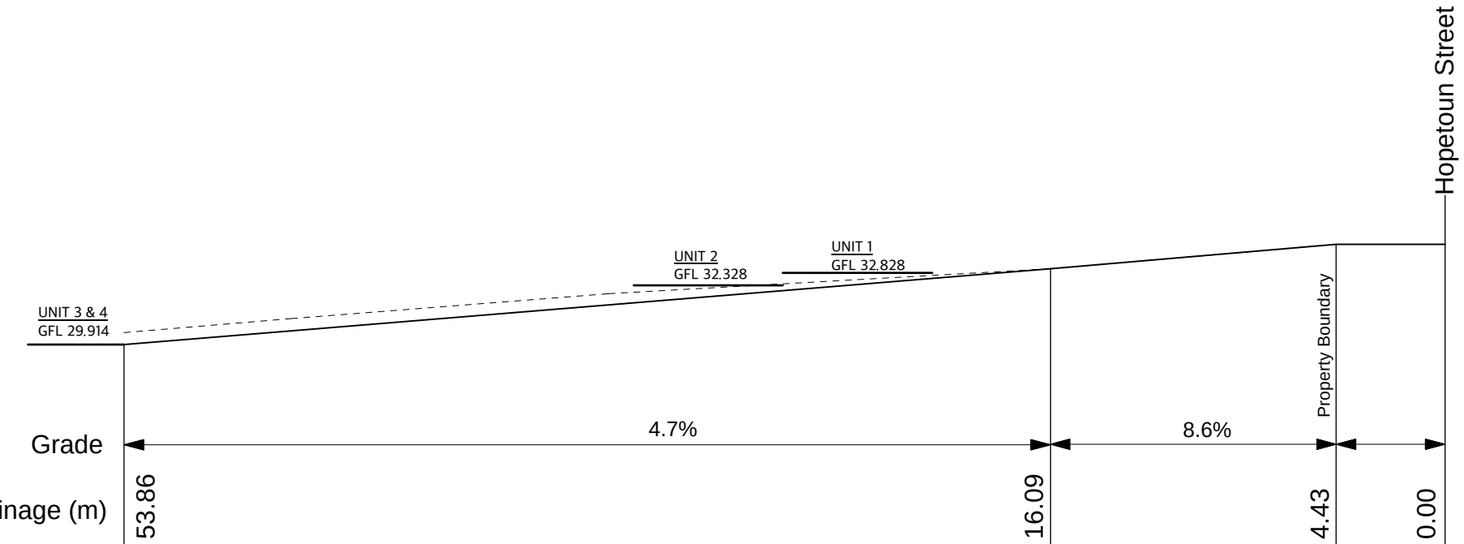

Grade		4.7%	8.6%	
Chainage (m)	53.86	16.09	4.43	0.00
Existing Level (mAHD)	30.40	33.00	34.00	
Design Level (mAHD)	29.91	33.00	34.00	

DRIVEWAY 'A' LONG SECTION

SCALE 1:250 @A3

CLIENT:
Itsbuilt

JOB ADDRESS:
18 HOPETOUN STREET, WOONONA

JOB NUMBER:	20180029
DATE:	22/08/2019
ISSUE:	F
	SHEET 19 of 21

bdaa ACCREDITED BUILDING DESIGNER

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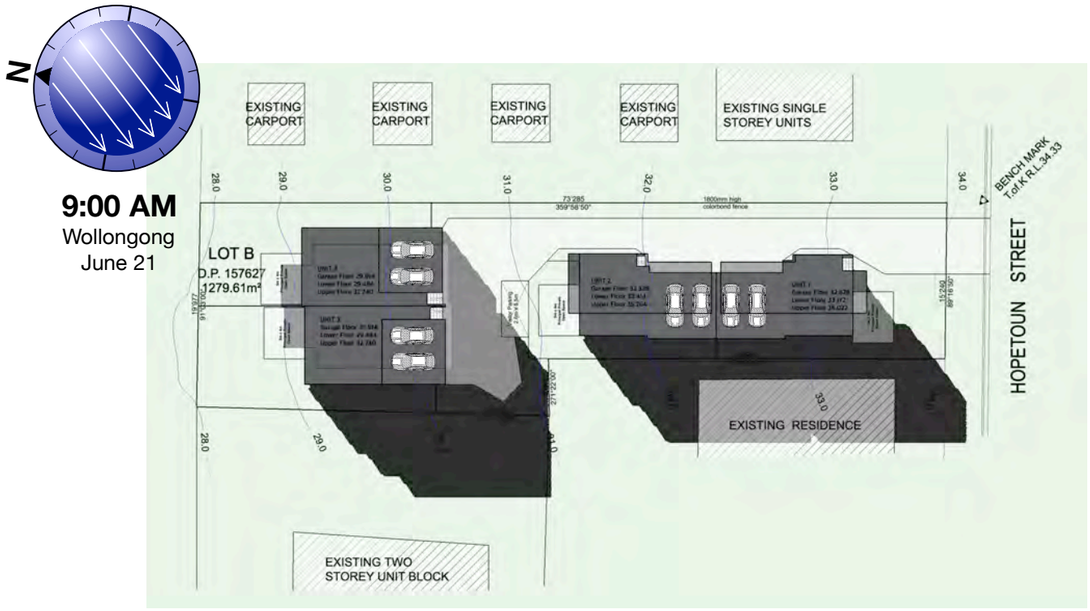
Ingenuity Home Design



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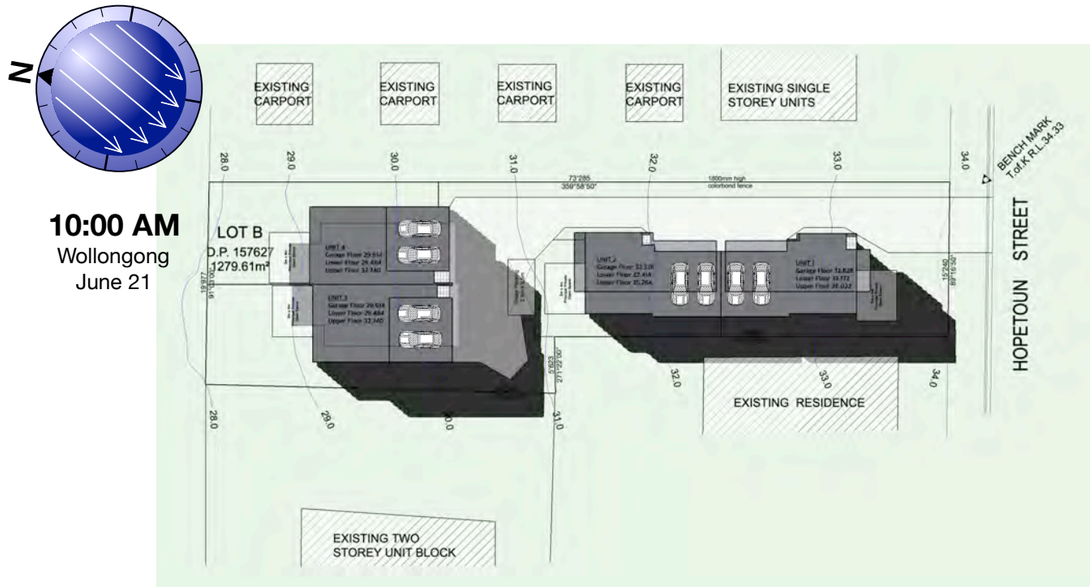
June 21



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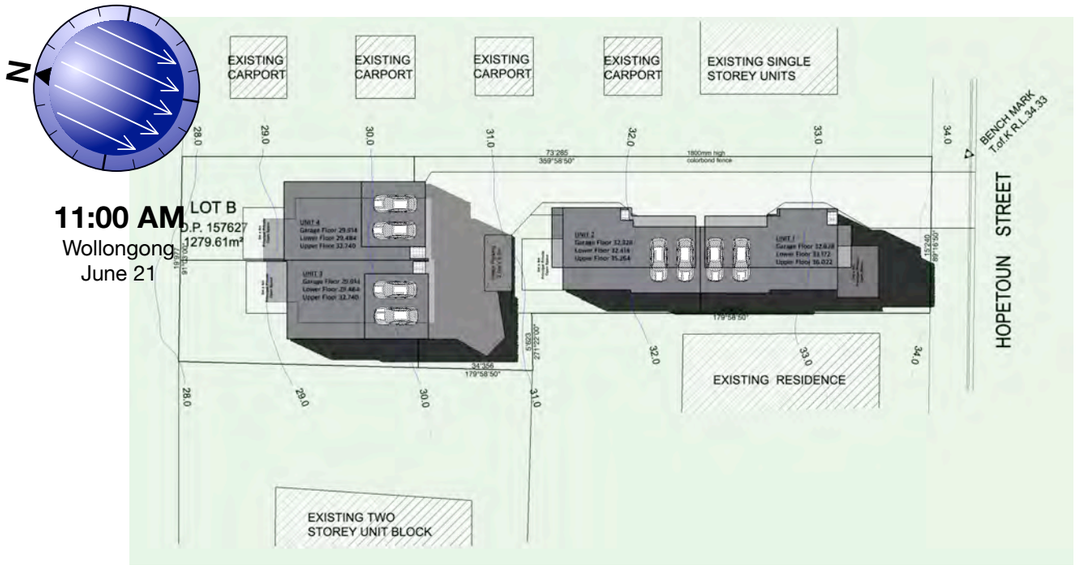

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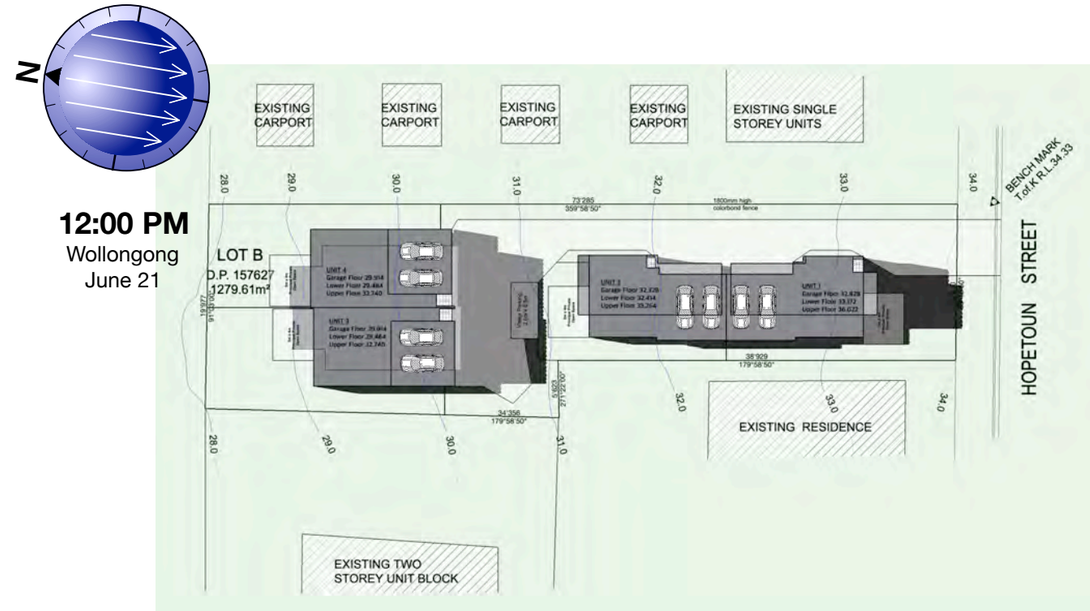

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Wollongong
June 21

SHADOW DIAGRAM

SCALE NTS

CLIENT: Itsbuilt	JOB ADDRESS: 18 HOPETOUN STREET, WOONONA	JOB NUMBER: 20180029	
		DATE: 22/08/2019	
		ISSUE: F	
			SHEET 20 of 21

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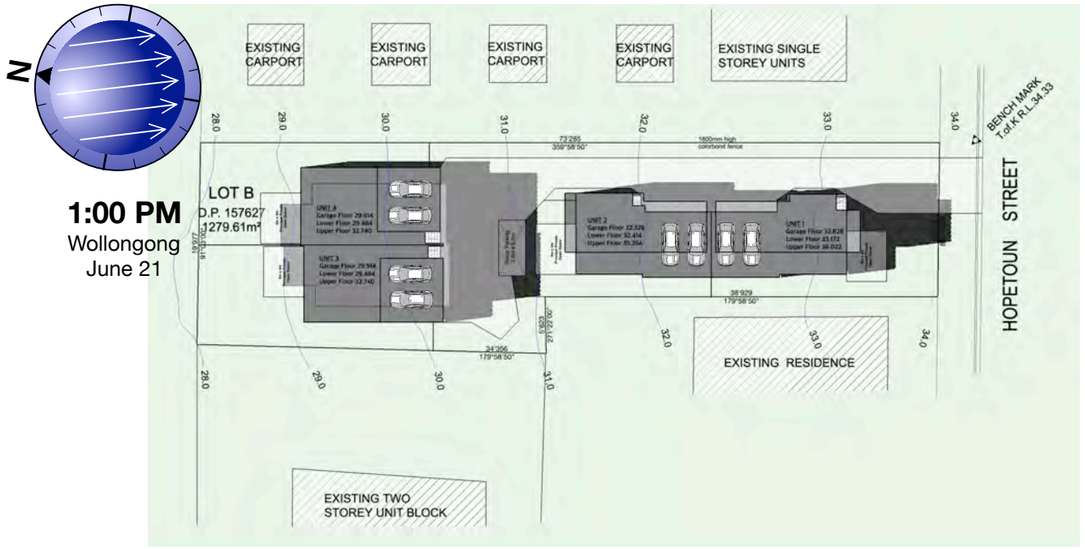

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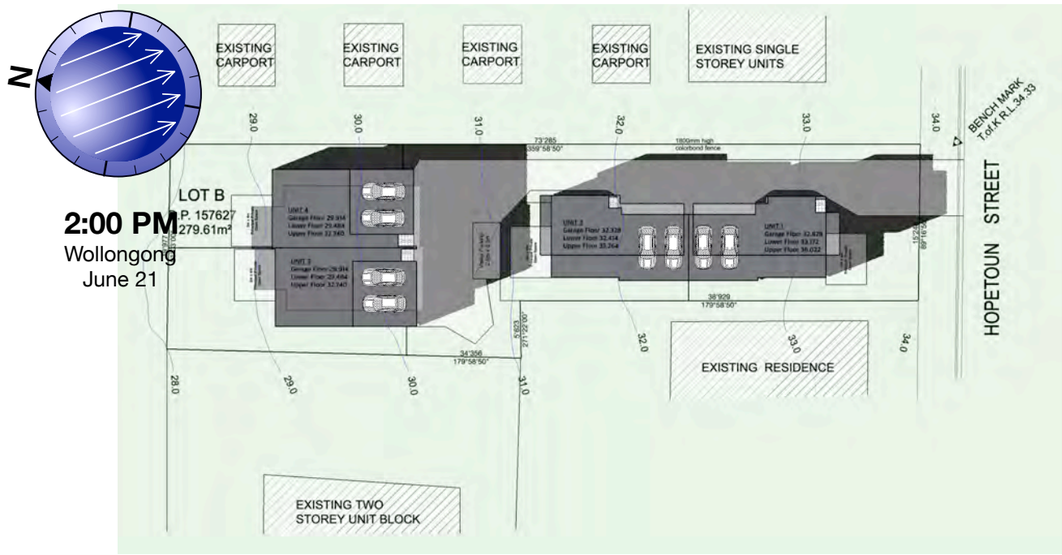
June 21



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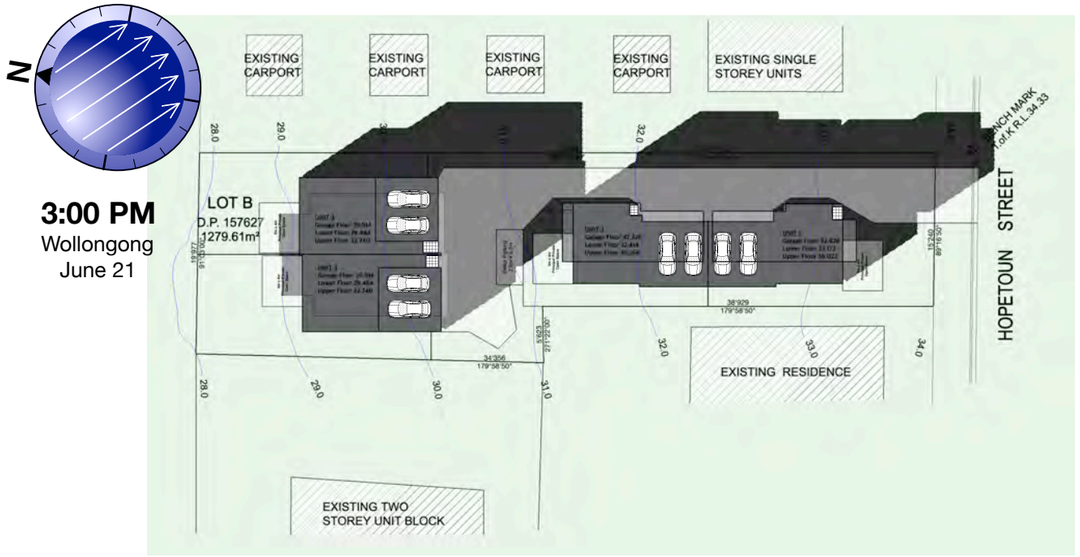
June 21



3:00 PM
Wollongong
June 21

SHADOW DIAGRAM

SCALE NTS

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JOB ADDRESS:	18 HOPETOUN STREET, WOONONA
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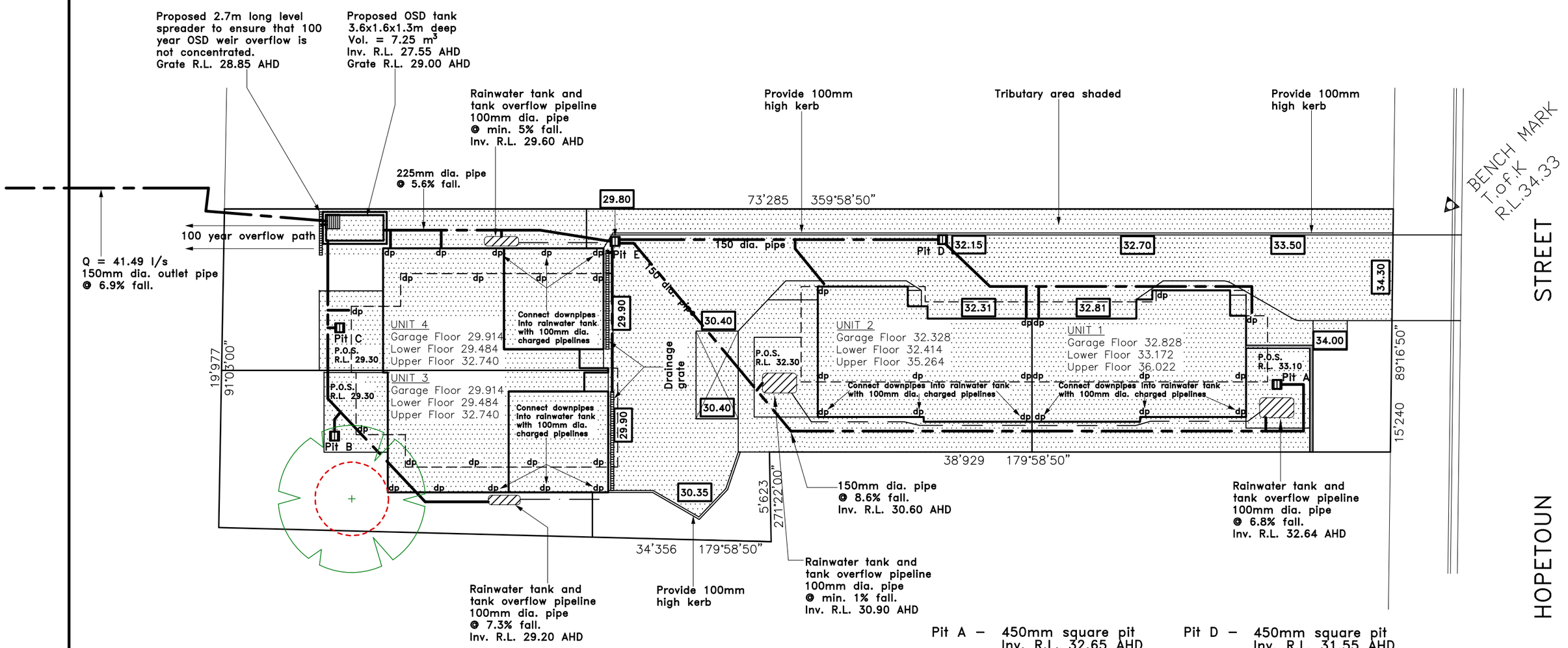
Ingenuity Home Design

Roof gutter and downpipes have been designed for 100 year ARI 5 min. tc of 299mm/hr. Downpipes to be min. 100mm dia. PVC pipe with downpipes located as shown. Roof gutter cross sectional area to be min. 7300mm² with min. 1:500 gutter slope or greater.



Pit A – 450mm square pit
Inv. R.L. 32.65 AHD
Grate R.L. 33.10 AHD

Pit B – 450mm square pit
Inv. R.L. 28.70 AHD
Grate R.L. 29.30 AHD

Pit C – 450mm square pit
Inv. R.L. 28.70 AHD
Grate R.L. 29.30 AHD

Pit D – 450mm square pit
Inv. R.L. 31.55 AHD
Grate R.L. 32.15 AHD

Pit E – 450mm square pit
Inv. R.L. 29.20 AHD
Grate R.L. 29.80 AHD

Pit D to Pit E – 150mm dia. pipe @ 11% fall.

Pit E to OSD – 225mm dia. pipe @ 5.6% fall.

— · — Charged pipeline

——— Proposed pipeline

dp – Proposed downpipe

Ensure all drainage pipelines have min. 100mm cover from the top of the pipe to the finished ground level or to the underside of the concrete driveway. Any pipelines that have less than 100mm of cover to the underside of the concrete driveway/slab must be galv. steel pipelines.

All drainage pipelines are min. 100mm dia. @ min. 1% fall. U.N.O.

CONCEPT DRAINAGE PLAN

AMENDMENTS

ADD DESIGN & CONSULTING
CONSULTING CIVIL – STRUCTURAL ENGINEERS
P.O. Box 4058 Shellharbour NSW 2529
e: anthonydragovic@gmail.com Mobile (0401) 478 254

DRAINAGE PLANS FOR
MR. T. CROSSLING
18 HOPETOUN STREET
WOONONA

DESIGNED A.D.D.	CODE hoped.dwg
DRAWN A.D.D.	DATUM A.H.D
CHECKED	SCALE 1:250
DATE 11/2017	SHEET 1 OF 4
JOB No. 17/298	REVISION B

RCP

22.08 GRATED PIT
20.05 INVERT OF PIT
PIT 1E

PIT 1F

22.15 GRATED PIT
19.95 INVERT OF PIT

Location of ridge in the kerb and gutter. Using survey equipment found 50mm of fall from house number 97 to 93.

Existing kerb and gutter gully pit.

22.31 GRATED PIT
21.68 INVERT 300Ø RCP (INLET)
21.46 INVERT 300Ø RCP (OUTLET)

FARRELL ROAD

Connect 2/100x150mm RHS pipes into existing kerb & gutter and make good. Inv. R.L. 22.20 AHD

300Ø RCP @ 1% fall

Direction of gutter flow

Direction of gutter flow

PIT 1B

Q = 41.49 l/s
450mm square pit with sealed concrete lid and debris screen.
Inv. R.L. 22.35 AHD
Grate R.L. 22.70 AHD
100x150mm RHS pit outlet pipes @ 1% fall connected into existing kerb

105 | 103 | 101 | 99 | 97 | 95 | 93 | 91 | 89 | 87

Existing dwelling

150mm dia. pipe @ 6.9% fall.

7 D.P. 6454 | 8 D.P. 6454 | 9 D.P. 6454 | 10 D.P. 6454 | 11 D.P. 6454 | 12 D.P. 6454 | 13 D.P. 6454 | 14 D.P. 6454

Existing 300mm dia. pipe @ 7.7% fall connected into existing kerb and gutter gully pit.

Existing garage to be demolished and reconstructed

Proposed 1m wide drainage easement

300Ø RCP

PIT 1A

27.64 GRATED PIT
26.68 INVERT OF 150Ø PVC (INLET)
26.58 INVERT OF 300Ø RCP (INLET)
26.57 INVERT OF 300Ø RCP (OUTLET)

150Ø PVC

300Ø RCP

27.68

27.50 GRATED PIT
26.86 INVERT OF 150Ø PVC (INLET)
26.77 INVERT OF 300Ø RCP(OUTLET)

28.20 GRATED PIT
27.77 INVERT OF 150Ø PVC (INLET)
26.73 INVERT OF 150Ø PVC (OUTLET)

26A

SP 17653

UNIT 4 Garage Floor 29.914 Lower Floor 29.484 Upper Floor 32.740

UNIT 3 Garage Floor 29.914 Lower Floor 29.484 Upper Floor 32.740

UNIT 2 Garage Floor 32.328 Lower Floor 32.414 Upper Floor 35.284

UNIT 1 Garage Floor 32.828 Lower Floor 33.172 Upper Floor 36.022

Drainage grate

29.20

30.91

(A) (B) 821 D.P. 1189652

820 D.P. 1189652

D.P. 1189651

1 D.P. 508018

2 D.P. 508018

A D.P. 157627

PITTMAN LANE

HOPETOUN STREET

HOPETOUN STREET

BENCH MARK TOP K R.L.34.33

CONCEPT DRAINAGE PLAN

ADD DESIGN & CONSULTING
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DRAINAGE PLANS FOR
MR. T. CROSSLING
18 HOPETOUN STREET
WOONONA

DESIGNED A.D.D.	CODE hoped.dwg
DRAWN A.D.D.	DATUM A.H.D
CHECKED	SCALE 1:500
DATE 11/2017	SHEET 2 OF 4
JOB No. 17/298	REVISION B

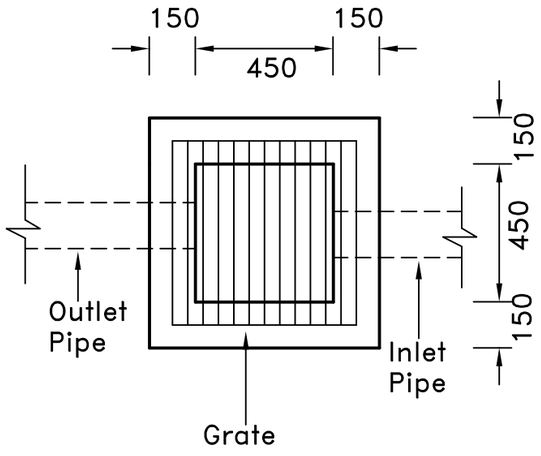
AMENDMENTS

OSD – DATA & CALCULATIONS

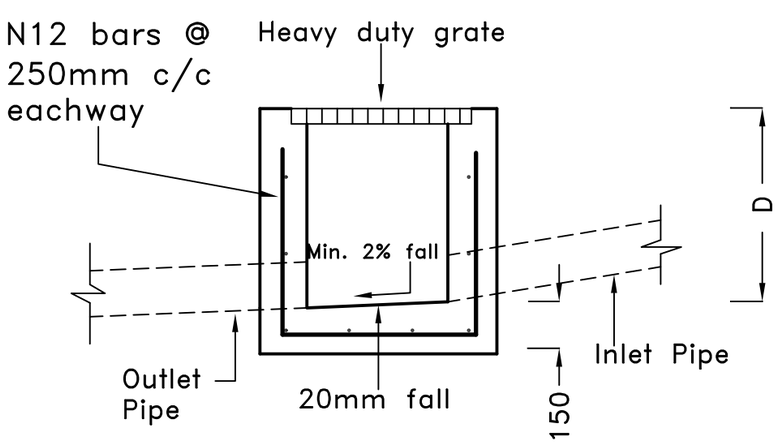
File		FACTORS	VALUE
Site Area (m^2)	1280	$F1_5$	1.083
Tributary Area (m^2)	1048	$F1_{100}$	1.064
Existing Impervious Area (m^2)	250	F2	1.113
Developed Impervious Area (m^2)	812	I_1^{50}	103
STEP 1			
PSD_5 (=F1xF2x2.67xArea/10000xI_1^{50}) (l/s)	34.74		
PSD_{100}(=F1xF2x4.67xArea/10000xI_1^{50}) (l/s)	59.71	STEP 1	
SSR_5 (=F3xF4x2.25xPSD_5/F2) (m^3)	6.78	F3	0.170
SSR_{100}(=F3xF4x2.25xPSD_{100}/F2) (m^3)	11.65	F4	0.568
STEP 2			
PSD_5 (=F2x2.67xArea/10000xI_1^{50}) (l/s)	32.09		
PSD_{100}(=F2x4.67xArea/10000xI_1^{50}) (l/s)	56.13	STEP 2	
SSR_5 (=F3xF4x2.25xPSD_5/F2) (m^3)	2.54	F3	0.069
SSR_{100}(=F3xF4x2.25xPSD_{100}/F2) (m^3)	4.44		

OROFICE PLATE	VALUE	
$Q = C\ A\ \sqrt{(2gh)}$ (l/s)	32.09	
C	0.6	
A = Area (sq. mm) => dia.	14095	Adopt orifice 134 dia.
5 year head (mm)	693	Q = 31.20 l/s
100 year head (mm)	1225	Q = 41.49 l/s
WEIR FLOW	VALUE	
Q (l/s)	14.64	56.13 – 41.49 = 14.64
HW (mm)	22	
L (mm)	2700	
C	1.7	
$Q = CLH^{1.5}$	14.98	OK

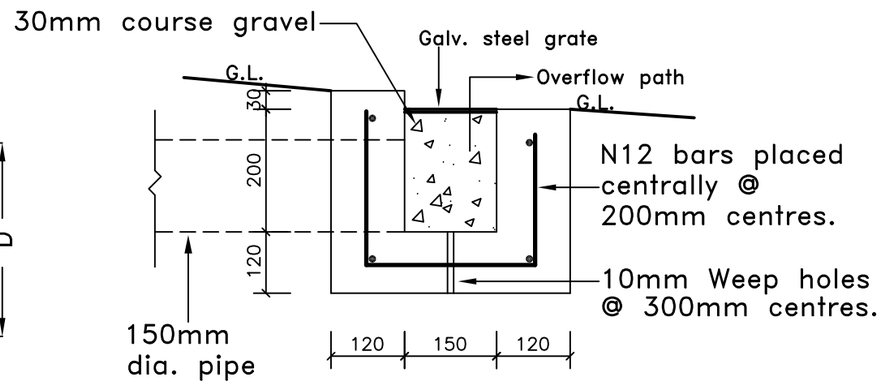
FINAL SSR (STEP1–STEP2)	VALUE	
SSR_5 (= 6.78 – 2.54) (m^3)	4.24	Final SSR is STEP 1
SSR_{100} (= 11.65 – 4.44)(m^3)	7.21	– STEP 2.
FINAL PSD		
PSD_5 (=F2x2.67xArea/10000xI_1^{50}) (l/s)	32.09	Final PSD is PSD for
PSD_{100} (=F2x4.67xArea/10000xI_1^{50}) (l/s)	56.13	STEP 2.



450mm SQUARE PIT PLAN
Scale 1:20



450mm SQUARE PIT SECTION
Scale 1:20



LEVEL SPREADER
Scale 1:10

AMENDMENTS
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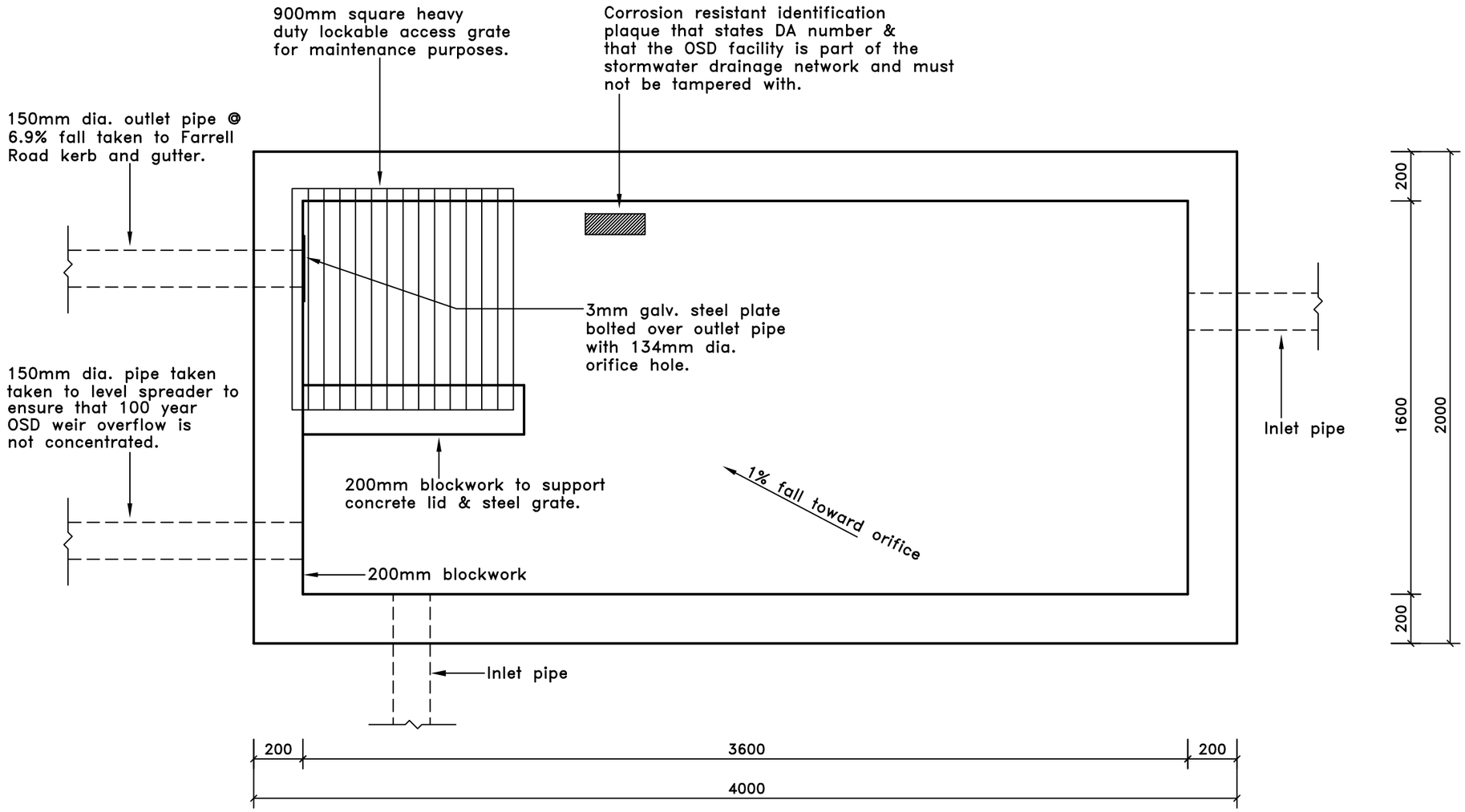
DRAINAGE PLANS FOR
MR. T. CROSSLING
18 HOPETOUN STREET
WOONONA

DESIGNED A.D.D.	CODE hoped.dwg
DRAWN A.D.D.	DATUM A.H.D
CHECKED	SCALE 1:20;1:10
DATE 11/2017	SHEET 3 OF 4
JOB No. 17/298	REVISION B



Maintenance Schedule
The detention basin must be kept clean of all rubbish and greenwaste that may fall into the basin. The basin should be checked by the owner every 6 months by removing the lockable grate and cleaning/checking both parts of the basin. The pipes should never be allowed to be blocked.

OSD PIT PLAN
Scale 1:20

AMENDMENTS

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DRAINAGE PLANS FOR
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DATE 11/2017	SHEET 4 OF 4
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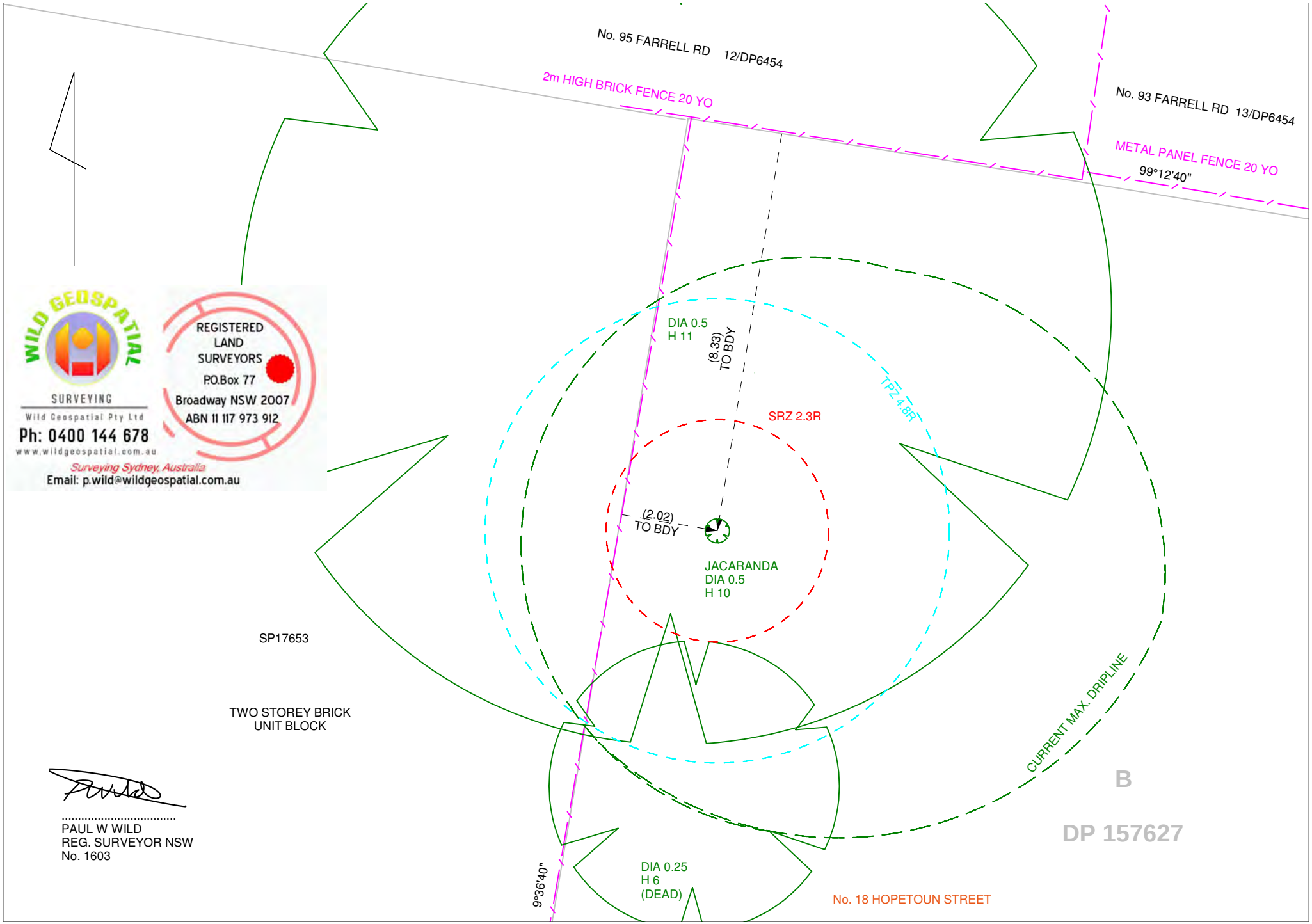

WILD GEOSPATIAL
SURVEYING
Wild Geospatial Pty Ltd
Ph: 0400 144 678
www.wildgeospatial.com.au
Surveying Sydney, Australia
Email: p.wild@wildgeospatial.com.au

REGISTERED
LAND
SURVEYORS
P.O.Box 77
Broadway NSW 2007
ABN 11 117 973 912

PAUL W WILD
REG. SURVEYOR NSW
No. 1603

1 Master plan
1:200

0 2 3 4 5 6 7 8 9 10 M

Jacaranda Tree location as confirmed by field survey by Wild Geospatial 05/08/19

2 South elevation
1:100

Landscape calculation
Site area : 1279.6 m²
Landscape area : 456.2m² (383.88m² required)
Deep soil zone : 6m strip at the back

LEGEND

- COLOURED CONCRETE
- PLAIN CONCRETE
- PROPOSED TURF AREAS
- EXISTING TURF AREAS
- GARDEN AREAS
- WASTE BIN STORAGE
- CLOTHES DRYING AREA
- FENCE 1800mm HIGH
- EXISTING TREE TO BE REMOVED REFER TO ARBORIST REPORT
- EXISTING TREE TO BE RETAINED
- STEEL HEDGE 100 MM HIGH
- PROPOSED RETAINING WALLS 600mm HIGH

Reference notes

1. Rain water tank
2. Drying clothes area
3. 900mm wide gate to match fence
4. 1800mm High colorbond fence
5. Coloured concrete
6. Plain concrete
7. Existing turf area
8. Deep soil zone
9. Street tree planting
10. Stamped concrete
11. 1800mm High POS screen
12. Waste bin storage
13. Free standing wall as per architect details

Indicative plant schedule

Common Name	Botanical Name	Scheduled Size	Mature Height	Mature Spread
Trees				
Red Cabbage Tree	Cordyline red sensation	200 mm	1.5 - 3m	0.9 - 1.2m
Plunkett Mallee	Eucalyptus curtisii	75Lt	7-10m	4-7m
Cheese Tree	Glochidion ferdinandi	75Lt	8-10m	8-10m
Kanooka, Water Gum	Tristaniopsis laurina	75Lt	7-9m	7-9m
Shrubs				
Lily Pilly	Acmena smithii 'Sublime'	200mm	3-5m	2-3m
Slim Bottlebrush	Callistemon viminalis 'Slim'	200mm	3m	1.3m
Camellia	Camellia sasanqua	45Lt	1-3m	1.2-2.5m
Giant Lily	Doryanthes excelsa	400mm	1.5 - 3m	1.2 - 2.0m
Narrow-leaved Bird of Paradise	Strelitzia juncea	400mm	1.2 - 2m	1m
Lilly Pilly	Syzygium australe 'Pinnacle'	200mm	5 - 10m	1.2 - 2.0m
Lilly Pilly	Syzygium 'Backyard Bliss'	200mm	3m	1m
Coastal Rosemary	Westringia fruticosa 'Naringa'	200mm	1.2- 2m	0.6 - 1.5m
Coastal rosemary	Westringia frutucosa 'Grey Box'	200mm	0.45m	0.45m
Ground Covers				
Prostrate She Oak	Casuarina glauca 'Kattang Karpet'	200mm	0.1 .05m	2m
Kidney Weed	Dichondra repens	150mm	0.0 - 0.3m	0.9 - 1.2m
Grasses				
Daniella	Daniella Tasmanica 'Emerald Arch'	200mm	0.55m	0.55m
Evergreen Giant Lilyturf	Liriope muscari 'Evergreen Giant'	200mm	0.45 - 0.6m	0.3 - 0.6m
Spiny-headed mat rush	Lomandra longifolia 'Tanika'	200mm	0.45 - 0.6m	0.6 - 0.9m
Perennials				
Monroe's White Lilyturf	Liriope muscari 'Monroe's White'	200mm	0.4m	0.4m
Echium	Echuim fastuosum 'Duxfield Blue'	200mm	1.5m	1.5m

For Development Application Only

5	30/08/19	Issue RevD	FV
4	7/9/19	Issue RevC	FV
3	3/06/2019	Issue RevB	FV
2	7/3/19	Issue RevA	FV
1	13/02/19	Issue for Development Application	FV
ISSUE	DATE	ISSUE NOTE	BY

D	30/08/19	Revised architectural plans	FV
C	7/9/19	Revised plan as per city council assessment	FV
B	3/6/2019	Revised architetcural plan	FV
A	7/3/19	Revised Site Plans	RC
REVISION	DATE	REVISION NOTE	BY

NOTES

PROJECT
Landscape concept plan

ADDRESS
No 18 Hopetoun street Woonona NSW

CLIENT
Itsbuilt

DRAWING
Proposed multi-dwelling development

Captivate Landscape Design
www.captivatedesign.com.au
(02) 4232 1191
info@captivatedesign.com.au
Level 1, 44 Manning Street,
Kiama NSW 2533

PROJECT #	1507	DWG STATUS	
DWG DATE	13/02/19	CAD FILE NAME	1507 - Landscape RevC.vwx
PLOT DATE	13/02/19	DWG #	REVISION
ORIGINAL SHEET SIZE	A3		
SCALE @ A3	1:200		DA-1507/1
DRAWN FV	CHKD RC		OF 1

north

ALLIED TREE
CONSULTANCY
Level 5 and 8 Arboriculturist

Arboricultural Impact Assessment Report

For the site address
Lot B (D.P. 157627)
No. 18 Hopetoun Street,
WOONONA, NSW

Prepared for
Itsbuilt Pty Limited

AUTHOR
Warwick Varley

STATUS
Final August 2019

REFERENCE D3841

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TABLE OF CONTENTS

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1.0 Introduction

1.1 Allied Tree Consultancy (ATC) has been commissioned by *Itsbuilt Pty Limited* to prepare an Arboricultural Impact Assessment for the development proposal at No. 18 Hopetoun Street, Woonona. This proposal includes the construction of a multi-residential dwelling development. This report includes eight 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;
- tree protection zones and protection specifications for trees recommended for retention.

1.3 The subject site resides within Woonona; 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].

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

- All tree works must be carried out at a tertiary level (minimum Certificate-level 3) qualified and experienced (minimum 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).

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.

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

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.

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

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 and 23rd April 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 Matthew Reed[6] and Warwick Varley[7] on behalf of *Allied Tree Consultancy*. A follow up assessment for tree No. 3, *Jacaranda mimosifolia* occurred on the 9th August, 2019 by Warwick Varley.

4.3.2 Trees included in this report are those that conform to the description of a prescribed tree by the local government policy.

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 was compiled by the use of a diameter tape, height clinometer, angle finder, compass, steel probes, Teflon hammer, binoculars and recording instruments.

[3] Australian Standard, 4970; 2009 – Protection of Trees on Development Sites, Australia
[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)
[7] Consulting Arborist, Graduate Certificate and Diploma of Arboriculture (level 8 and 5)

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 *Ingenuity*
Date: 22 August 2019
Reference: (Job No.) 20180029
Drawing No: Sheet 2 of 21 (Issue F)
Note 1: See Section 4.5.1

4.4.2 Design

Drawn by *Ingenuity Home Designs*
Date: 22 August 2019
Reference: (Job No.) 20180029
Drawing No: Sheet 3 to 21 (Issue F)
Note 2: See Section 4.5.2

4.5 Limitations of the assessment/discussion process

4.5.1 Trees No. 2 and 4-8 have been omitted from the plans provided, however, are required for inclusion because they conform to the definition of a prescribed tree within the local government tree policy. The tree location has been plotted onto the Plan 1 by *Allied Tree Consultancy*. The tree location was established by measuring from known points and scaling onto the drawing. *Allied Tree Consultancy* is not a registered surveyor and, however, the accuracy of the survey is attempted; the true position of the trees may marginally deviate. Any such deviation provides the potential for changing the actual impact (encroachment) provided to a tree.

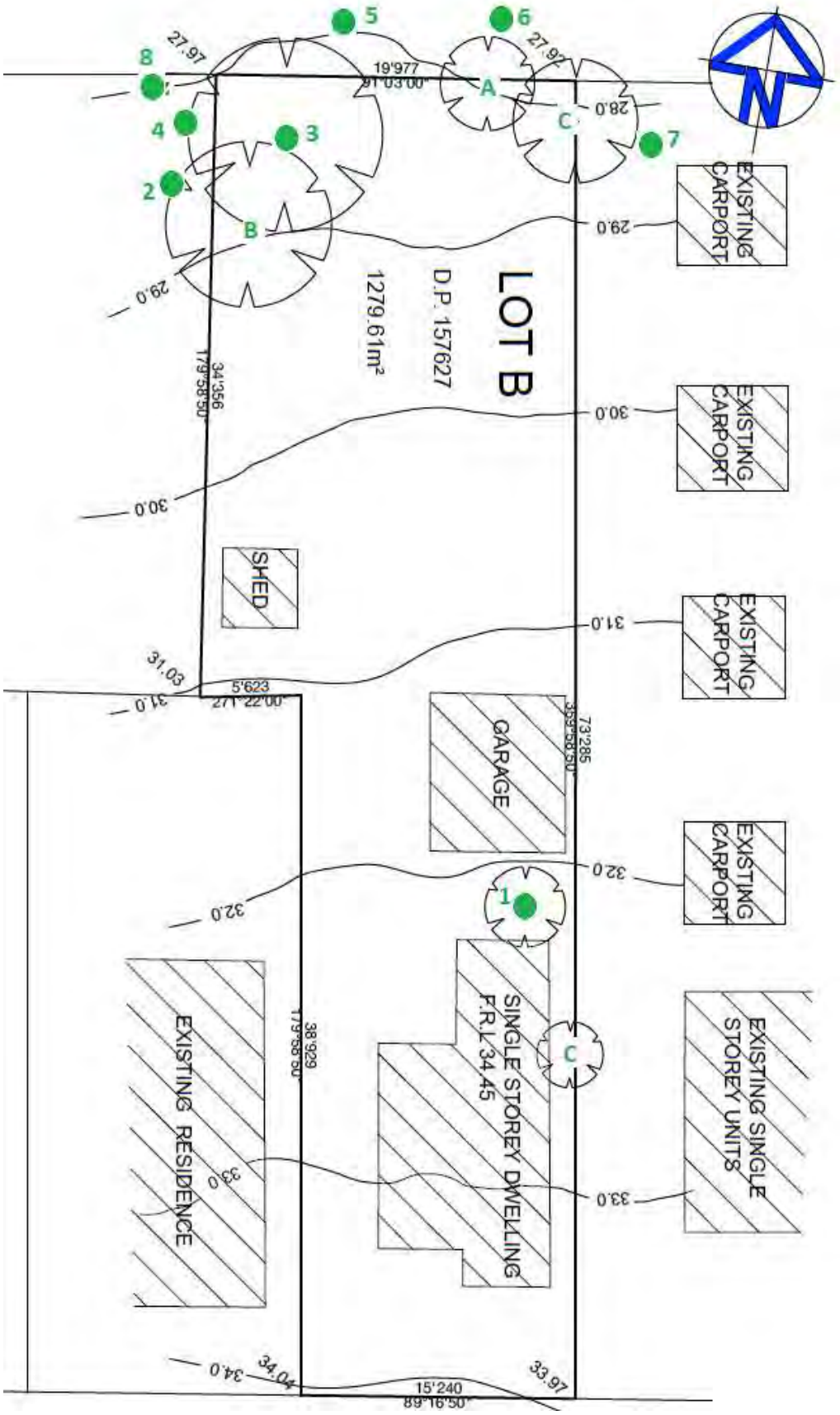
4.5.2 The assessment has considered only those target zones that are apparent to the author and the visually apparent tree conditions, during the time of assessment.

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

Trees labelled A, and B are exempt species. Trees labelled C were removed prior to assesment, see Section 7.0.

Source: Adapted from *Wild Geospeatial Surveying,* 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	*Howea forsteriana* Kentia Palm	6	0.16	2 x 2	M	D	Sym.	A	**A1**	**MEDIUM**	**2.0**	**1.5**
Assessment This tree displays habit typically for the species and normal vitality. **Proposed works**; See Section 7.1.2												
2	*Lagerstroemia indica* Crepe Myrtle	7	0.30[C]	5 x 3	M	C	Sym.	A	**A2**	**HIGH**	**3.6**	**2.1**
Assessment This tree resides in neighbouring lot being no. 26A Pitman Lane is codominant at ground level with multiple stems otherwise displays habit typical for the species and normal vitality. Crown ingress is 2m between the heights of 2-5m. **Proposed works**; See Section 7.1.2												
3	*Jacaranda mimosifolia* Jacaranda	9	0.40[B]	11 x 12	M	C	E	A	**A1**	**MEDIUM**	**4.8**	**2.3**
Assessment This tree provides the habit typical for the species although a bias crown, a result of the codominant class. The tree divides into two leaders at 1m and the primary crotch is excluded. **Proposed works**; See Section 7.1.3												
4	*Livistona australis* Cabbage Palm	8	0.30[C]	2 x 2	M	I	Sym.	A	**A1**	**HIGH**	**3.0**	**1.5**
Assessment This tree resides in neighbouring lot being no. 26A Pitman Lane and displays habit typically for the species and normal vitality. **Proposed works**; See Section 7.1.2												
5	*Melaleuca salignus* White Bottlebrush	6	0.30[C]	3 x 3	O	D	Sym.	B	**A3**	**LOW**	**3.6**	**2.1**
Assessment This tree resides in neighbouring lot being no. 93 Farrell Rd. is codominant at ground level and displays sparse foliage. Crown ingress is 1m between the heights of 3-4m. **Proposed works**; See Section 7.1.2												

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	*Melaleuca armillaris* Bracelet Honey Myrtle	8	0.20[C] 0.20	5 x 3	M	D	Sym.	A	**A2**	**MEDIUM**	**3.4**	**2.0**
Assessment This tree resides in neighbouring lot being no. 93 Farrell Rd., is codominant at ground level and displays habit typical for the species and normal vitality. Crown ingress is 2m between the heights of 5-7m. **Proposed works**; See Section 7.1.2												
7	*Melaleuca quinquenervia* Broad-Leaf Paperback	13	0.20-0.50 [C]	8 x 7	M	D	Sym.	A	**A2**	**HIGH**	**9.1**	**3.1**
Assessment This tree resides in neighbouring lot being no. 16 Hopetoun Street. Composed of five leaders that share a common root crown, the specimen is typical of many urban grown trees of this species. The vitality is normal. **Proposed works**; See Section 7.1.2												
8	*Grevillea robusta* Silky Oak	14	0.70	10 x 10	O	I	Sym.	A	**A3**	**MEDIUM**	**8.4**	**2.9**
Assessment This tree resides in neighbouring lot being no. 97 Farrell Rd. This tree displays habit typical for the species and normal vitality, however, is in senescence. **Proposed works**; See Section 7.1.2												

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 assessment comprises an 'L' shaped lot which contains a consistent mild gradient with a northern aspect. The existing dwelling is single-story brick and is serviced by a concrete drive that extends through to the backyard on the western side of the lot. A shed exists in the rear yard. The verge is grass-covered and void of a footpath. The trees are all planted species. The rear yard is predominately maintained lawn. The assessment has extended to the adjoining lots due to trees located close (within 10m) of the boundary and for the drainage easement that extends through to Farrel Road. Extensive tree/shrub planting occurs at the rear of the lots no. 97 and 99 Farrel Road where the easement extends adjacent and parallel to the boundary. The planting in this area is dense. The trees labeled as a, that have been included in 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.

The trees labeled as A, and B, that have been included in 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 Development Control Plan.

Tree A: trees that occur on the lot proposed for development and are exempt species[8].

Tree B: dead trees

7.1 Proposed development

The proposed development consists of the demolition of existing site structures and construction of multi-residential unit development, drive access, and drainage infrastructure. No stormwater drawings have been included as part of the document set. The calculations included in the following discussion has not considered subsurface utilities that have not been included in the design, or work methods related to construction (stockpiling, site sheds, scaffolding) unless otherwise specified. These may also increase the encroachment and impact on the opportunity for tree retention.

This report discusses the impact of the proposed design on the trees. Eight (8) trees have been listed within this report based upon the vicinity of the proposed works. This has included neighbouring trees where any part of the zones of protection; Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) to encroach into the lot. Recommendations based on the tree significance and

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

condition, together with the impact on these trees regarding the development for this lot follow;

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

Trees No. 2 and 4-8

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 directly conflicting with the design

Tree No. 1

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. 1; within the footprint of the proposed common driveway. This palm could be transplanted.

7.1.3 Trees subject to a major encroachment

Tree No. 3

This tree is not directly located in the footprint of the proposed design; however, it is 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 the tree are discussed and the relative implications.

Encroachment: 15%; based on Sheet 3 of 21. The encroachment consists of the construction of the proposed unit 3 (nine percentage points) and also the principal private open space for unit 3, this being six percentage points. Construction and design methodologies for the principal private open space are unknown, although are nominated to be above grade and porous with the preference for retaining as a natural surface (eg. lawn), therefore any impact offered by this area is minimal. This will reduce the predominant impact to below 10%, that is a minor encroachment.

This is five percentage points over a minor encroachment and based on the tolerance of the species, is not considered to present any detriment to the tree. That is the stability will not be compromised, and any impact upon the vitality will likely be in the short term. Some minor crown lifting of the dripline is likely to be required on the south-eastern corner

7.2 Sub-surface utilities

No drawings have been provided for the proposed route of sub-surface utilities. 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 Protective fence: Trees No. 2-8

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 and installation of the drive/cross-overs is required.

7.3.2 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-demolition	Installation of the protection measures, Section 7.3	Certificate*

During construction	Any <u>further works</u> 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. <u>Foundation/footing types should not be strip type</u>, 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. <u>Subsurface utilities</u> 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. <u>Soil levels within the TPZ must remain the same</u>. 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)[9].

[9] 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. 2 and 4-8

These trees are not adversely impacted by the design, that is, they conform to a minor encroachment or less and the nominated zones of protection (TPZ, SRZ) based on the requirements of the Protection Specification, Section 8.0. The proposed design does not adversely affect these trees.

9.2 Tree No. 1

The proposed design will impact adversely on these trees and are unable to be retained based on the design.

9.3 Tree No. 3

This tree is subject to a major encroachment, although can be retained pending the following conditions/design modification.

9.3.1 Tree No. 3

The personal outdoor space area for Unbit 3, requires to be above grade and porous with the preference for retaining as a natural surface (eg. lawn).

Some minor crown lifting of the dripline is likely to ve requires on the south-eastern corner.

9.4 Sub-surface utilities

No drawings have been provided for the proposed route of sub-surface utilities. 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.

9.5 Protection measures

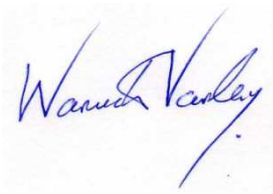
Protection measures (outlined in Section 7.3 and 7.4) are required to be implemented for the trees nominated for retention (referenced in Section 9.1) and installed before initiation of site works (including demolition/excavation) and retained until the landscaping works are required unless otherwise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



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Accredited member of
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CONSULTING ARBORICULTURISTS ®

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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.

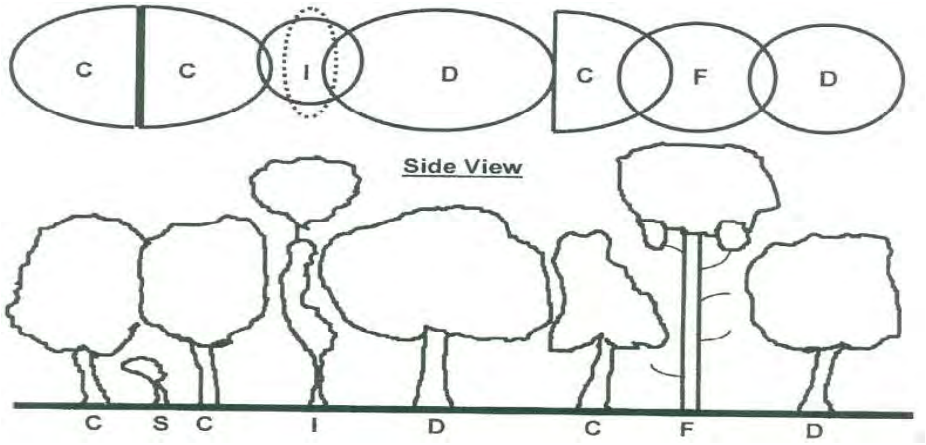
Crown Aspect
In relation to the root crown, this refers to the aspect the majority of the crown resides in. This will be either termed Symmetrical (Sym.) where the centre of the crown resides over the root crown or the cardinal direction the centre of the crown is biased towards, being either North (N), 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 to manage large populations of trees within a limited period 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.

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.

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[10]

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,

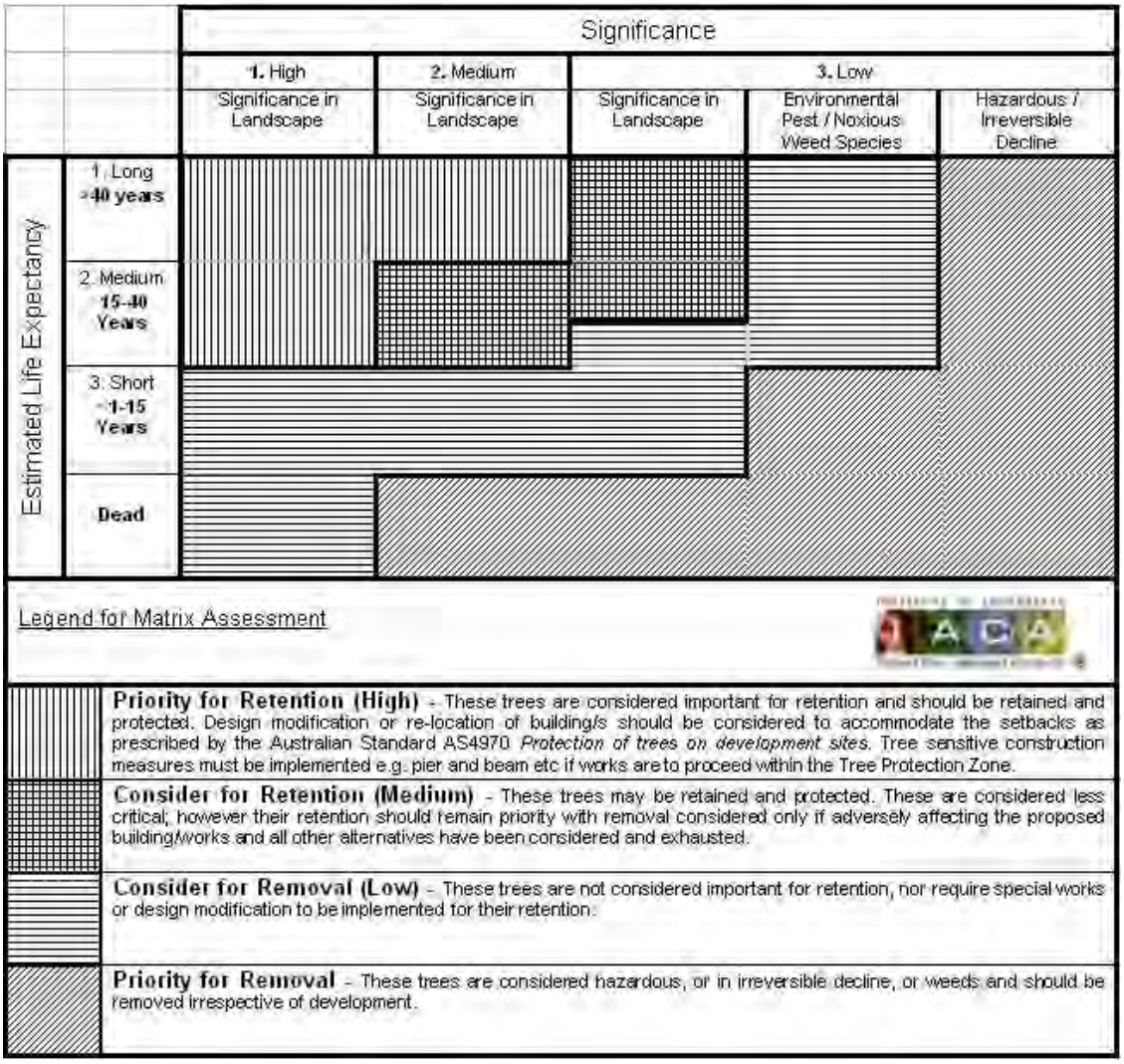
[10] IACA, 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

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.

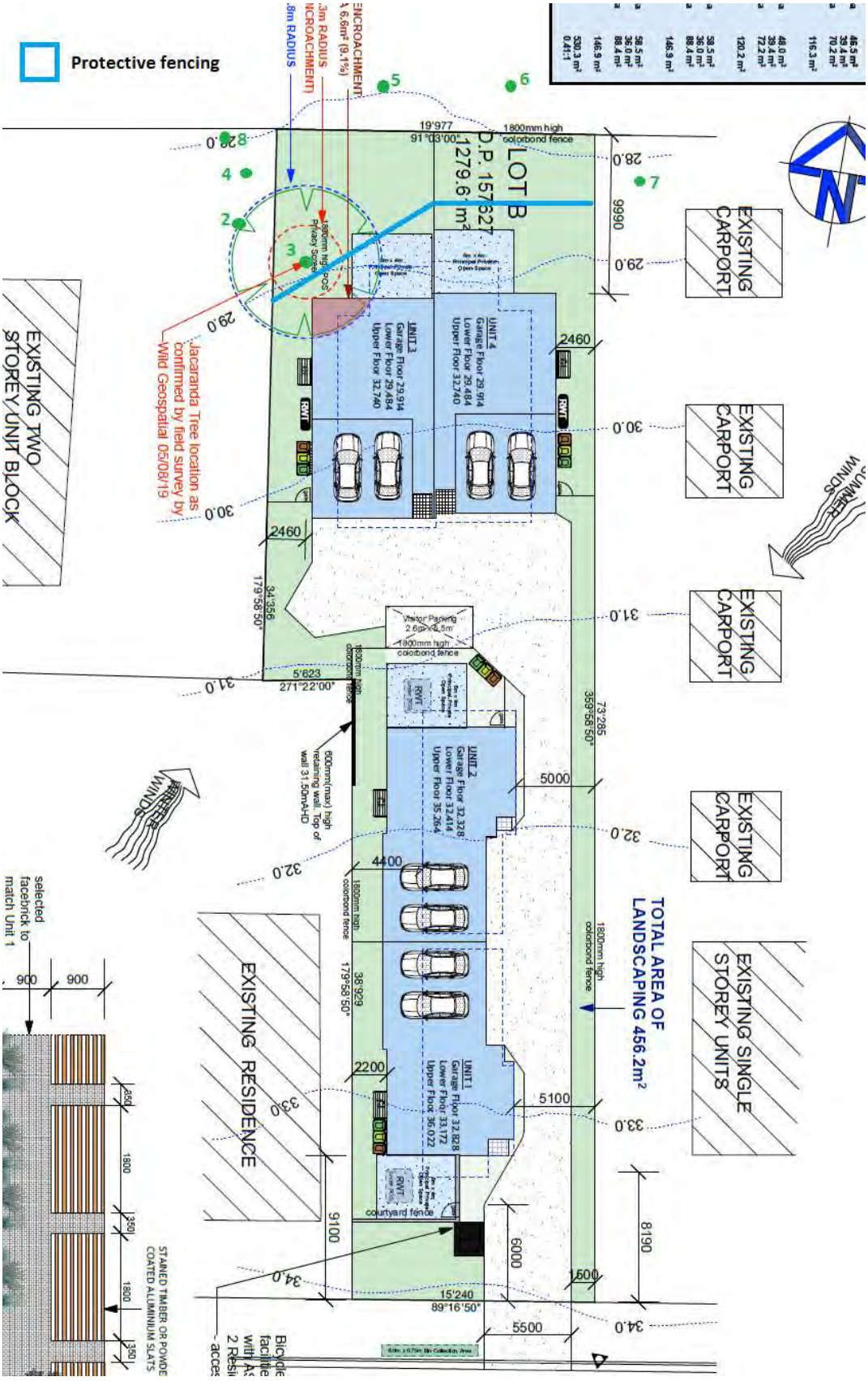
Table 3; Tree Retention Value – Priority Matrix.



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).	

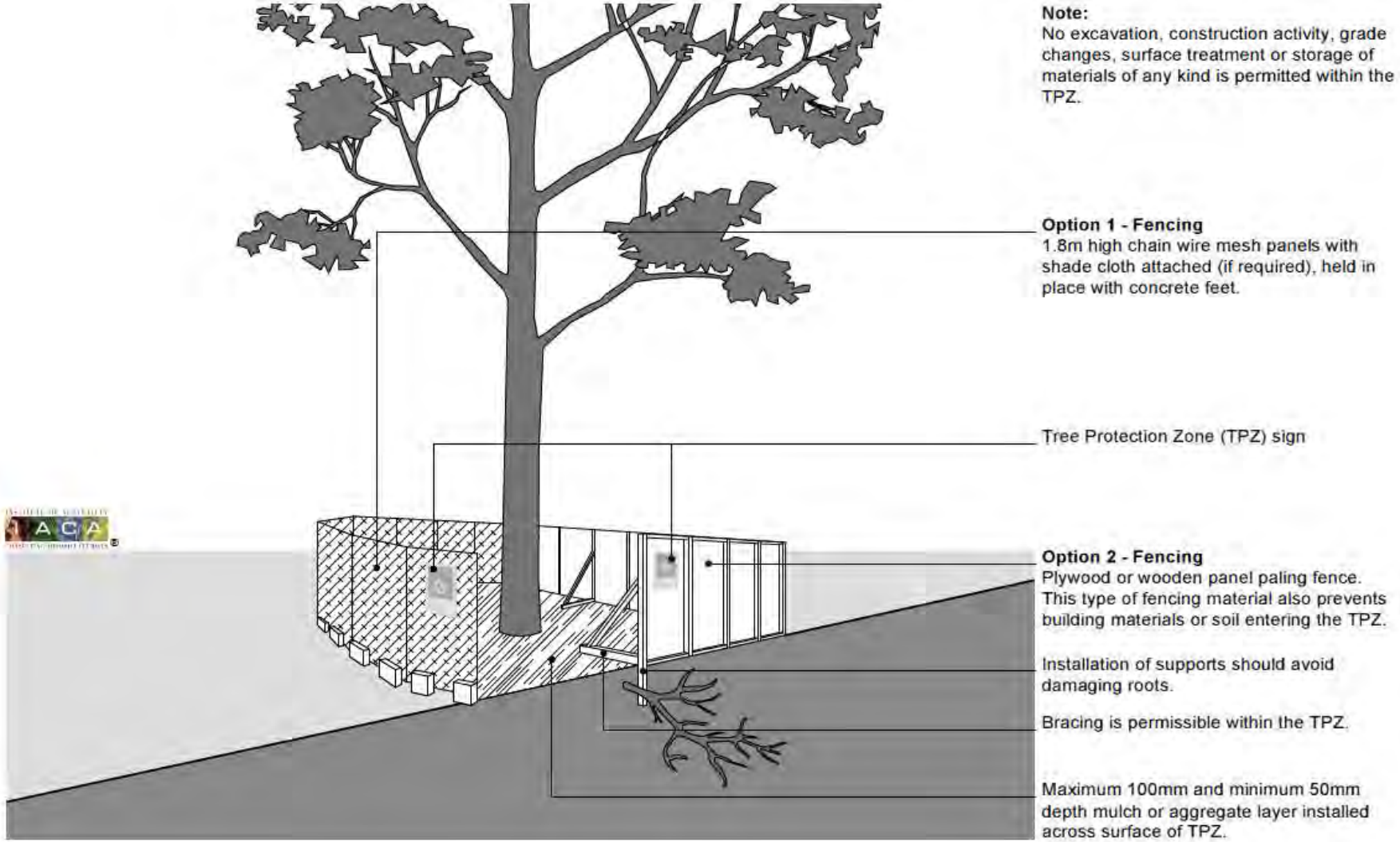
Appendix B- Plan 2; Zones and measures of protection



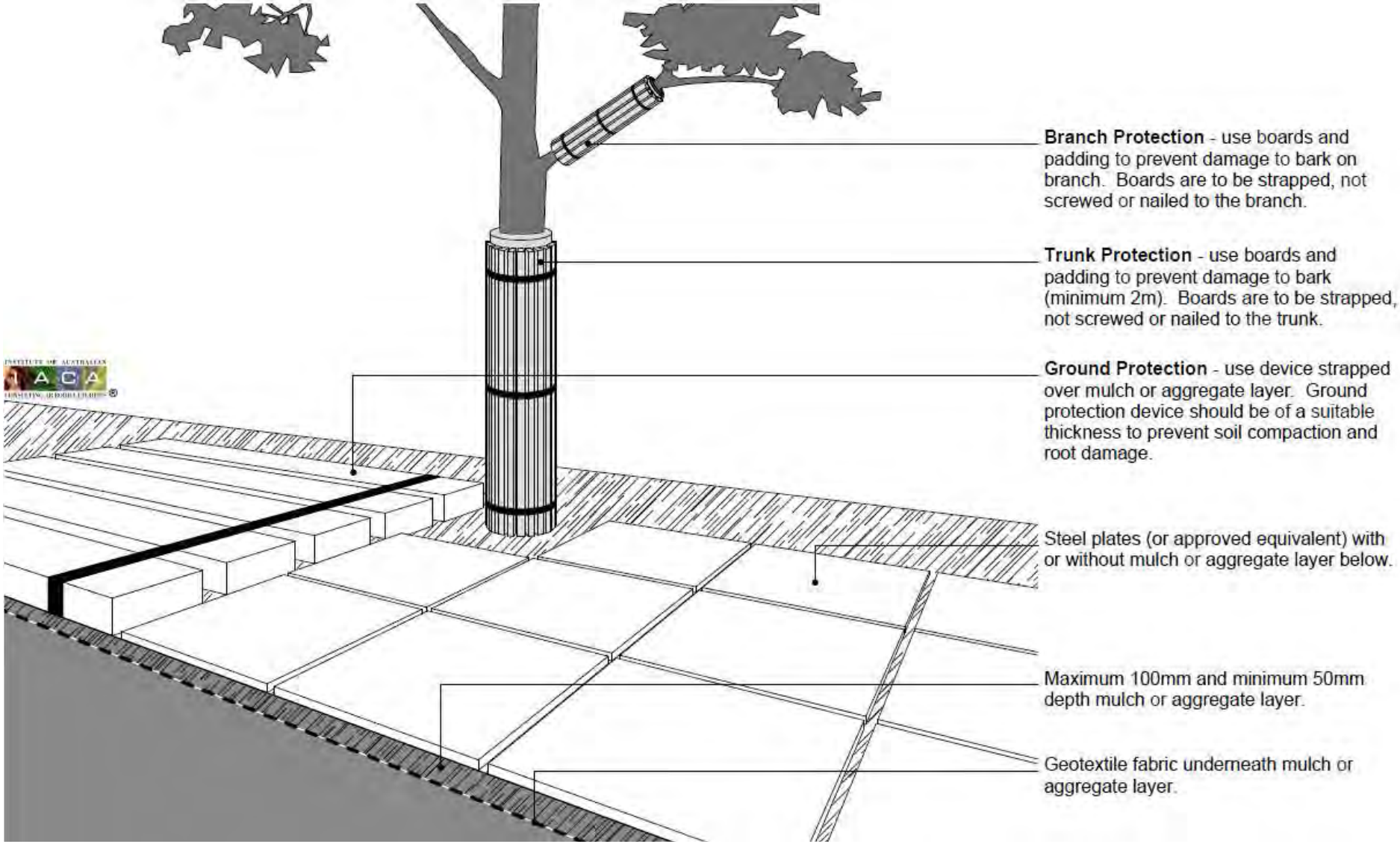
Not to scale

Source: Adapted from *Ingenuity Home Designs,* Drawing No: Sheet 3, See Section 4.4.2

Appendix C- Protection measures;
Protective fence



Stem and Ground protection



REF: N:/tp/luke/ltr/add.info.18hptn.st.wnona(1).doc

2nd September 2019

General Manager
Wollongong City Council
Locked Bag 8821
WOLLONGONG DC NSW 2500
ATTENTION: JACOB WILLIAMS

Dear Jacob,

RE: DEVELOPMENT APPLICATION NO. DA-2018/1032
PROPOSED RESIDENTIAL MULTI-DWELLING HOUSING DEVELOPMENT
18 HOPETOUN STREET, WOONONA

I refer to the Wollongong Local Planning Panel's (LPPs) determination and statement of reasons in relation to the public meeting held on 24th July 2019, in consideration of the proposed residential multi-dwelling Development Application (DA) for 18 Hopetoun Street, Wollongong (DA-2018/1032).

In this regard, it was noted that the LLPs view was that the plans incorrectly showed the Jacaranda tree on site in a position that would likely require its removal as a result of the development design, even though it is the proponent's intention to retain this Jacaranda tree. The confusion was bought about in light of numerous trees located in this part of the site.

In response to this, the Arborist (Warwick Varley) recently returned to site to review the location of the Jacaranda tree and surrounding trees. Effectively, the approximate location for the trees in question indicated on the survey plan are only slightly variable from their location on site (that is trees listed as Tree No. 3 and B). Tree C is flush with the boundary and was missed by the surveyor originally it seems. The exact location of Jacaranda tree

has been remeasured, and overlaid on the Architectural Plans that were previously presented at the last LPP meeting. This essentially resulted in an encroachment of approximately 14% for the TPZ (not including POS) and just within the SRZ.

As a result, and in response to the LPPs and proponents desire for the retention of the Jacaranda tree, the design of Units 3 and 4 at the rear of the site have been slightly redesigned and updated to enable a TPZ encroachment of less than 10% (as generally required), and show no significant encroachment within the SRZ. Accordingly, the following updated DA documentation is provided as attached for Council's consideration:

- updated Architectural Plans by Ingenuity Home Design
- updated Landscape Concept Plan by Captivate Landscape
- updated Arborist Report by Warwick Varley (Allied Tree Consulting)
- updated BASIX certification by Illawarra BASIX Solutions

In this regard, the following is noted in respect of those particular matters raised:-

1. Retention of the Jacaranda Tree in the rear yard. This will require the redesign of unit 3 and 4.

Comment:

The design of Units 3 and 4 have been amended to ensure retention of the Jacaranda tree as requested, with the respective changes shown within the updated Architectural Plans by Ingenuity Home Design. The arborist report by Allied Tree Consulting has also been updated to reflect this change. Refer to amended documents as part of the resubmission package.

2. Improved presentation to the street which will require changes to window size and placement, colours and finishes.

Comment:

The Unit 1 façade is now shown within updated Architectural Plans by Ingenuity Home Design – with the POS screen, increased window size, additional window and additional cladding variation.

3. Improvements in quality of materials and finishes and articulation throughout the development to reduce bulk and scale.

Comment:

Numerous variations to the cladding materials along the eastern and western façades of Units 1 and 2 are shown on updated Architectural Plans by Ingenuity Home Design, which now breakup the façade expanses through better articulated elements as requested.

4. Breakup of the mass of unit 1 and 2 at least at the upper level. This will require a reduction in number of bedrooms or reduced bedroom sizes.

Comment:

The revised Architectural Plans by Ingenuity Home Design now show a break in the upper level between Units 1 and 2, in order to reduce the mass of both the eastern and western elevations.

5. Reconsider the size of the living space when compared against the number of bedrooms. The bedroom numbers should be reduced to be more consistent with the size of the living spaces.

Comment:

The number of bedrooms in relation to the dwellings proposed has been reviewed by the developer and in conjunction with local real estate agents. It is understood the panel's comments relate to Units 1 and 2, and are considered in conjunction with previous panel request to break up the mass of the upper level of these dwellings also.

As suggested, the mass of the upper level of these dwellings has been already achieved through the breaking up of the façade connections and added articulation elements throughout. This has been achieved without reduction in the number of bedrooms for these two dwellings, as the feedback from local real estate experts suggests the living spaces (both internal and external) are commensurate with the number of bedrooms proposed.

6. Increase the separation between the living area of units 1 and 2 and the driveway consistent with the landscaping requirements of WDCP2009 Section 5.8.2.5(h).

Comment:

the breakup of the lower level façades and types of materials have provide opportunities to increase the landscape beds in question. In this regard, Unit 1 has a landscape with of 600mm between the dwelling and the driveway, whilst Unit 2 has a landscape width of 500mm accordingly.

It is noted that the referenced section of the DCP does not stipulate a preferred distance/width. We have provided a 500 mm minimum in consultation with Council, as deemed appropriate to enable reasonable plant growth. Notwithstanding, it is considered that the trafficable impact along this eastern façade will not be detrimental to the living spaces, and in fact, the size of these windows have been increased to create better internal amenity and natural light throughout the morning periods. Given the proposed development yield is only 4 dwellings, we do not anticipate that traffic movements past these living areas will have a dramatic impact on residential amenity.

7. Studies should be relocated to first floor or deleted to maximise living area.

Comment:

The studies have been removed altogether.

8. The laundry and WC on the north elevation of unit 3 and 4 should be relocated away from the northern aspect.

Comment:

The laundry and WC within Units 3 and 4 have been redesigned and are shown within the revised Architectural Plans by Ingenuity Home Design.

9. Any upper level rumpus room should have access to light and ventilation.

Comment:

Roof windows/skylights have been added to the upper level of Units 3 and 4. Natural ventilation is achieved through crossflow from bedroom windows accordingly.

10. Amendments that rectify mistakes on the plans such as ensuites not having doors etc.

Comment:

The drafting errors previously shown have been rectified within the revised Architectural Plans by Ingenuity Home Design.

11. Amended plans are to include:
· Long section through the whole site showing existing and proposed ground levels;
· Site plans that shows the building layout at ground and first floor in relation to all boundaries to include setbacks;
· RL's on all floor plans.

Comment:

The revised Architectural Plans by Ingenuity Home Design now show:

- an updated Driveway Long Section Plan with finished garage ground floor levels for each dwelling;
- an updated Site Plan that shows both the ground floor and first floor building lines; and
- RLs on all floor plans for each level.

12. Revised landscape plan and arborist report.

Comment:

Both the Landscape Concept Plan by Captivate Landscape and Arborist Report by Warwick Varley (Allied Tree Consulting) have been updated accordingly. Refer attached to the resubmission.

I trust this information satisfactorily addresses Council's correspondence to date and, should you wish to discuss this matter further and/or require any additional information, please contact me on (02) 4229 5555.

Yours faithfully,
MARTIN MORRIS & JONES PTY LTD

LUKE ROLLINSON BUrbRegPlan DipArchTech MPIA
DIRECTOR – TOWN PLANNER

ONE AGENCY
PROPERTY DIVISION

POSTAL ADDRESS
Shop 2 183-187
Princes Highway
Corrimal NSW 2518
oneagency.com.au
42449033
ABN 53602957540

Monday 28th October 2019

Luke Rollinson
MMJ Real Estate
6-8 Regent Street
Wollongong NSW 2500

Dear Luke

Re: 1-4/18 Hopetoun Street Woonona

In relation to our conversation regarding the above development I advise the following.

I have been working alongside the developer for the past 2 years on this site. We have been following the changes in market conditions and I have been advising Tom accordingly. I have had input throughout the changes of these plans each time.

I feel that the living area sizes are sufficient. I manage and sell a lot of developments in the Illawarra and these living spaces are consistent with other 3 and 4 bedroom products I am currently selling and have previously sold. These products would attract young couples and older retirees. Larger families are generally buying bigger free standing homes with more yard for children. I have attached a report on the demographics of the area.

I also note that the private open space is directly off the living areas giving an almost extended living space particularly in the warmer months. Additionally units 3 and 4 have upper level rumpus rooms providing additional living.

I am very happy with the current plans and am looking forward to successfully presenting them to the market.

If you require anything further please do not hesitate in contacting me.

Yours Faithfully
Martin Merritt

DIRECTOR
Licensed Real Estate Agent
T: 0412 424 226
E: martin.merritt@oneagency.com.au

Suburb Profile Report

Woonona NSW 2517

Prepared on: 28 October 2019
Prepared for: ItsBuilt
Prepared by: Martin Merritt
Phone: 0412 424 226
Email: martin.merritt@oneagency.com.au

CoreLogic®

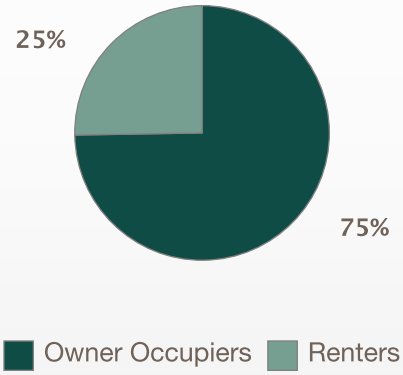
WOONONA

60km
Distance from GPO

12.2k
Population

6.3%
5 year population change

11 years
Average length of ownership



The size of Woonona is approximately 7.7 square kilometres. It has 24 parks covering nearly 12% of total area. The population of Woonona in 2011 was 11,442 people. By 2016 the population was 12,163 showing a population growth of 6.3% in the area during that time. The predominant age group in Woonona is 40-49 years. Households in Woonona are primarily couples with children and are likely to be repaying $1800 - $2399 per month on mortgage repayments. In general, people in Woonona work in a professional occupation. In 2011, 70.5% of the homes in Woonona were owner-occupied compared with 71.9% in 2016. Currently the median sales price of houses in the area is $872,750.

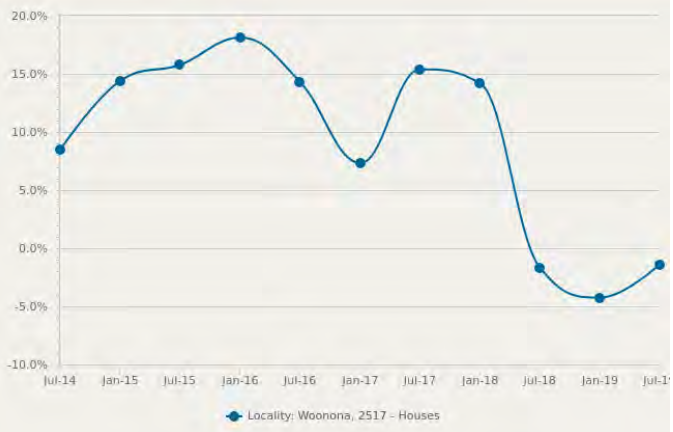
	Total dwellings	Total new listings*	Median Value	Total number currently listed
	3,227	106	$796,536	15
	1,298	76	$559,939	20

**Total number of unique properties listed for sale over the past 12 months.*

HOUSES: FOR SALE

Number Sold vs. Median Sale Price

Change in Median Price



Average Days on Market vs. Average Vendor Discount

$$$ Upper Quartile Price*	$1,095,000	The 75th percentile sale price of sales over the past 12 months within the suburb.
$$ Median Price*	$872,750	The middle sale price of all transactions recorded over the past 12 months within the suburb. Note that sale prices lower than $10,000 and higher than $80,000,000 are excluded from the analysis.
$ Lower Quartile Price*	$767,750	The 25th percentile sale price of sales over the past 12 months within the suburb.

**Statistics are calculated over a rolling 12 month period*

HOUSES: MARKET ACTIVITY SNAPSHOT

ON THE MARKET

0

2 BEDROOMS

There are no 2 bedroom Houses on the market in this suburb

5

3 BEDROOMS

7 Robert Street Woonona NSW 2517

Listed on 25 Oct 2019
Under Offer

2 | 2 | 556m²

72 Stephen Drive Woonona NSW 2517

Listed on 22 Oct 2019
Price Guide $950,000

2 | 1 | 658m²

7

4 BEDROOMS

32 Kathleen Crescent Woonona NSW 2517

Listed on 25 Oct 2019
Price Guide $890,000

2 | 2 | 568m²

2 Edward Corrigan Close Woonona NSW 2517

Listed on 24 Oct 2019
$1,060,000

2 | 2 | 550m²

RECENTLY SOLD

3

4 Nicholson Road Woonona NSW 2517

Sold on 21 Aug 2019
$660,000

1 | 1 | 1,252m²

5 Wayari Way Woonona NSW 2517

Sold on 07 Aug 2019
$580,000

1 | 1 | 178m²

39

8 Victoria Lane Woonona NSW 2517

Sold on 18 Oct 2019
Not Disclosed

1 | 1 | 202m²

29 Chenhalls Street Woonona NSW 2517

Sold on 17 Oct 2019
$850,000*

- | 1 | 423m²

23

2/539 Princes Highway Woonona NSW 2517

Sold on 16 Oct 2019
$922,500*

2 | 3 | 446m²

No photo available

40 Stephen Drive Woonona NSW 2517

Sold on 08 Oct 2019
$0

2 | 2 | 556m²

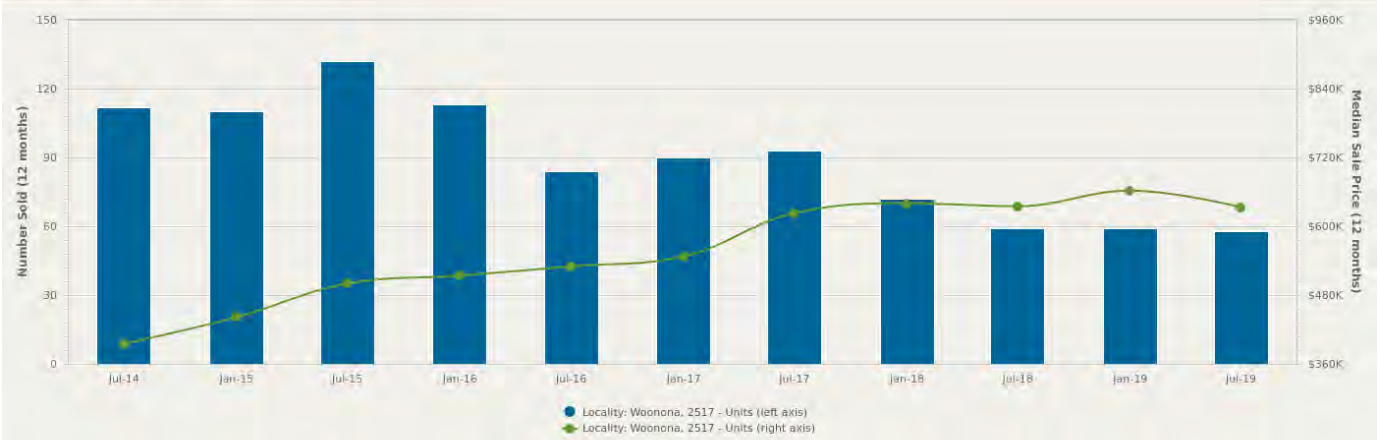
= number of houses currently On the Market or Sold within the last 6 months

*Agent advised

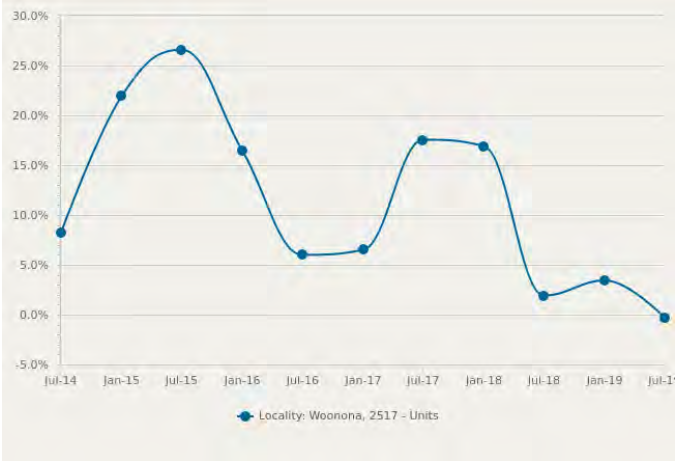
28 October 2019

UNITS: FOR SALE

Number Sold vs. Median Sale Price



Change in Median Price



Average Days on Market vs. Average Vendor Discount

$$$ Upper Quartile Price*	$701,500	The 75th percentile sale price of sales over the past 12 months within the suburb.
$$ Median Price*	$633,000	The middle sale price of all transactions recorded over the past 12 months within the suburb. Note that sale prices lower than $10,000 and higher than $80,000,000 are excluded from the analysis.
$ Lower Quartile Price*	$522,500	The 25th percentile sale price of sales over the past 12 months within the suburb.

**Statistics are calculated over a rolling 12 month period*

UNITS: MARKET ACTIVITY SNAPSHOT

ON THE MARKET

0

1 BEDROOMS

There are no 1 bedroom Units on the market in this suburb

RECENTLY SOLD

0

There are no recently sold 1 bedroom Units in this suburb

11

2 BEDROOMS

15

1/133A Campbell Street Woonona NSW 2517

Listed on 25 Oct 2019
$470,000

1 | 1 | 2,516m²

12/2A Kulgoa Road Woonona NSW 2517

Listed on 24 Oct 2019
Guide $650,000

1 | 1 | 1.17Ha

7/25 Nicholson Road Woonona NSW 2517

Sold on 09 Oct 2019
$0

1 | 1 | 2,028m²

12/9 Cherry Street Woonona NSW 2517

Sold on 09 Sep 2019
$0

2 | 2 | 148m²

9

3 BEDROOMS

15

13/40 Gayantay Way Woonona NSW 2517

Listed on 25 Oct 2019
Price guide $640,000

2 | 1 | 192m²

6/434-438 Princes Highway Woonona NSW 2517

Listed on 25 Oct 2019
Price Guide $615,000

1 | 1 | -

5/43 Thompson Street Woonona NSW 2517

Sold on 23 Sep 2019
$515,000*

1 | 1 | 1,556m²

1/2-6 Henry Fry Place Woonona NSW 2517

Sold on 17 Sep 2019
$660,000

2 | 1 | 1,677m²

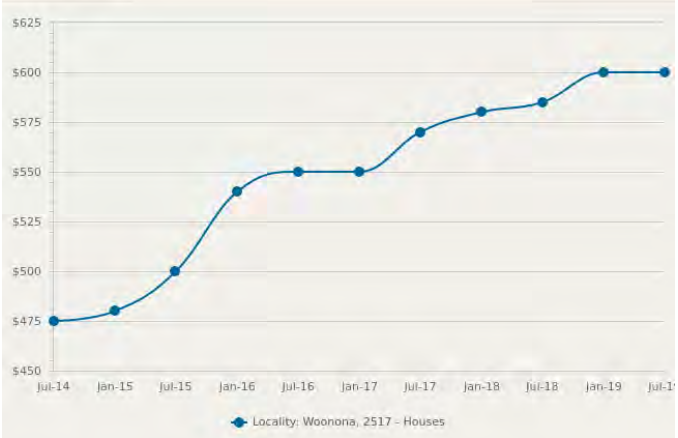
= number of units currently On the Market or Sold within the last 6 months

*Agent advised

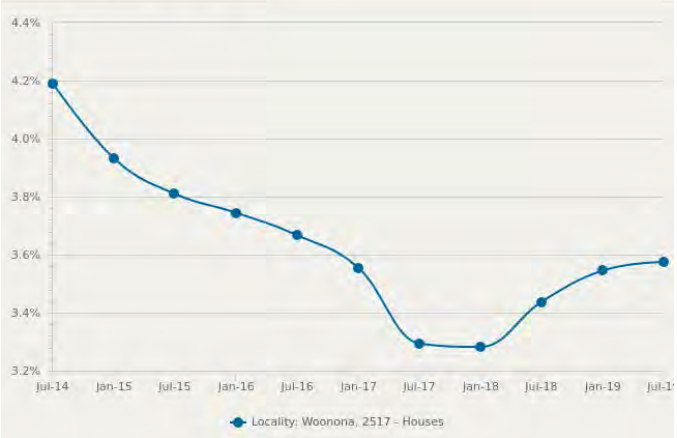
28 October 2019

HOUSES: FOR RENT

Median Rent



Indicative Gross Rental Yield



HOUSES: RENTAL ACTIVITY SNAPSHOT

FOR RENT

1 | 2 BEDROOMS

5 High Street Woonona NSW 2517

Listed on 04 Oct 2019
$500/W

1 | 1 | 613m²

4 | 3 BEDROOMS

22 Park Road Woonona NSW 2517

Listed on 17 Oct 2019
$450/W

1 | 1 | 705m²

55 Franklin Avenue Woonona NSW 2517

Listed on 14 Oct 2019
$600/W

1 | 1 | 696m²

5 | 4 BEDROOMS

35 Park Road Woonona NSW 2517

Listed on 25 Oct 2019
$580/W

1 | 2 | 645m²

24 Cherry Street Woonona NSW 2517

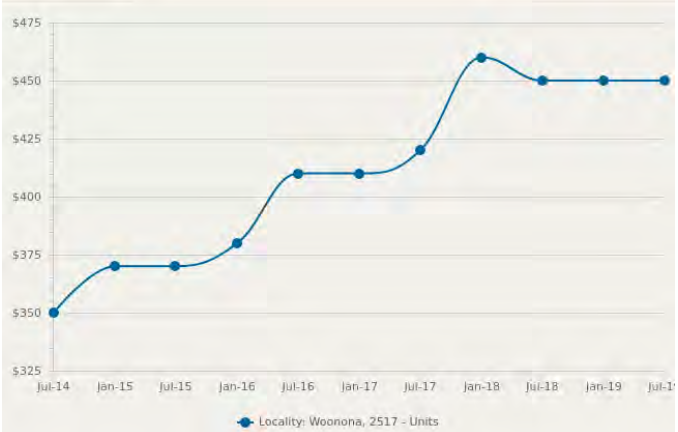
Listed on 23 Oct 2019
$550/W

2 | 2 | 418m²

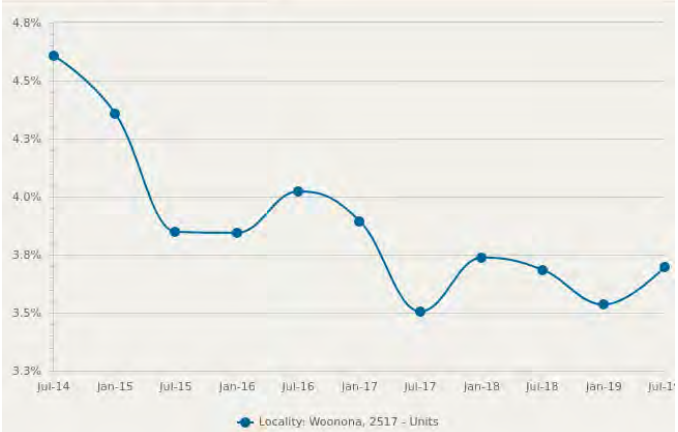
= number of houses observed as On the Market for Rent within the last month

UNITS: FOR RENT

Median Rent



Indicative Gross Rental Yield



UNITS: RENTAL ACTIVITY SNAPSHOT

FOR RENT

0 1 BEDROOMS

There are no 1 bedroom Units for rent in this suburb

10 2 BEDROOMS

13/6 Pitman Lane Woonona NSW 2517

Listed on 23 Oct 2019
$415/W

1 | 1 | 2,213m²

7/43 Campbell Street Woonona NSW 2517

Listed on 21 Oct 2019
$375/W

2 | 1 | 1,537m²

6 3 BEDROOMS

10/14 Popes Road Woonona NSW 2517

Listed on 25 Oct 2019
$470/W

1 | 2 | 3m²

3/11 Gordon Street Woonona NSW 2517

Listed on 21 Oct 2019
$480/W

1 | 1 | -

= number of units observed as On the Market for Rent within the last month

DISCLAIMER

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Publisher

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E: support@corelogic.com.au

Attachment 3: Conditions

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

a **Deferred Commencement - Registered Easement**

The developer must obtain a minimum 1 metre wide easement to drain stormwater over Lot 13 DP 6454 (No 93 Farrell Road, Bulli) and connect into Farrell Road (kerb and gutter) to benefit existing Lot B DP 157627.

The easement alignment, width, and extent must be sufficient to enable access, construction, and repair of the proposed pipeline within the easement, and shall encompass the full extent of the proposed pits and pipe. Evidence that the easement has been registered with the NSW Land and Property Information Office, and engineering certification that the easement alignment, width, and extent satisfies the requirements of this condition, must be submitted to Council.

(ii) The developer 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 developer has been notified in writing of such compliance, the following conditions shall apply in respect of the approved development:

Approved Plans and Specifications

1 The development shall be implemented substantially in accordance with the details and specifications set out on Job No. 20180029 Sheets 3 to 11, 13 to 17 Issue F dated 22 August 2019 prepared by Ingenuity Home Design 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 **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.

3 **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. The developer must install minimum two (2 No.) reflective paint house number on face of kerb along street frontage of the property to assist emergency services/ deliveries/ visitors.

4 **Tree Retention / Removal**

The developer shall retain the existing tree(s) indicated on the Landscape plan DA-1507/1 13/02/19 Revision D by Captivate Landscape Design dated 30 August 2019 consisting of tree numbered 2, 3, 4, 5, 6, 7 and 8.

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 AS4790-2009 Protection of Trees on development Sites.

All recommendations in Arborist's Report by Allied Tree Consultancy, Warwick Varley April 2018 page no. 11-18 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.

This consent permits the removal of trees numbered 1, A,B,C and D as indicated on the Arborist's Report by Allied Tree Consultancy, Warwick Varley April 2018 page no. 7. No other trees shall be removed without prior written approval of Council.

Prior to the Issue of the Construction Certificate

5 **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.

6 **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.

7 **Fencing**

The development is to be provided with fencing and screen walls at full cost to the applicant/developer as follows:

a) where a screen wall faces the road, pedestrian walkway, reserve or public place that wall shall be constructed of the same brickwork as that used in the external wall of the building; and

b) rear and side property boundaries (behind the building line) and private rear courtyards are to be provided with minimum 1.8 metre high brick, timber lapped and capped or colorbond fences.

This requirement is to be reflected on the Construction Certificate plans.

8 **Car Parking and Access**

The development shall make provision for a total of 9 car parking spaces, 2 secure (Class B) residential bicycle spaces and 1 visitor bicycle space (Class C). This requirement shall be reflected on the Construction Certificate plans. Any change in the above parking numbers shown on the approved DA plans shall be dealt with via a section 96 modification to the development. The approved parking spaces shall be maintained to the satisfaction of Council, at all times.

9 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.

10 **Structures Adjacent to Driveway**

Any proposed structures adjacent to the driveway shall comply with the requirements of the current relevant Australian Standard AS2890.1 (figure 3.2 and 3.3) to provide for adequate pedestrian and vehicle sight distance. This includes, but is not limited to, structures such as signs, letterboxes, retaining walls, dense planting etc. This requirement shall be reflected on the Construction Certificate plans.

11 A change in driveway paving is required at the entrance threshold to clearly show motorists they are crossing a pedestrian area. This requirement shall be reflected on the Construction Certificate plans and any supporting documentation.

12 The depth and location of all services (ie gas, water, sewer, electricity, telephone, traffic lights, etc) must be ascertained and reflected on the Construction Certificate plans and supporting documentation.

13 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.

14 **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 Sn 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 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 and footing structure must be contained wholly within the subject property;

e The proposed method of subsurface and surface drainage, including water disposal;

f Reinforcing and joining details of any bend in the wall at the passing bay of the accessway;

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

h 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.

15 **Roof Water Connection to Kerb**
Connection across footways shall be by means of one or two (maximum), sewer grade UPVC pipe(s), 100mm diameter pipes with a continuous downslope gradient to the kerb. Connection to the kerb shall be made with a rectangular, hot dipped galvanised mild steel weephole(s) shaped to suit the kerb profile, with each weephole having the capacity equal to a 100mm diameter pipe. Alternatively, a maximum of two 150mm x 100mm hot dipped galvanised steel pipes may be used across footways, with the 150mm dimension being parallel to the road surface to suit the kerb profile.

16 **Bicycle Parking Facilities**
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. In the absence of internal bicycle storage areas in private residential garages, the proposed external bicycle spaces are to have adequate weather protection, passive surveillance, and be secured within a lockable enclosure with access via a combination lock or communal key. This requirement shall be reflected on the Construction Certificate plans.

17 **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.

18 **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.

19 **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 Drainage Plans, prepared by Add Design and Consulting Engineers, Reference No. 17/298 Sheets 1 to 4 , revision 8, dated 11/2017.

b Include details of the method of stormwater disposal. Stormwater from the development must be piped to Council's existing stormwater drainage system.

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.

20 **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.

o 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 DA-2019/1032
  - Any specialist maintenance requirements.

g Must include a maintenance schedule for the OSD system, generally in accordance with Chapter E14 of the Wollongong DCP2009.

21 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.

22 The developer must make compensatory provision for the trees required to be removed as a result of the development. In this regard, TWO 100 litre container mature plant stock shall be placed along the NORTHERN property boundary of the site. The suggested species are Melaleuca Styphelioides. Details are to be shown on the plans submitted with the Construction Certificate.

23 **Street Trees**
The developer must address the street frontage by installing street tree planting. The number and species for this development is One Glochidion Ferdinandi 200 litre container size, in accordance with AS 2303:2015 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.

24 **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 $10,300.00 (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	http://www.wollongong.nsw.gov.au/applicationpayments Your Payment Reference: 1023609	• 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

25 **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.

26 **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.

27 **Enclosure of the Site**

The site must be enclosed with a suitable security fence to prohibit unauthorised access, to be approved by the Principal Certifying Authority. No building work is to commence until the fence is erected.

28 **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.

29 **Demolition Notification to Surrounding Residents**

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

30 **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.

31 **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 boundary. This must be verified by pegging the site prior to commencement of works.

32 **Application for Occupation, Use, Disturbance or Work on Footpath/Roadway**

Any occupation, use, disturbance or work on the footpath or road reserve for construction purposes, which is likely to cause an interruption to existing pedestrian and / or vehicular traffic flows requires Council consent under Section 138 of the Roads Act 1993. An application must be submitted and approved by Council prior to the works commencing where it is proposed to carry out activities such as, but not limited to, the following:

(a) Digging or disruption to footpath/road reserve surface;

(b) Loading or unloading machinery/equipment/deliveries;

(c) Installation of a fence or hoarding;

(d) Stand mobile crane/plant/concrete pump/materials/waste storage containers;

(e) Pumping stormwater from the site to Council's stormwater drains;

(f) Installation of services, including water, sewer, gas, stormwater, telecommunications and power;

(g) Construction of new vehicular crossings or footpaths;

(h) Removal of street trees;

(i) Carrying out demolition works.

33 **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, 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.

34 **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 m cyclone chainmesh fence, with posts and portable concrete footings;
b) installation of Tree Protection Fencing - A one (1) metre high exclusion fence must be installed around the extremity of the dripline of the tree/trees to be retained prior to any site works commencing. The minimum acceptable standard is a 3 strand wire fence with star pickets at 1.8 metre centres. This fence must be maintained throughout the period of construction to prevent any access within the tree protection area;
c) mulch Tree Protection Zone: Areas within a Tree Protection Zone are to be mulched with minimum 75 mm thick 100% recycled hardwood chip/leaf litter mulch;
d) irrigate: Areas within the Tree Protection Zone are to be regularly watered in accordance with the arborist's recommendations.

The tree protection fencing shall be installed prior to the commencement of any demolition, excavation or construction works and shall be maintained throughout the entire construction phases of the development.

35 **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.

36 **Protection of Public Infrastructure**

Council must be notified in the event of any existing damage to any of its infrastructure such as the road, kerb and gutter, road shoulder, footpath, drainage structures and street trees fronting the development site, prior to commencement of any work.

Adequate protection must be provided for Council infrastructure prior to work commencing and during building operations.

Any damage to Council's assets shall be made good, prior to the issue of any Occupation Certificate or commencement of the operation.

During Demolition, Excavation or Construction

37 **Piping of Stormwater to Existing Stormwater Drainage System**

Stormwater for the land must be piped to the stormwater drainage system.

38 **No Adverse Run-off Impacts on Adjoining Properties**

The design 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.

39 **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.

40 **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>).

41 **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.

42 **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.

43 **Copy of Consent to be in Possession of Person carrying out Tree Removal**

The developer must ensure that any person carrying out tree removal clearance is in possession of this development consent and the approved landscape plan, in respect to the trees which have been given approval to be removed in accordance with this consent.

44 **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.

Prior to the Issue of the Occupation Certificate

45 **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.

46 A Section 73 Certificate must be submitted to the Principal Certifying Authority prior to occupation of the development/release of the plan of subdivision.

47 **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.

48 **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.

49 **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.

50 **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.

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

Prior to the Issue of the Subdivision Certificate

51 **Occupation Certificate Prior to Subdivision Certificate**
An Occupation Certificate for the dwelling/s must be issued prior to the release of the Subdivision Certificate for the Torrens Title subdivision. A copy of the Occupation Certificate shall be lodged to Council with the subdivision certificate application.

52 **Existing Easements**
All existing easements must be acknowledged on the final subdivision plan.

53 **Existing Restriction as to Use**
All existing restriction on the use of land must be acknowledged on the final subdivision plan.

54 **Encroaching Pipes**
A minimum one (1) metre wide easement to drain water shall be created over any encroaching drainage pipes.

For all drainage easements proposed over the subject lots, a works as executed/survey plan of all stormwater drainage within the site is to be submitted with the Subdivision Certificate Application to confirm this.

55 **Encroaching Services**
A minimum one (1) metre wide easement for services must be created over any encroaching utility service.

56 **Final Documentation Required Prior to Issue of Subdivision Certificate**
The submission of the following information/documentation to the Principal Certifying Authority, prior to the issue of a Subdivision Certificate:

a Completed Subdivision Certificate application form and fees in accordance with Council's fees and charges;

b Original Construction Certificates and approved drawings (where issued by an accredited Private Certifying Authority);

c Certificate of Practical completion from Wollongong City Council or an accredited Private Certifying Authority (if applicable);

d Administration sheet prepared by a registered surveyor;

e Section 88B Instrument covering all necessary easements and restrictions on the use of any lot within the subdivision;

f Final plan of Subdivision prepared by a registered surveyor plus four (4) equivalent size paper copies of the plan;

g Original Subdivider/Developer Compliance Certificate pursuant to Section 73 of the Water Board (Corporatisation) Act 1994 from Sydney Water;

h Original Notification of Arrangement from an Endeavour Energy regarding the supply of underground electricity to the proposed allotments;

i Original Compliance Certificate from Telstra or another Telecommunications Service Provider which confirms that the developer has consulted with the Provider with regard to the provision of telecommunication services for the development.

j Payment of section 94 fees (Pro rata) (if applicable).

57 **Site Facilities**
Site facilities, such as air-conditioning units, satellite dishes and other ancillary structures are to be adequately setback from neighbouring properties, located away from the street frontage and not in a place where they are a skyline feature. House numbers must be displayed in a prominent position and the lockable mailbox installed in accordance with Australia Post Guidelines. Space shall be provided for clothes lines and waste/recycling bins for all dwellings behind the front building line but outside of the private open space area.

58 **Visitor Car Parking Signage**
The visitor car space shall be clearly identified with appropriate signage.

59 **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