



## **DEVELOPMENT APPLICATION**

**PDPLANPMTD-2023/038860**

**PROPOSAL:** Five Multiple Dwellings (One Existing & Four Proposed)

**LOCATION:** 11 Vicary Place, Rokeby

**RELEVANT PLANNING SCHEME:** Tasmanian Planning Scheme - Clarence

**ADVERTISING EXPIRY DATE:** 15 February 2024

The relevant plans and documents can be inspected at the Council offices, 38 Bligh Street, Rosny Park, during normal office hours until 15 February 2024. In addition to legislative requirements, plans and documents can also be viewed at [www.ccc.tas.gov.au](http://www.ccc.tas.gov.au) during these times.

Any person may make representations about the application to the Chief Executive Officer, by writing to PO Box 96, Rosny Park, 7018 or by electronic mail to [clarence@ccc.tas.gov.au](mailto:clarence@ccc.tas.gov.au). Representations must be received by Council on or before 15 February 2024.

To enable Council to contact you if necessary, would you please also include a day time contact number in any correspondence you may forward.

Any personal information submitted is covered by Council's privacy policy, available at [www.ccc.tas.gov.au](http://www.ccc.tas.gov.au) or at the Council offices.

# Clarence City Council



## APPLICATION FOR DEVELOPMENT / USE OR SUBDIVISION

The personal information on this form is required by Council for the development of land under the Land Use Planning and Approvals Act 1993. We will only use your personal information for this and other related purposes. If this information is not provided, we may not be able to deal with this matter. You may access and/or amend your personal information at any time. How we use this information is explained in our **Privacy Policy**, which is available at [www.ccc.tas.gov.au](http://www.ccc.tas.gov.au) or at Council offices.

Proposal:

x4 new dwellings, 2-bedroom, 1-bathroom, open plan kitchen, living and dining.

Location:

Address..... 11 Vicary Place

Suburb/Town ..... Rokeby

Postcode ..... 7019

Current  
Owners/s:

Applicant:

**Personal Information Removed**

Tax Invoice for  
application fees to  
be in the name of:  
(if different from  
applicant)

Estimated cost of development

\$ 1,100,000

Is the property on the Tasmanian Heritage Register?

Yes

☐

No

☒

(if yes, we recommend you discuss your proposal with Heritage Tasmania prior to lodgement as exemptions may apply which may save you time on your proposal)

If you had pre-application discussions with a Council Officer, please give their name

Current Use of Site:

1 existing dwelling

Does the proposal involve land administered or owned by the Crown or Council?

Yes

☐

No

☐

Declaration:

- *I have read the Certificate of Title and Schedule of Easements for the land and am satisfied that this application is not prevented by any restrictions, easements or covenants.*
- *I authorise the provision of a copy of any documents relating to this application to any person for the purposes of assessment or public consultation. I agree to arrange for the permission of the copyright owner of any part of this application to be obtained. I have arranged permission for Council's representatives to enter the land to assess this application*
- *I declare that, in accordance with Section 52 of the Land Use Planning and Approvals Act 1993, that I have notified the owner of the intention to make this application. Where the subject property is owned or controlled by Council or the Crown, their signed consent is attached. Where the application is submitted under Section 43A, the owner's consent is attached.*
- *I declare that the information in this declaration is true and correct.*

Acknowledgement:

- *I acknowledge that the documentation submitted in support of my application will become a public record held by Council and may be reproduced by Council in both electronic and hard copy format in order to facilitate the assessment process; for display purposes during public consultation; and to fulfil its statutory obligations. I further acknowledge that following determination of my application, Council will store documentation relating to my application in electronic format only.*

Applicant's  
Signature:

Signature.....Date 18/9/2023

**PLEASE REFER TO THE DEVELOPMENT/USE AND SUBDIVISION CHECKLIST  
ON THE FOLLOWING PAGES TO DETERMINE WHAT DOCUMENTATION MUST  
BE SUBMITTED WITH YOUR APPLICATION.**

### Documentation required:

#### 1. **MANDATORY DOCUMENTATION**

*This information is required for the application to be valid. An application lodged without these items is unable to proceed.*

- ☐ Details of the location of the proposed use or development.
- ☐ A copy of the current Certificate of Title, Sealed Plan, Plan or Diagram and Schedule of Easements and other restrictions for each parcel of land on which the use or development is proposed.
- ☐ Full description of the proposed use or development.
- ☐ Description of the proposed operation.  
*May include where appropriate: staff/student/customer numbers; operating hours; truck movements; and loading/unloading requirements; waste generation and disposal; equipment used; pollution, including noise, fumes, smoke or vibration and mitigation/management measures.*
- ☐ Declaration the owner has been notified if the applicant is not the owner.
- ☐ Crown or Council consent (if publically-owned land).
- ☐ Any reports, plans or other information required by the relevant zone or code.
- ☐ Fees prescribed by the Council.

*Application fees (please phone 03 6217 9550 to determine what fees apply). An invoice will be emailed upon lodgement.*

#### 2. **ADDITIONAL DOCUMENTATION**

*In addition to the mandatory information required above, Council may, to enable it to consider an application, request further information it considers necessary to ensure that the proposed use or development will comply with any relevant standards and purpose statements in the zone, codes or specific area plan, applicable to the use or development.*

- ☐ **Site analysis plan and site plan**, including where relevant:
  - Existing and proposed use(s) on site.
  - Boundaries and dimensions of the site.
  - Topography, including contours showing AHD levels and major site features.
  - Natural drainage lines, watercourses and wetlands on or adjacent to the site.
  - Soil type.
  - Vegetation types and distribution, and trees and vegetation to be removed.
  - Location and capacity of any existing services or easements on/to the site.
  - Existing pedestrian and vehicle access to the site.
  - Location of existing and proposed buildings on the site.
  - Location of existing adjoining properties, adjacent buildings and their uses.
  - Any natural hazards that may affect use or development on the site.
  - Proposed roads, driveways, car parking areas and footpaths within the site.
  - Any proposed open space, communal space, or facilities on the site.
  - Main utility service connection points and easements.
  - Proposed subdivision lot boundaries.



# Clarence City Council

## DEVELOPMENT/USE OR SUBDIVISION CHECKLIST



- ☐ Where it is proposed to erect buildings, **detailed plans** with dimensions at a scale of 1:100 or 1:200 showing:
  - *Internal layout of each building on the site.*
  - *Private open space for each dwelling.*
  - *External storage spaces.*
  - *Car parking space location and layout.*
  - *Major elevations of every building to be erected.*
  - *Shadow diagrams of the proposed buildings and adjacent structures demonstrating the extent of shading of adjacent private open spaces and external windows of buildings on adjacent sites.*
  - *Relationship of the elevations to natural ground level, showing any proposed cut or fill.*
  - *Materials and colours to be used on rooves and external walls.*
- ☐ Where it is proposed to erect buildings, a plan of the proposed **landscaping** showing:
  - *Planting concepts.*
  - *Paving materials and drainage treatments and lighting for vehicle areas and footpaths.*
  - *Plantings proposed for screening from adjacent sites or public places.*
- ☐ Any additional reports, plans or other information required by the relevant zone or code.

*This list is not comprehensive for all possible situations. If you require further information about what may be required as part of your application documentation, please contact Council's Planning Officers on (03) 6217 9550 who will be pleased to assist.*

## SEARCH OF TORRENS TITLE

VOLUME 118647	FOLIO 1
EDITION 9	DATE OF ISSUE 31-Aug-2023

SEARCH DATE : 12-Oct-2023

SEARCH TIME : 10.43 AM

DESCRIPTION OF LAND

City of CLARENCE

Lot 1 on Plan 118647

(formerly being Lots 383 and 384 on Sealed Plan No. 55147)

Derivation : Part of Location to J.Watsonson

Prior CTs 55147/383 and 55147/384

SCHEDULE 1

N142519 TRANSFER to T & N PALMER INVESTMENTS PTY LTD of one undivided 1/2 share and ANDREW KENDALL BARBER and DEBBIE JEAN BOURKE (jointly as between themselves) of one undivided 1/2 share as tenants in common Registered 31-Aug-2023 at 12.01 PM

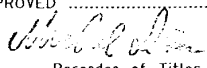
SCHEDULE 2

Reservations and conditions in the Crown Grant if any

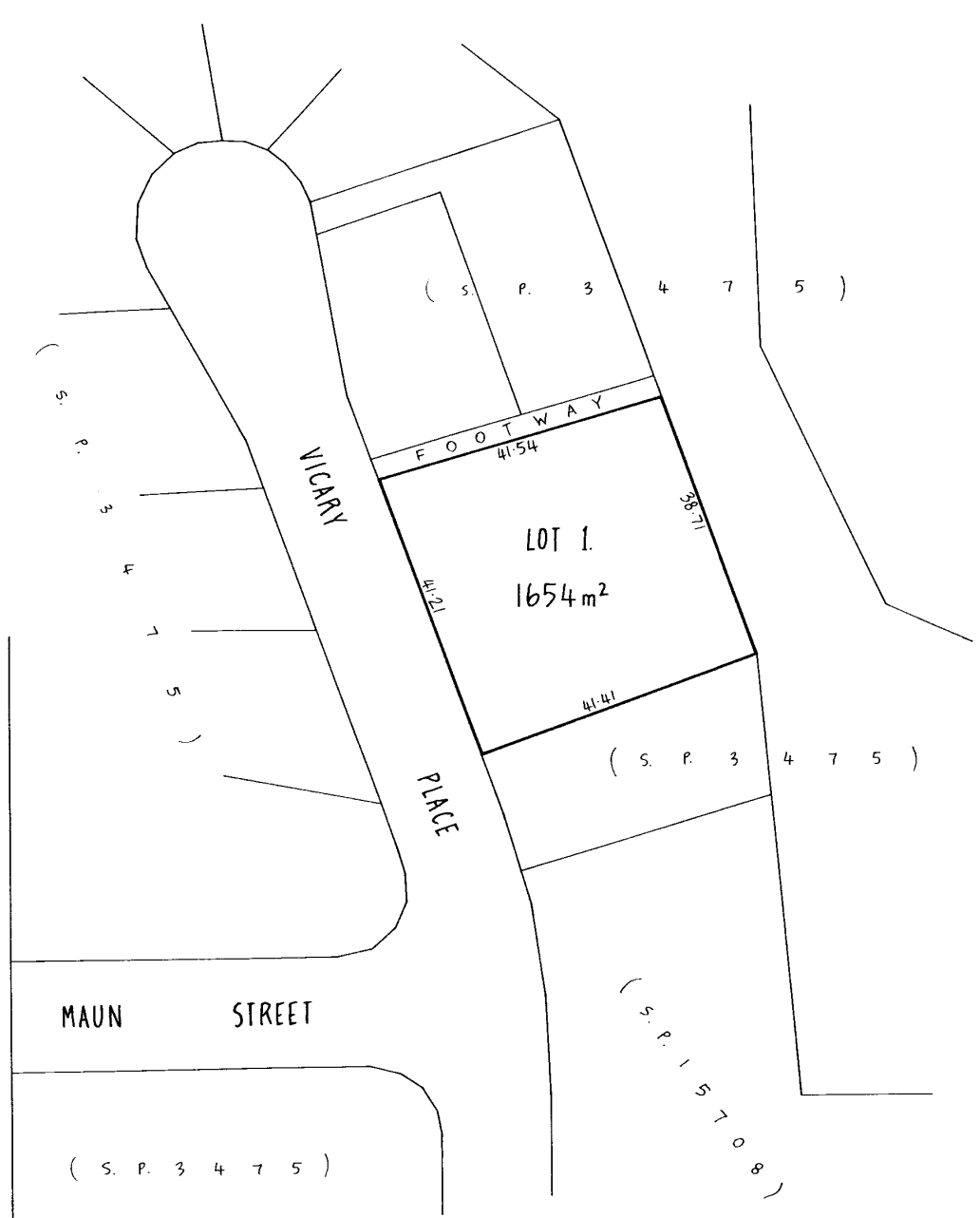
B879928 ADHESION ORDER under Section 110 of the Local Government (Building and Miscellaneous Provisions) Act 1993 Registered 22-Jun-1995 at 12.01 PM

UNREGISTERED DEALINGS AND NOTATIONS

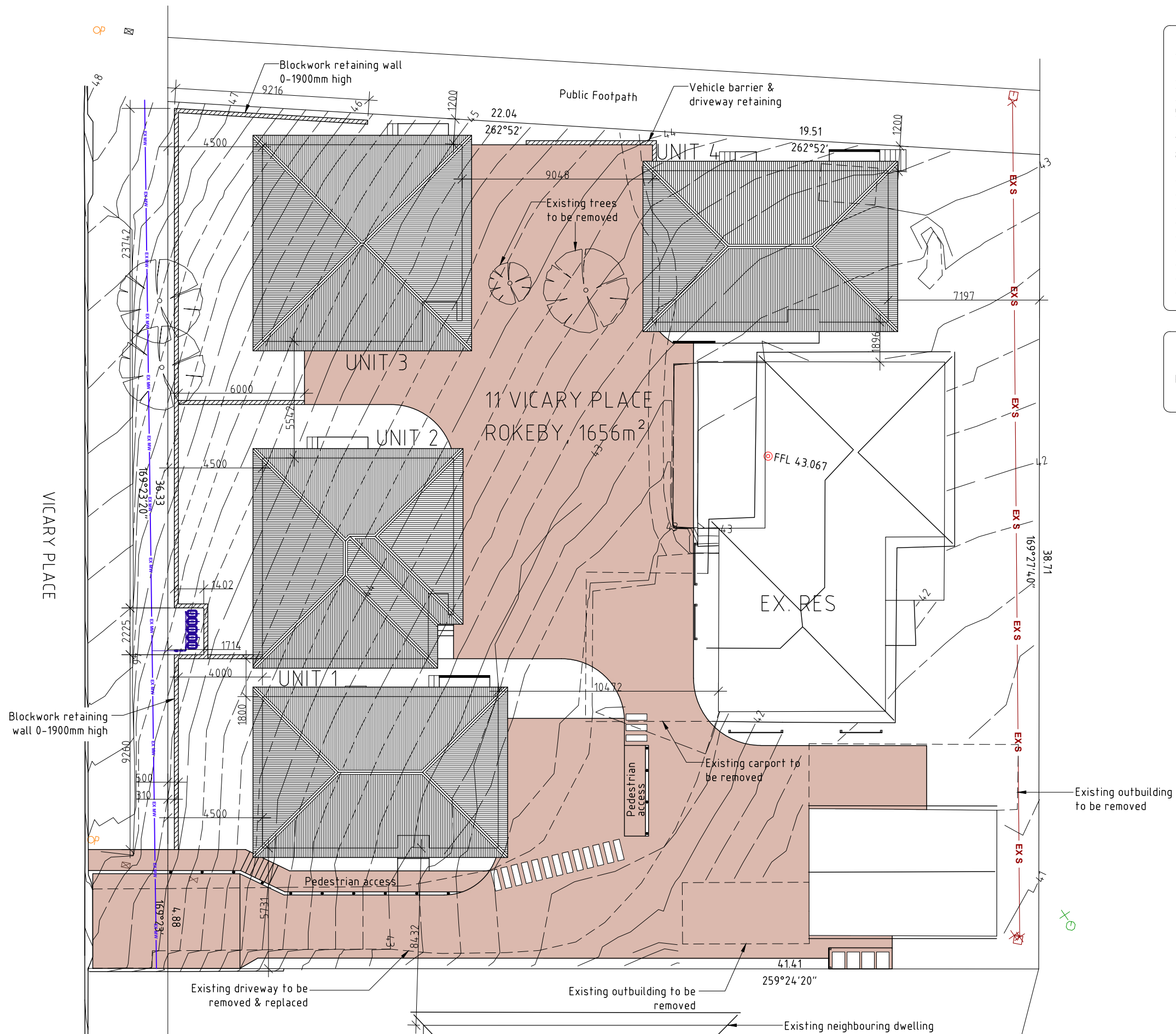
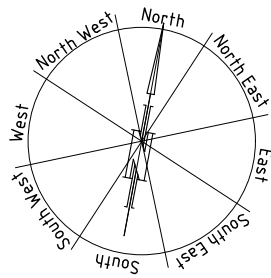
No unregistered dealings or other notations

OWNER  FOLIO REFERENCE CT.55147-383 & CT.55147-384  GRANTEE		<b>PLAN OF TITLE</b>  LOCATION CITY OF CLARENCE  FIRST SURVEY PLAN No. SP. 3475 COMPILED BY LTO  SCALE 1:600      LENGTHS IN METRES		REGISTERED NUMBER <b>118647</b>  APPROVED 22 JUN 1995  Recorder of Titles
MAPSHEET MUNICIPAL CODE No. 107	LAST 1411145 & UPI No 1411146	LAST PLAN No. SP. 3475	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN	

**BALANCE PLAN**



A-143



CONTENTS	
1.	Site Plan
2.	Landscape Plan
3.	Driveway Plan
4.	Vehicle Maneuvering Plan
5.	Stormwater Plan
6.	Plumbing Notes
7.	Plumbing Details
8.	Existing Residence Plan
9.	Existing Residence Details
10.	Unit 1 Plan
11.	Unit 1 Elevations
12.	Unit 2 Plan
13.	Unit 2 Elevations
14.	Unit 3 Plan
15.	Unit 3 Elevations
16.	Unit 4 Plan
17.	Unit 4 Elevations
18.	Retaining Wall Elevations

Site Area:  
1656m<sup>2</sup>  
Proposed Site Coverage:  
474.54m<sup>2</sup> = 28.66%

DEVELOPMENT DRAWINGS ONLY  
NOT FOR CONSTRUCTION

PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

SITE PLAN

SCALE 1:200

AMENDED

13/10/23

DATE  
19/09/23

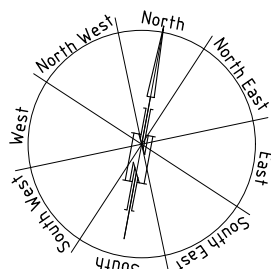
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email: gtilley7@biopond.com  
phone ph 0400 671 582

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VICARY PLACE

Private Open Spaces for Units 1, 2 & 3 have been located between the dwelling and the frontage, in reasonable proximity to the Living areas of the dwellings, and have been oriented to take advantage of sunlight and minimise overshadowing from adjacent units.

Common ground

Blockwork retaining wall 0-1900mm high

Existing neighbouring dwelling

Blockwork retaining wall 0-1900mm high

Vehicle barrier & driveway retaining

Timber slat privacy screen measured 1700mm high from FFL. Max. 25% transparency. Locate max. 1m from window.

Timber slat privacy screen measured 1700mm high from FFL. Max. 25% transparency. Locate max. 1m from window.

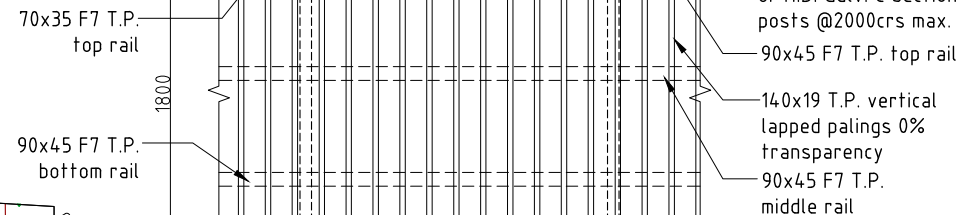
Timber slat privacy screen measured 1700mm high from FFL. Max. 25% transparency. Locate max. 1m from window.

Timber slat privacy screen measured 1700mm high from FFL. Max. 25% transparency. Locate max. 1m from window.

Timber slat privacy screen measured min. 1200mm high above finished surface level of waste storage area. Max. 25% transparency.

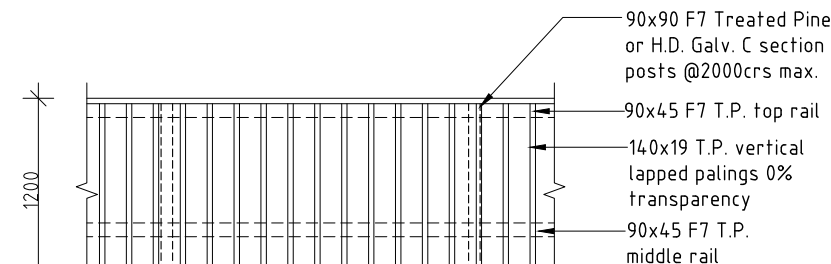
Shared 240 litre garbage bins. 1 bin per 3 units (2 bins required), 80 litres per Unit per week.

Shared 240 litre recycling bins. 1 bin per 3 units (2 bins required), 80 litres per Unit per week.



F1 FENCE ELEVATION (Typical)

Scale 1:50



F2 FENCE ELEVATION (Typical)

Scale 1:50

- CL Freestanding Retractable clothes line
- F1 1800 high paling fence
- F2 1200 high paling fence
- G Gate
- S 750x1500 shed
- WS 1.5m<sup>2</sup> impervious area for waste storage
- 1000x1500 concrete pad/paving
- B off Thorn Bollard lights Satin black 1500-840 400K 24.5 watt LED 140Ø x 230mm high



Leucadendron Red gem 1.5m high



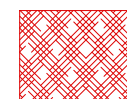
Escallonia "Hedge edge" or similar; 0.5m high

NOTE: Plant height stated is matured height apart from the hedge which can be managed to desired height.

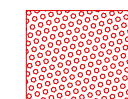
Garden bed not to extend against building, refer to CSIRO report for info



Lawn



Mulched garden



Decorative pebbles/gravel

Ex. Residence Private Open Space	143.66m <sup>2</sup>
Unit 1 Private Open Space	70.10m <sup>2</sup>
Unit 2 Private Open Space	71.51m <sup>2</sup>
Unit 3 Private Open Space	78.36m <sup>2</sup>
Unit 4 Private Open Space	96.04m <sup>2</sup>

Impervious surface	1058.1m <sup>2</sup> divide by 1656m <sup>2</sup> = 63.89%
Pervious surface	597.9m <sup>2</sup> divide by 1656m <sup>2</sup> = 36.10%

6.0m x 4.0m (24.00m<sup>2</sup>) Private Open Space Max. 1:10 gradient

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PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

LANDSCAPE PLAN

SCALE 1:200

AMENDED

13/10/23

DATE  
19/09/23

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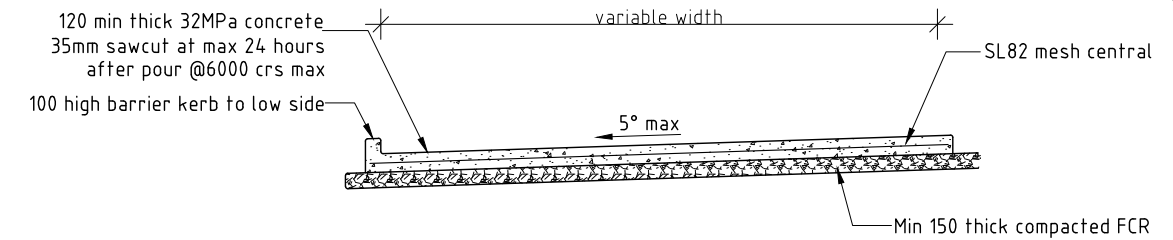
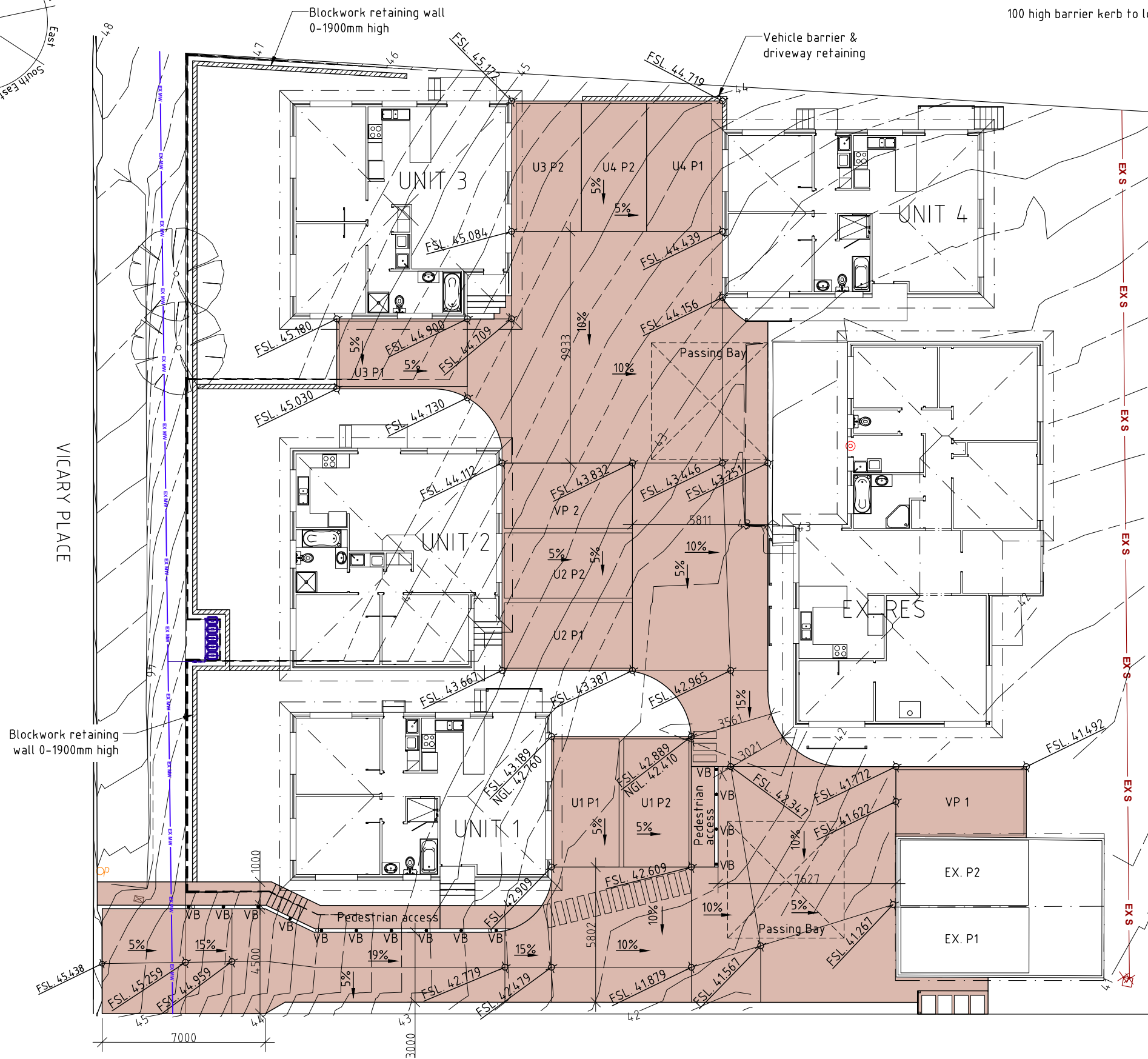
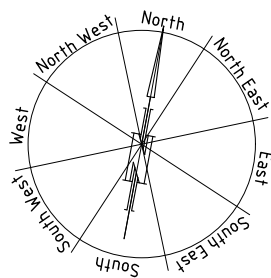
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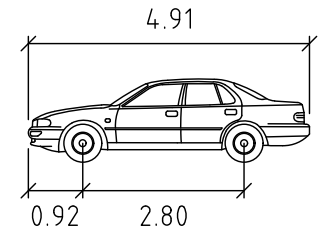
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DRIVEWAY CROSS SECTION (TYPICAL)  
SCALE 1:50



B85	metres
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.00
Steering Angle	: 34.00

— S — Sawcut to 25% of slab thickness as soon as able to cut without dragging out the aggregate



120mm Slab on grade, N25, 100 slump  
SL82 Central

Natural coloured concrete broom finished paving slab to driveway/access & parking

NOTE: All parking & turning areas to be clearly marked

NOTE: Max. 5% gradient to vehicle maneuvering areas

Carparking and vehicle maneuvering to be of sealed construction and comply with AS2890.1-2004  
NO PARKING/KEEP CLEAR signage to be installed for the turning bays so as to remain clear of vehicles at all times.  
Visitor parking signs to be installed at visitor parking bays  
Signage noting residential parking for all units to be installed for Unit parking spaces.  
Parking and vehicle circulation roadways & pedestrian paths to be provided with bollard lighting. Refer to landscape plan for lighting locations.

VB: Vehicle bollard  
Passing Bay: 5000 wide x 5000 long

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PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

DRIVEWAY PLAN

SCALE 1:200

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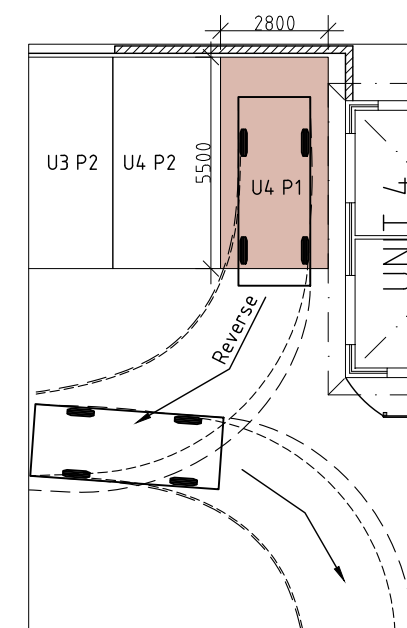
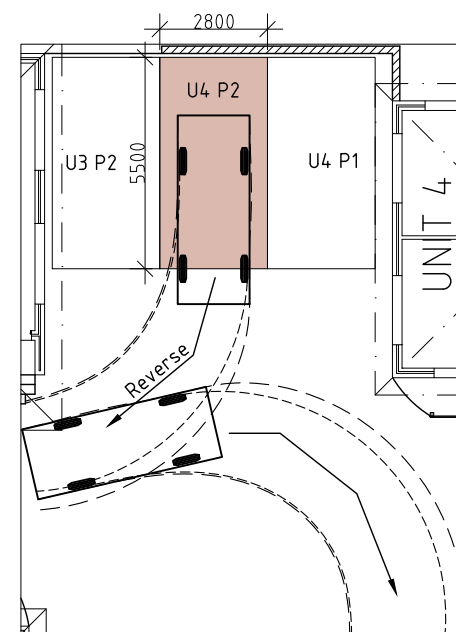
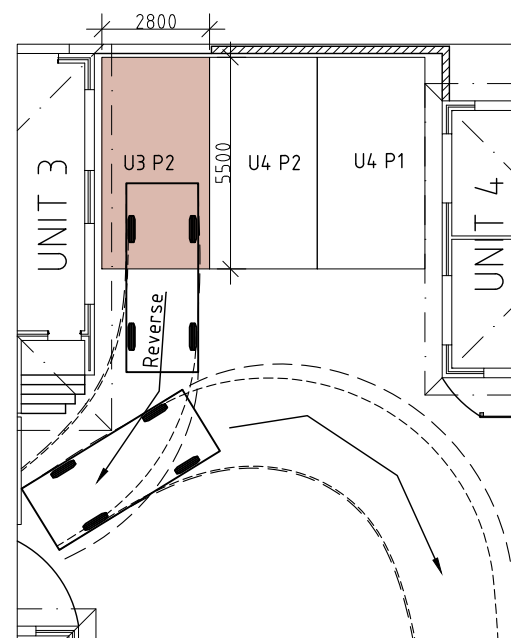
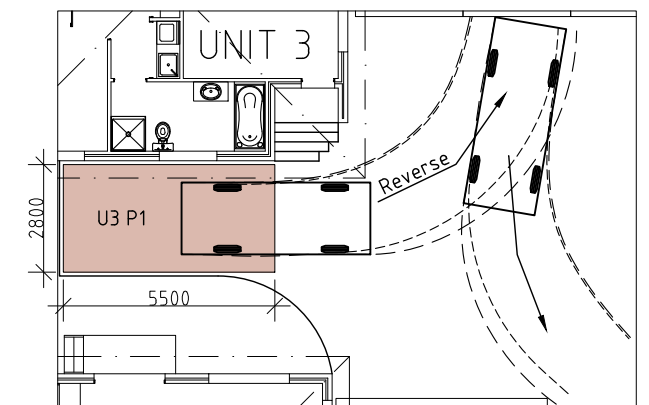
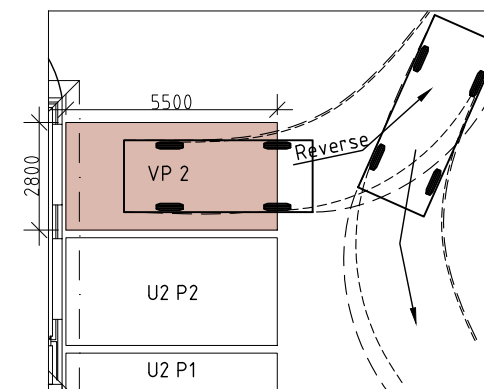
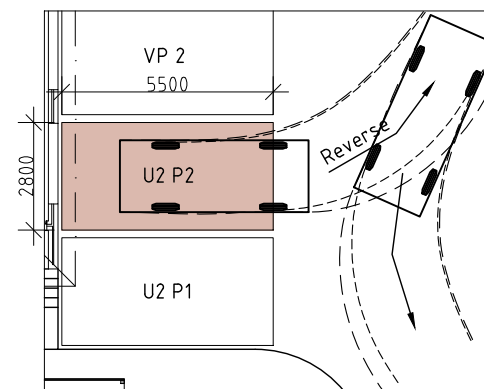
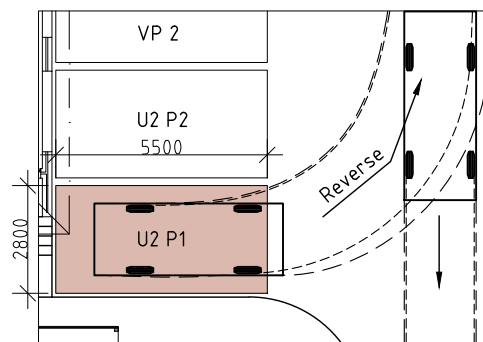
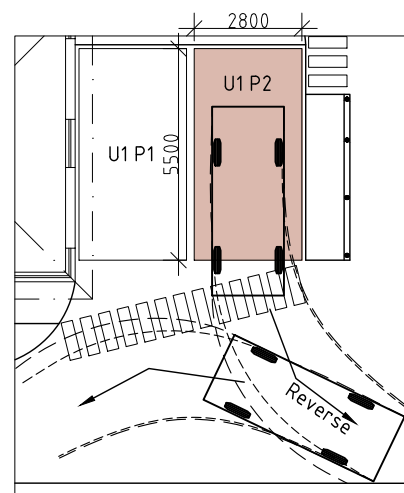
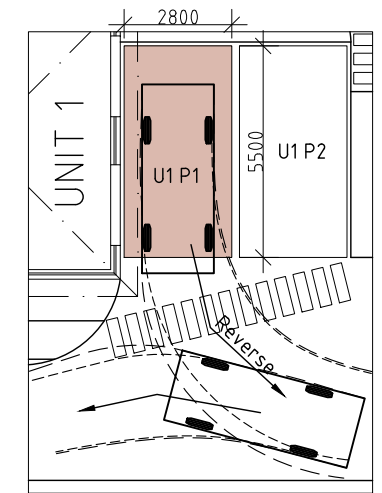
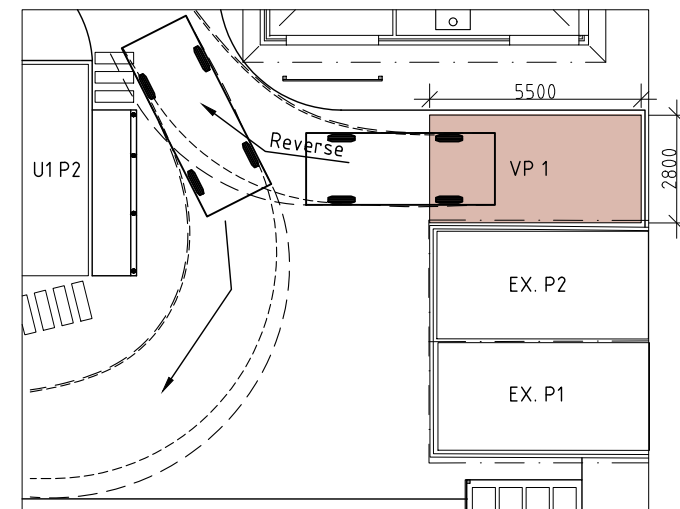
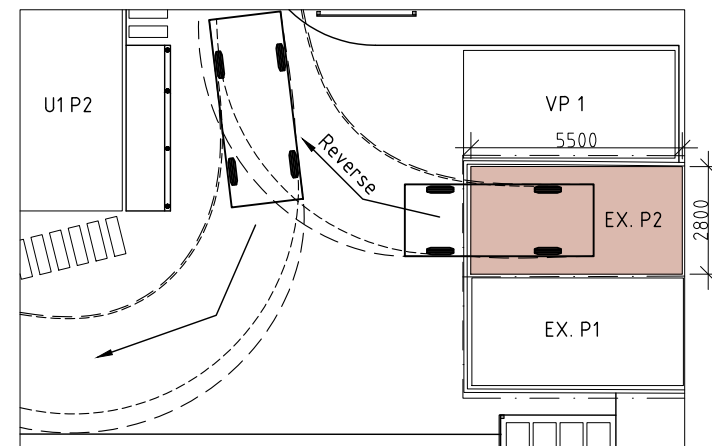
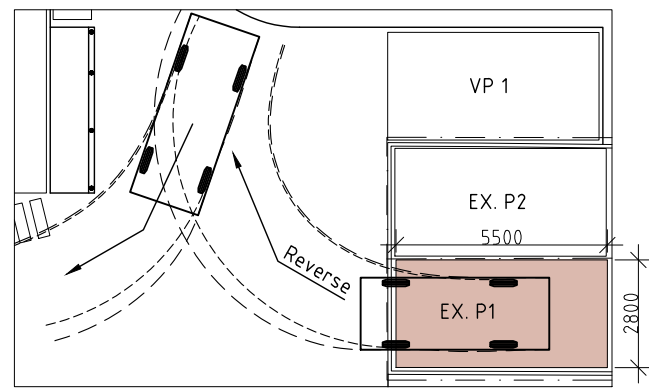
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PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

VEHICLE MANEUVERING PLAN

SCALE 1:100

AMENDED

13/10/23

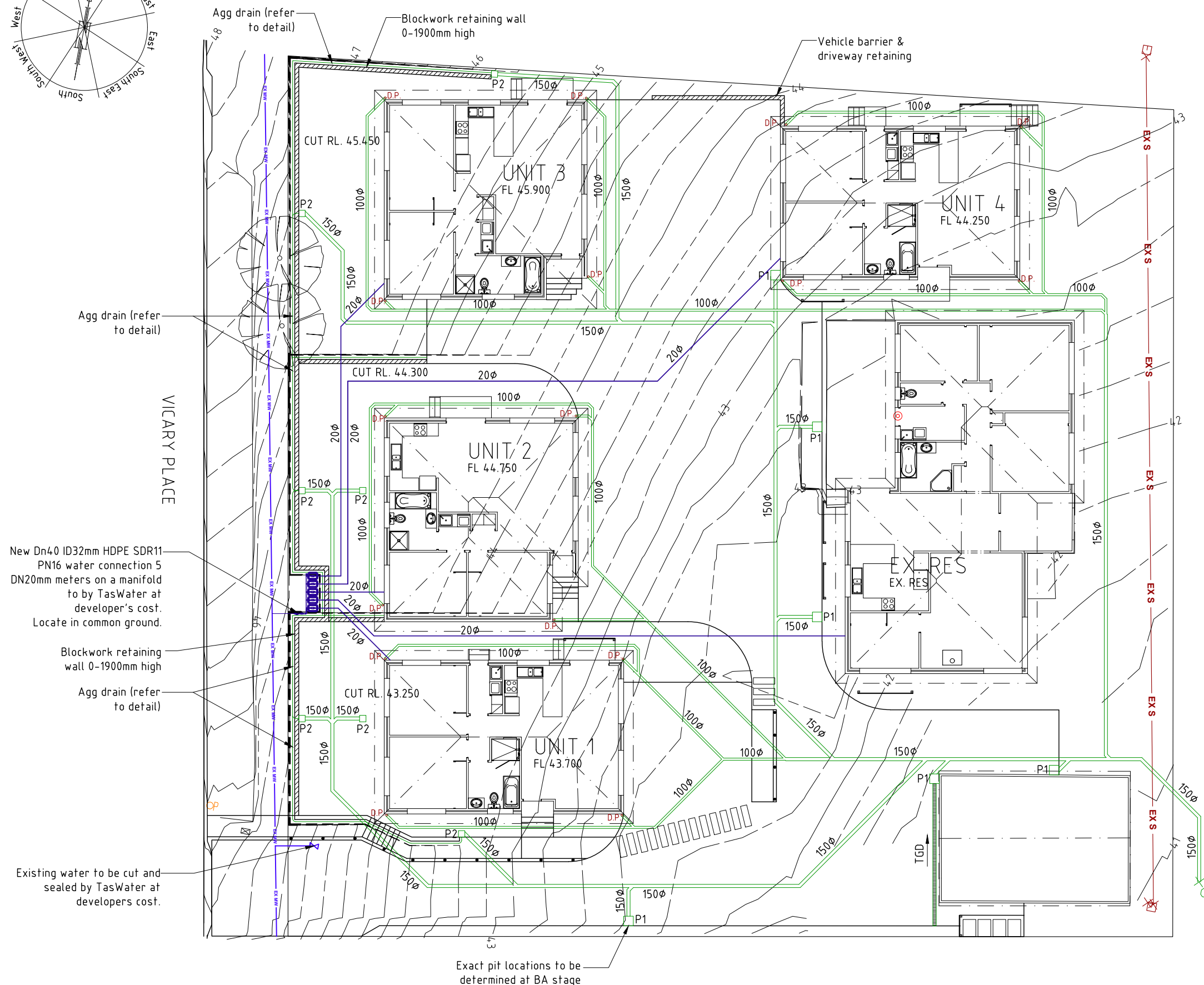
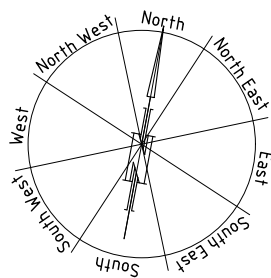
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- TGD Trafficable grate drain  
P1 450x450 Trafficable pit.  
Each grate pit to be fitted with  
SPEL Environmental Stormsack  
water quality improvement device.  
Designed & installed in accordance  
with manufacturers instructions  
P2 300x300 Trafficable pit  
I.O. Inspection opening

Agg drains to be installed prior to  
slab preparation. Evidence of the  
agg drainage installation to be  
supplied to the Engineer.

Plumber to confirm the  
location of existing on-site  
services prior to commencement  
of any excavations

150φ 150uPVC stormwater  
1:100 min. fall

S100φ 100uPVC sewerage  
1.67% min. fall

100φ 100uPVC stormwater  
1:100 min. fall

100x100 cast in kerb to downslope  
of driveway perimeter  
I.O. at each intersection & bend

Water meters for strata developments must be located in common  
property to allow unfettered access to enable reading, testing,  
inspection, maintenance and exchange without impediment and must be  
kept clear of obstructions at all times. Water meters in trafficable  
areas must be housed in trafficable boxes with a class "B" lid.

NOTE All works are to be in accordance with the Water supply code of  
Australia WSA03-2011-3.1 Version 3.1 MRWA Edition V2.0 & sewerage  
Code of Australia Melbourne Retail water agencies Code WSA02-2002  
Version 2.3 MRWA Edition 1.0 & TasWater's supplements to those codes.

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PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

STORMWATER PLAN

SCALE 1:200

AMENDED

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19/09/23

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WET AREAS TO COMPLY WITH NCC VOL. 2 PART H4D2, ABCB HOUSING PROVISIONS PART 10.2 AND AS 3740

WATERPROOFING OF ENCLOSED & UNENCLOSED SHOWERS:  
FLOOR: Waterproof entire floor if no preformed shower base provided  
WALLS: Waterproof to not less than 1800mm above the floor substrate  
WALL JUNCTIONS AND JOINTS: Waterproof internal and external corners and horizontal joints within a height of 1800mm above the floor level with not less than 40mm width either side of the junction  
WALL/FLOOR JUNCTIONS: Waterproof internal and external corners and joints  
PENETRATIONS: Waterproof all penetrations

AREAS OUTSIDE THE SHOWER ON CONCRETE SLAB OR FC FLOORING:  
FLOORS: Entire floor to be water resistant  
WALLS/FLOOR JUNCTIONS: Waterproof all wall/floor junctions and where a flashing is used, the horizontal leg must be not less than 40mm

AREAS OUTSIDE THE SHOWER ON TIMBER FLOOR:  
FLOORS: Waterproof entire floor  
WALL/FLOOR JUNCTIONS: Waterproof all wall/floor junctions and where a flashing is used, the horizontal leg must be not less than 40mm.

AREAS ADJACENT TO NON-FREESTANDING BATHS AND SPAS (without showers):  
FLOOR: Water resistant to entire floor on concrete or FC flooring; or Waterproof to entire floor on timber floor.  
WALLS: Water resistant walls to a height of not less than 150mm above the vessels, for the full extent, where the vessel is within 75mm of a wall.  
WALL JUNCTIONS AND JOINTS:Water resistant within 150mm above the vessel for the extent of the vessel to a width of 40mm either side of the junction  
WALL/FLOOR JUNCTIONS: Waterproof for the extent of the vessel

AREAS ADJACENT TO INSERTED BATHS AND SPAS (without showers):  
FLOOR: Water resistant to entire floor on concrete or FC flooring; or Waterproof to entire floor on timber floor.  
HORIZONTAL SURFACES: Waterproof shelf adjoining bath or spa and include a waterstop under the vessel lip  
WALLS: Waterproof walls to not less than 150mm above the lip of the vessel  
WALL JUNCTIONS AND JOINTS: Waterproof junctions within 150mm of vessel to a width of 40mm either side of the junction  
WALL/FLOOR JUNCTIONS: Waterproof wall/floor junctions 25mm above finished floor level  
PENETRATIONS: Waterproof penetrations where they occur in horizontal surfaces, seal penetrations where they occur in vertical surfaces

OTHER AREAS (LAUNDRIES AND WCs):  
FLOOR: Water resistant floor to entire room  
WALLS: Water resistant wall to a height of not less than 150mm above the vessel for the extent of the vessel, where the vessel is within 75mm of wall  
WALL JUNCTIONS AND JOINTS: Waterproof junctions where a vessel is fixed to a wall  
WALL/FLOOR JUNCTIONS: Water resistant wall/floor junctions with horizontal leg not less than 40mm where flashing used  
PENETRATIONS: Waterproof penetrations where they occur in surfaces required to be waterproof or water resistant.

WATERPROOFING SYSTEMS:  
Waterproofing systems to be in accordance with ABCB Housing Provisions Part 10.2.6.

FALLS TO WET AREA FLOORS:  
Where a floor waste is installed the continuous fall of a floor plane to the waste must be no less than 1:80 and no more than 1:50.

STEPDOWN SHOWERS:  
Where stepdown showers are used, the shower area must be stepped down a minimum of 25mm below the finished floor level outside the shower. Refer to ABCB Housing Provisions Part 10.2.15 & relevant figures for details.

HOB CONSTRUCTION:  
Shower hobs are to be constructed in accordance with ABCB Housing Provisions Part 10.2.16.

ENCLOSED SHOWERS WITH LEVEL THRESHOLD:  
Enclosed showers with a level threshold must be provided with a waterstop in accordance with ABCB Housing Provisions Part 10.2.17 & relevant figures.

UNENCLOSED SHOWERS:  
Unenclosed showers are to have a waterstop min. 1500mm from the shower rose with the vertical leg finishing flush with the top surface of the floor. Waterproof all all joins and junctions. Waterproof entire bathroom floor where unenclosed showers are installed. Refer to ABCB Housing Provisions Part 10.2.18 & relevant figures for details.

PENETRATIONS:  
All penetrations in showers and wet areas must be waterproofed in accordance with ABCB Housing Provisions part 10.2.23.

FLASHINGS/JUNCTIONS:  
All flashings and junctions in wet areas to be installed in accordance with ABCB Housing Provisions Part 10.2.24 & relevant figures.

SHOWER SCREENS:  
1900H Semi-frameless shower screens to comply with ABCB Housing Provisions Table 8.4.6 & AS 1288:2021. Minimum 6mm toughened safety organic coated glass, labelled to comply with industry standards. Install shower screens in accordance with ABCB Housing Provisions Part 10.2.32.

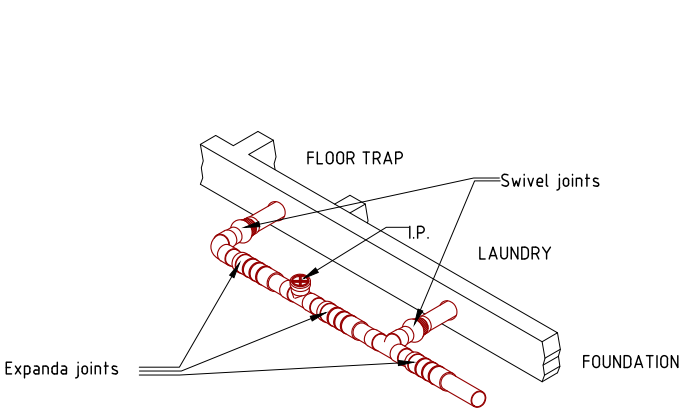
- HYDRAULIC NOTES:
- All plumbing shall be in accordance with the Tasmanian Plumbing Regulations, AS 3500 and to the local authority approval.
  - The location of the existing services where shown are approximate only and shall be confirmed on site where possible. Determine location of existing power, Telstra, water and drainage services prior to commencing new work.
  - Conceal all pipework in ceiling space, ducts, cavities, wall chases, cupboards etc. unless otherwise approved.
  - Refer to designers drawings and fixture and equipment technical specifications for pipework connections.
  - Make good all disturbed surfaces to match existing.
  - Remove all excess soil and surplus materials from site.
  - All plumbing to be installed by a licensed plumber.

Install inspection openings at major bends for stormwater and all low points of downpipes.  
All plumbing & drainage to be in accordance with local Council requirements. Provide surface drain to back of bulk excavation to drain leveled pad prior to commencing footing excavation.  
Stormwater line (100mm uPVC)  
Sewer line (100mm uPVC)

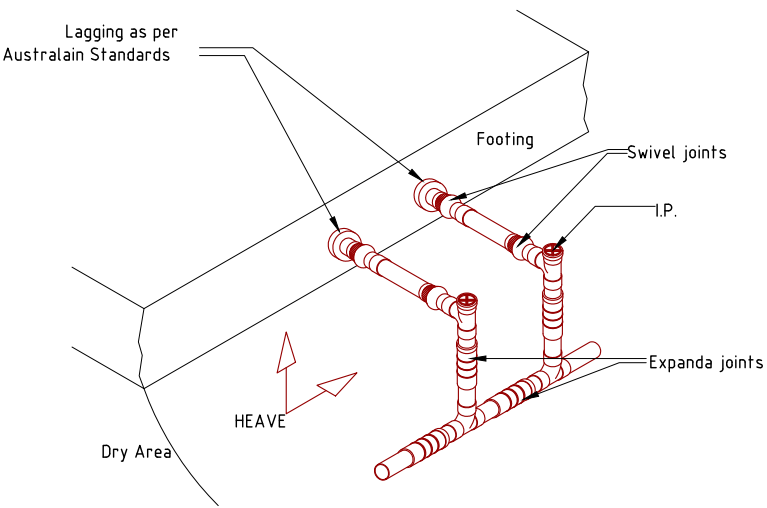
SERVICES  
The heated water system must be designed & installed with Part B2 of NCC Vol. 3 – Plumbing Code of Australia  
Thermal insulation for heated water piping must:  
a) be protected against the effects of weather and sunlight; and  
b) be able to withstand the temperatures within the piping; and  
c) use thermal insulation in accordance with AS/NZS 4859.1

Heated water piping that is not within a conditioned space must be thermally insulated as follows:

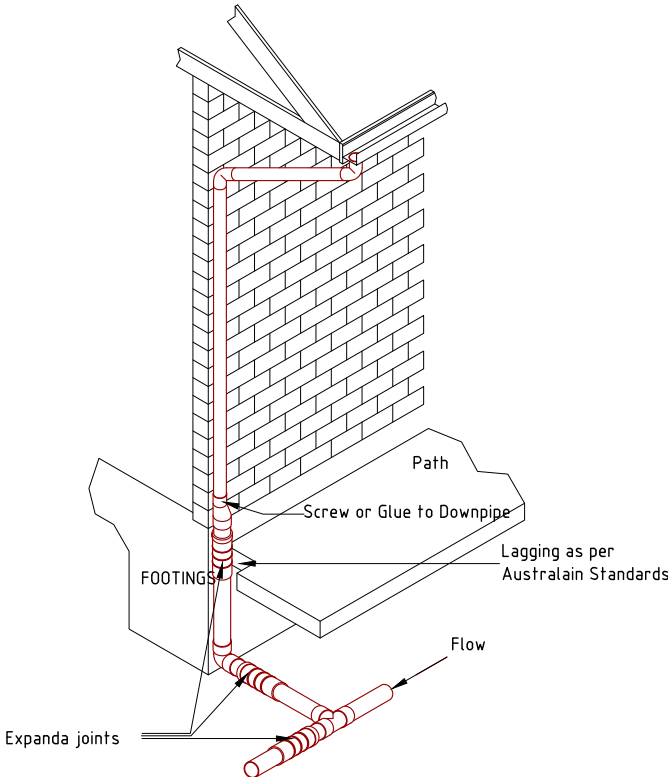
- Internal piping:
  - All flow and return internal piping that is -
    - within an unventilated wall spaces
    - within an internal floor between storeys; or
    - between ceiling and insulation and a ceilingMust have a minimum R-value of 0.2 (ie. 9mm of closed cell polymer insulation)
- Piping located within a ventilated wall space, an enclosed building subfloor or a roof space:
  - All flow and return piping
  - Cold water supply piping and Relief valve piping within 500mm of the connection to central water heating systemMust have a minimum R-value of 0.45 (ie. 19mm of closed cell polymer insulation)
- Piping located outside the building or in an unenclosed building sub-floor or roof space:
  - All flow and return piping.
  - Cold water supply piping and Relief valve piping within 500mm of the connection to central water heating systemMust have a minimum R-value of 0.6 (ie. 25mm of closed cell polymer insulation)  
Piping within an insulated timber framed wall, such as that passing through a wall stud, is considered to comply with the above insulation requirements.



GUIDELINES FOR PVC-U DRAINAGE SYSTEM WITH EXPANSION AND SWIVEL JOINT LOCATIONS FOR REACTIVE SOILS



GUIDELINES FOR PVC-U DRAINAGE SYSTEM WITH EXPANSION AND SWIVEL JOINT LOCATIONS FOR REACTIVE SOILS



GUIDELINES FOR PVC-U DRAINAGE SYSTEM WITH EXPANSION AND SWIVEL JOINT LOCATIONS FOR REACTIVE SOILS

Hot & Cold Water Nominal Diameters		
Branch off takes	Min. DN20	
Max. off take length 6m	DN18	
Max. off take length 3m	DN15	
Max. off take length 1m	DN10	

Insulation Schedule		
Heated water pipes		
Type	Size Range	Insulation
Circulating Line	32-40	25mm Rockwool with foil wrap
Branch Line Offtake	20-25 18	19mm Bradflex 13mm Bradflex
Cold water pipes exposed		
Type	Size Range	Insulation
All	>20	13mm Bradflex
Other cold watere pipes		
Type	Size Range	Insulation
All	All	Not required

NOTE: Water pipes associated directly with plan equipment shall be insulated in accordance with the manufacturers instructions for a typical installation

Surface drainage to conform with NCC Vol. 2 Part H2D2. NOTE: 50mm fall required over first 1m from building.

IMPORTANT NOTICE FOR ATTENTION OF OWNER:  
The owners attention is drawn to the fact that foundations and associated drainage in all sites requires continuing maintenance to assist footing performance. Advice for foundation maintenance is contained in the CSRIO Building Technology File 18 and it is the owners responsibility to maintain the site in accordance with that document.



DEVELOPMENT DRAWINGS ONLY  
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PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

PLUMBING NOTES

SCALE N/A

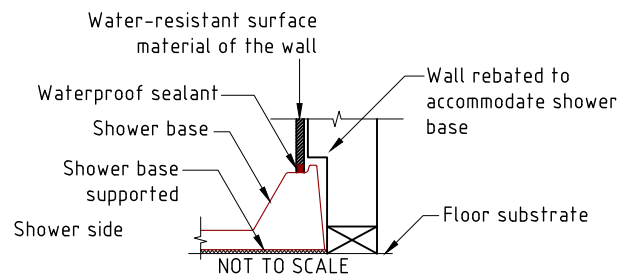
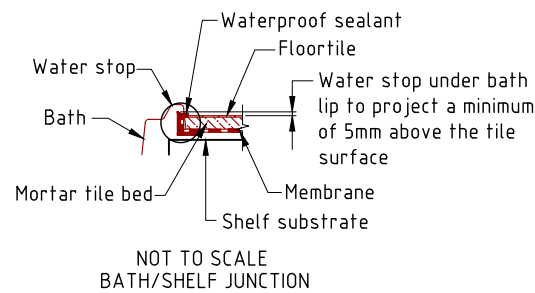
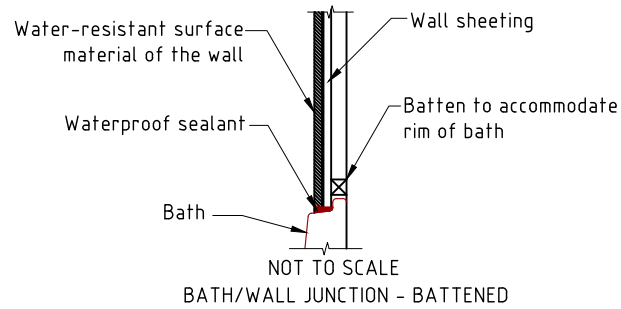
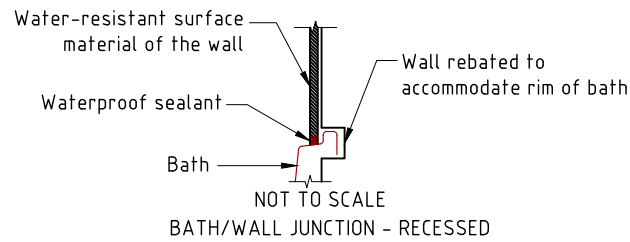
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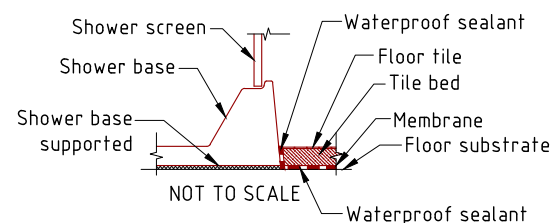
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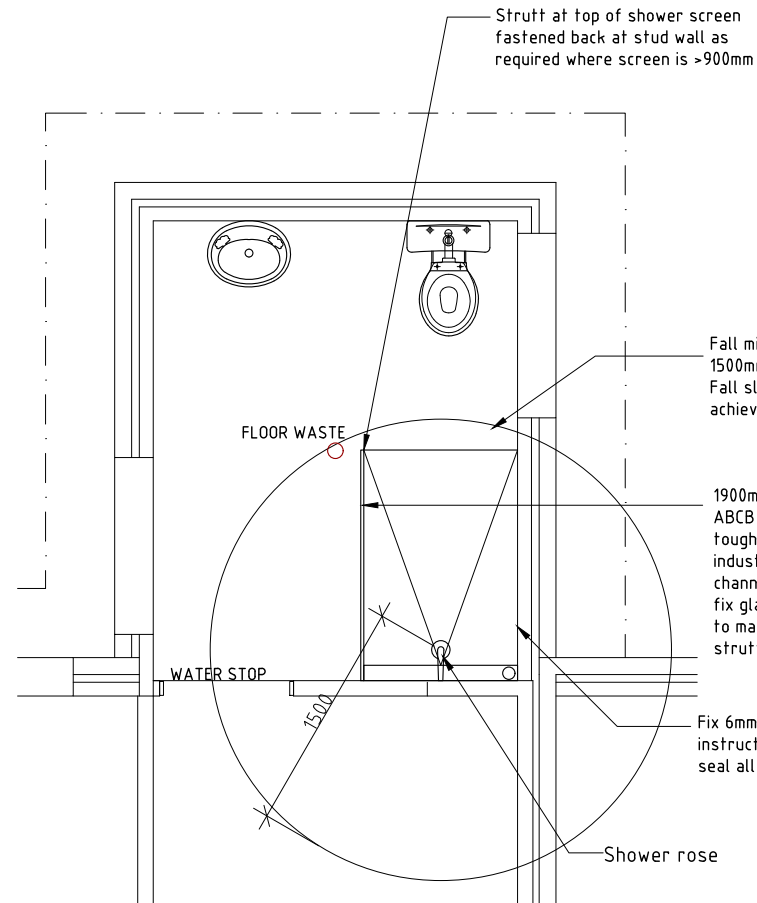
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TYPICAL PREFORMED SHOWER BASE WALL/FLOOR JUNCTION



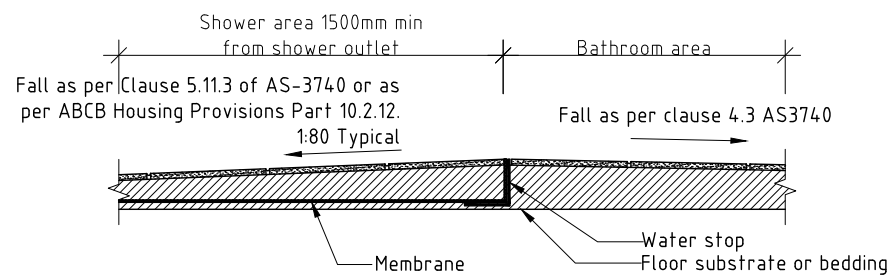
TYPICAL PREFORMED SHOWER BASE/FLOOR JUNCTION ON TIMBER FLOORS, INCLUDING PARTICLEBOARD, PLYWOOD AND OTHER TIMBER MATERIALS



WET AREA DETAIL (TYPICAL)

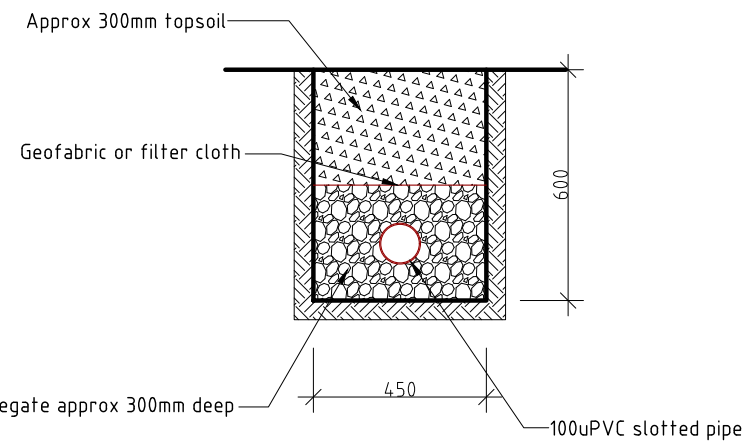
Scale 1:50

Seal all joints, gaps & wall junctions with PVA sealant - cover floor/wall junctions min R6: 2 coats of approved PVA membrane installed to manufacturers instructions, including cloth tape to wall junctions and penetrations. To floor, continue 50mm up vertical surfaces & to shower bay 1800x1500 each way from shower rose or to shower screen. To timber skirting or door architrave to stop <25mm above finished floor level.

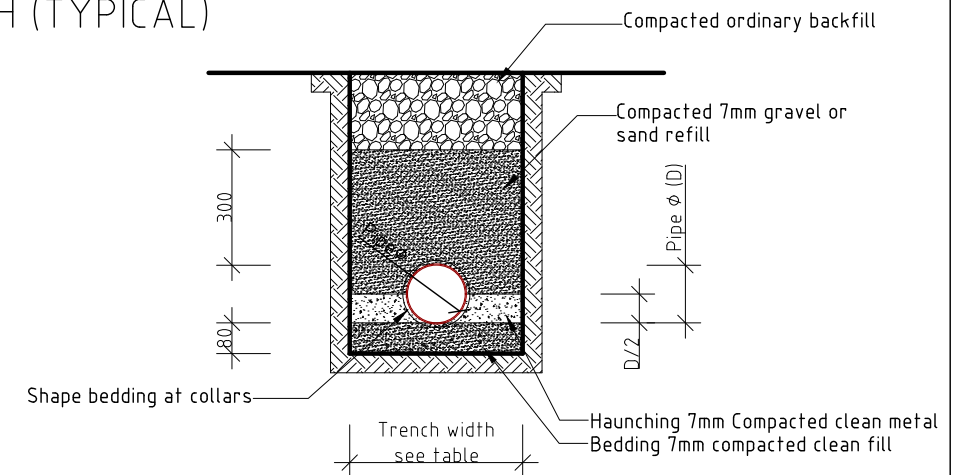
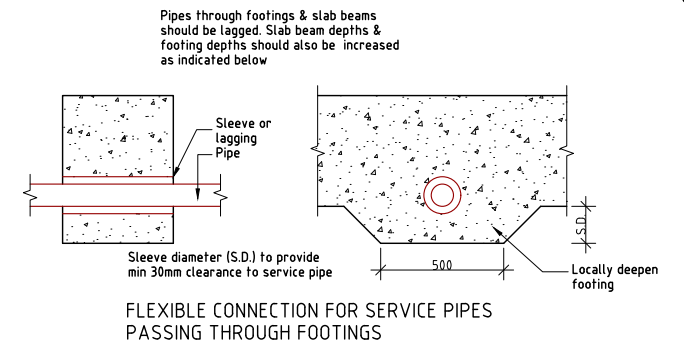


TYPICAL TERMINATION OF MEMBRANE AT EXTENT OF SHOWER AREA

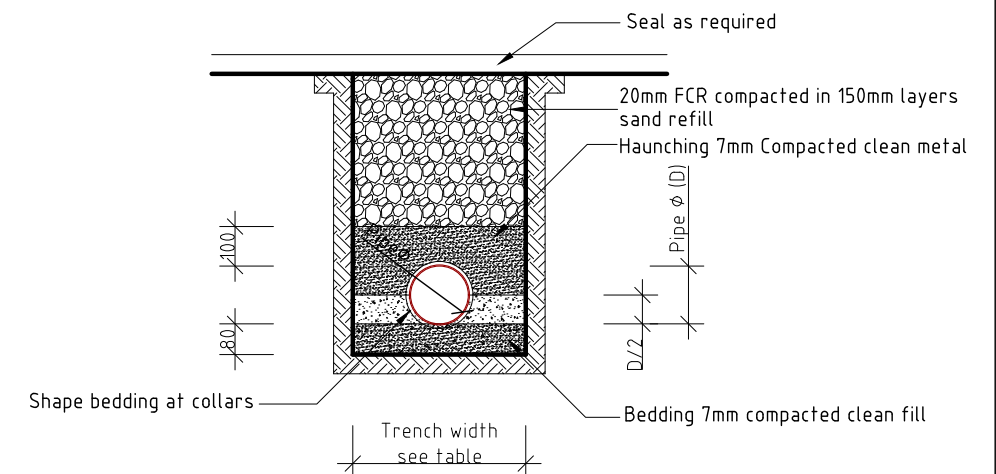
Scale 1:50



ABSORPTION TRENCH (TYPICAL)



TYPICAL PIPE TRENCH DETAIL NON-TRAFFICABLE AREAS



TYPICAL PIPE TRENCH DETAIL TRAFFICABLE AREAS

NOTE: All materials and construction to comply with AS3500.3:2021

TRENCH WIDTHS	
Pipe diameter	Min trench width
Less than 50mm	250
75-100mm	450
150-300mm	600
>300mm	Ø plus 300mm

Surface drainage to conform with NCC Vol. 2 Part H2D2. NOTE: 50mm fall required over first 1m from building.

**IMPORTANT NOTICE FOR ATTENTION OF OWNER:**  
The owners attention is drawn to the fact that foundations and associated drainage in all sites requires continuing maintenance to assist footing performance. Advice for foundation maintenance is contained in the CSIRO Building Technology File 18 and it is the owners responsibility to maintain the site in accordance with that document.



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PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

PLUMBING DETAILS

SCALE 1:20

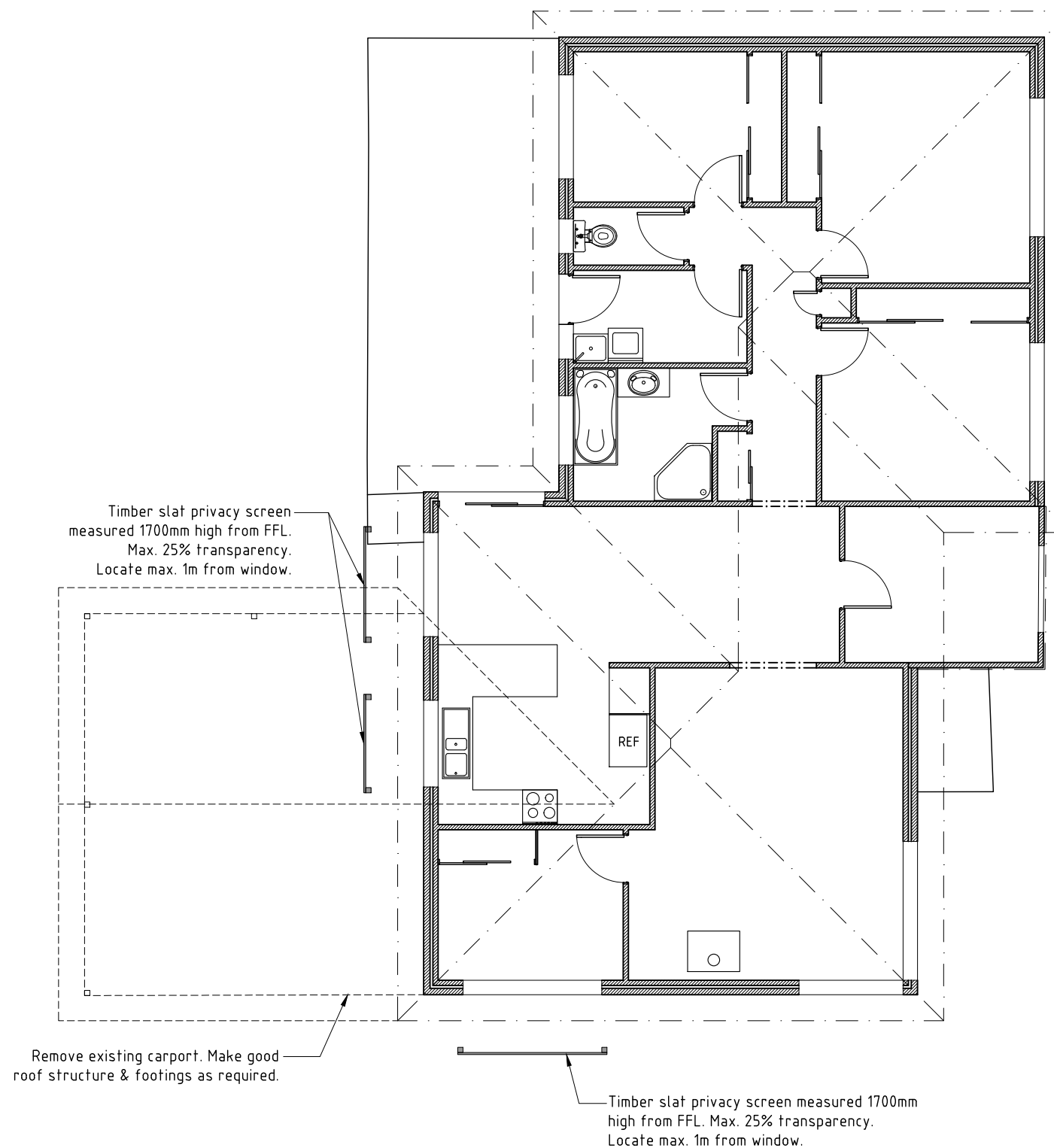
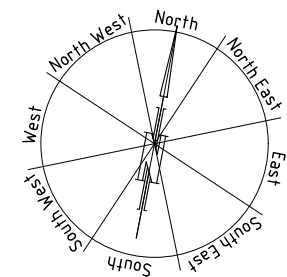
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## EXISTING RESIDENCE

----- Removed  
===== Existing

PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

EXISTING RESIDENCE PLAN

SCALE 1:100

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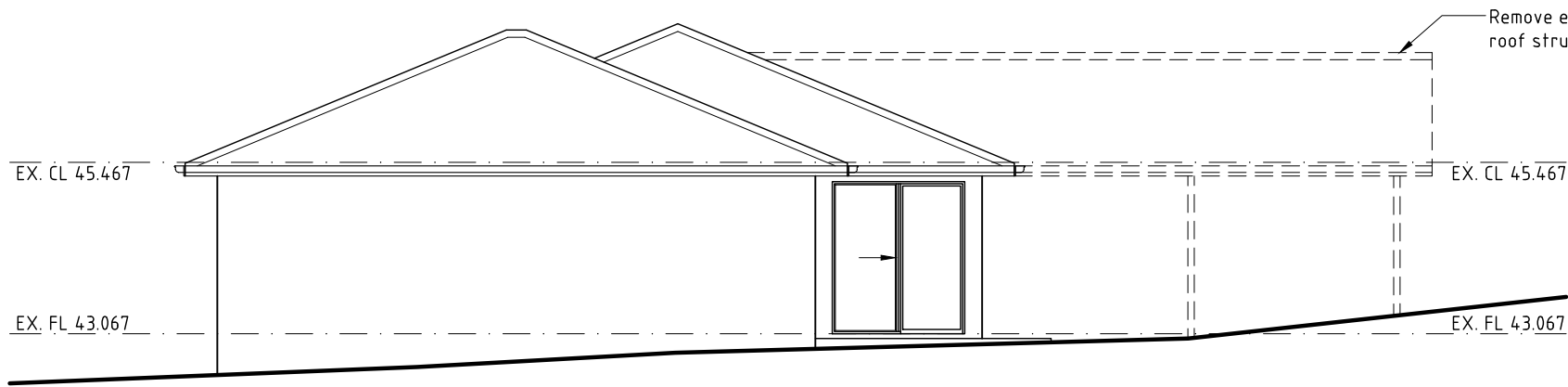
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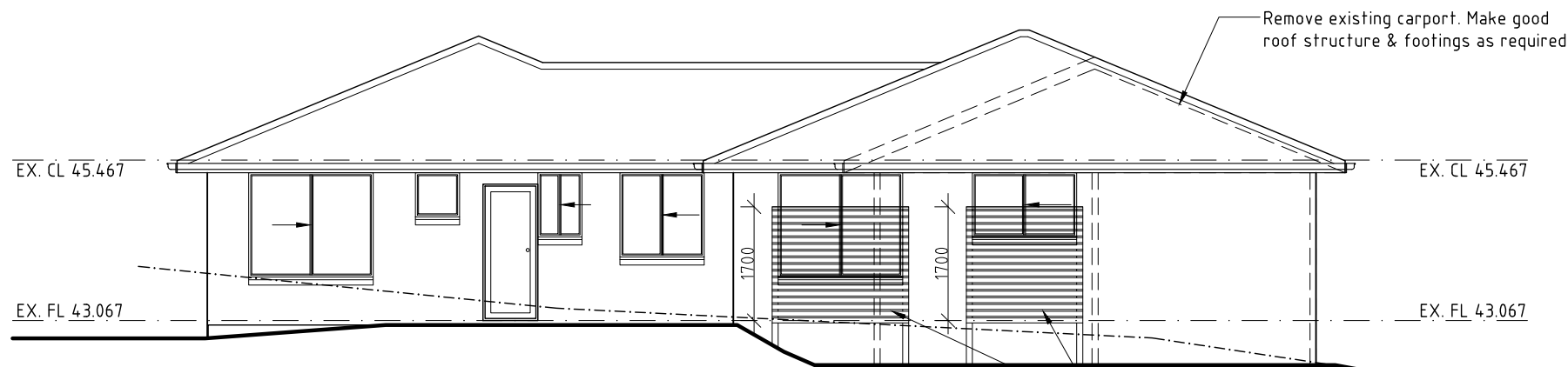
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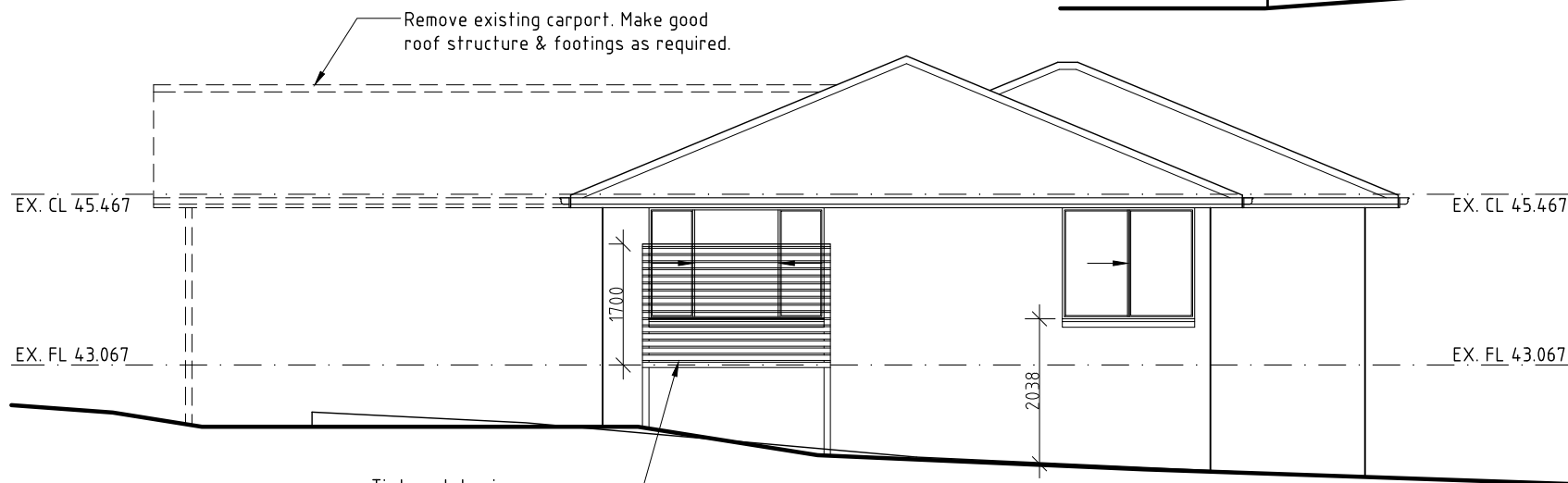




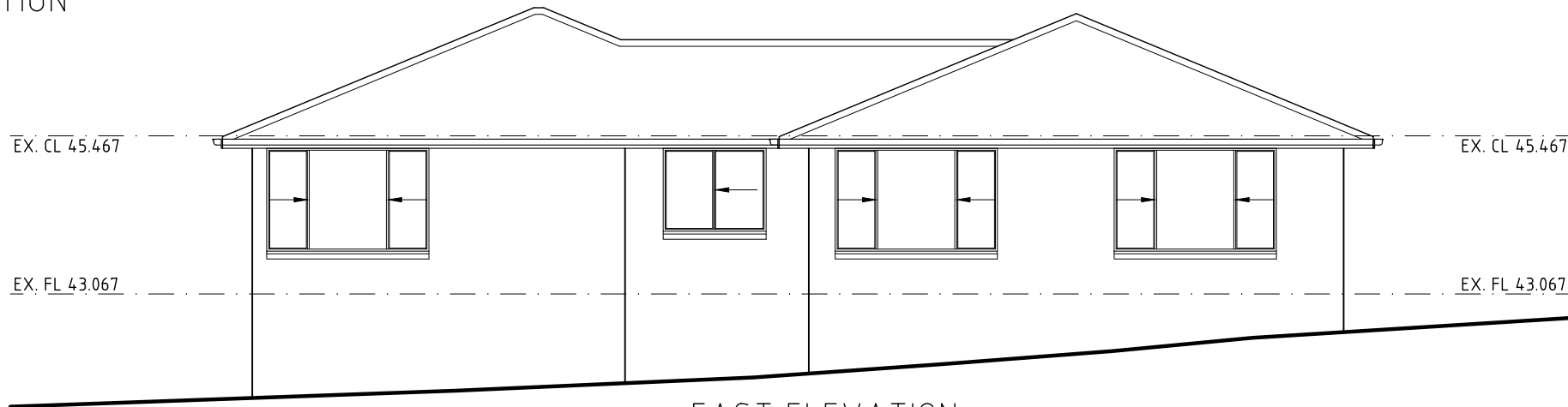
NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

EXISTING RESIDENCE

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PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

EXISTING RESIDENCE ELEVATIONS

DATE  
20/10/23

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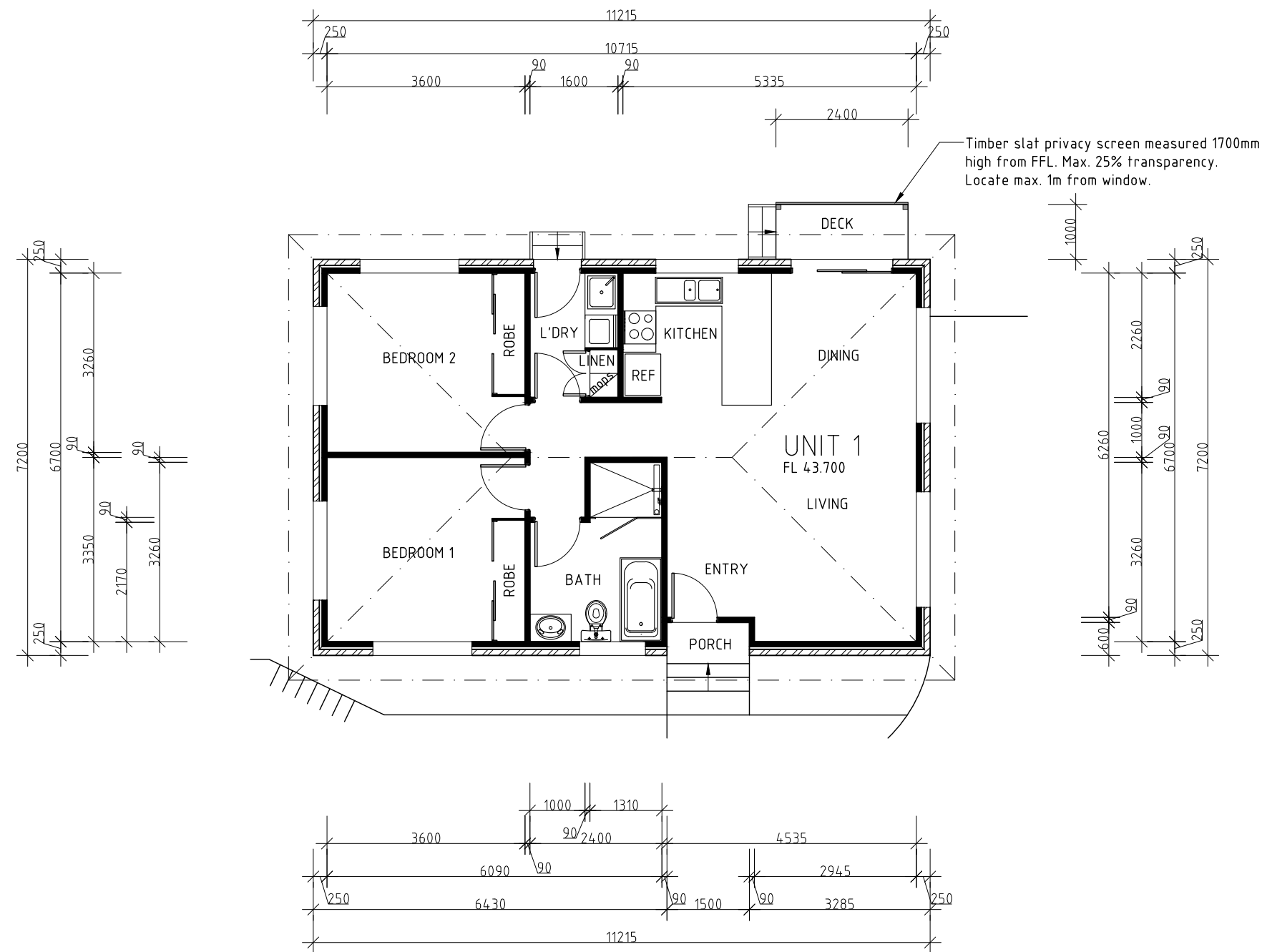
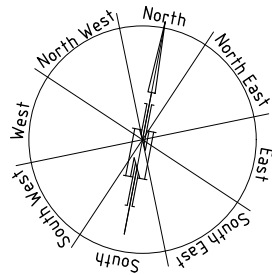
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AREAS	
Unit 1:	79.85m <sup>2</sup>
Deck:	2.4m <sup>2</sup>

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## UNIT 1

PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

UNIT 1 PLAN

SCALE 1:100

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13/10/23

DATE  
19/09/23

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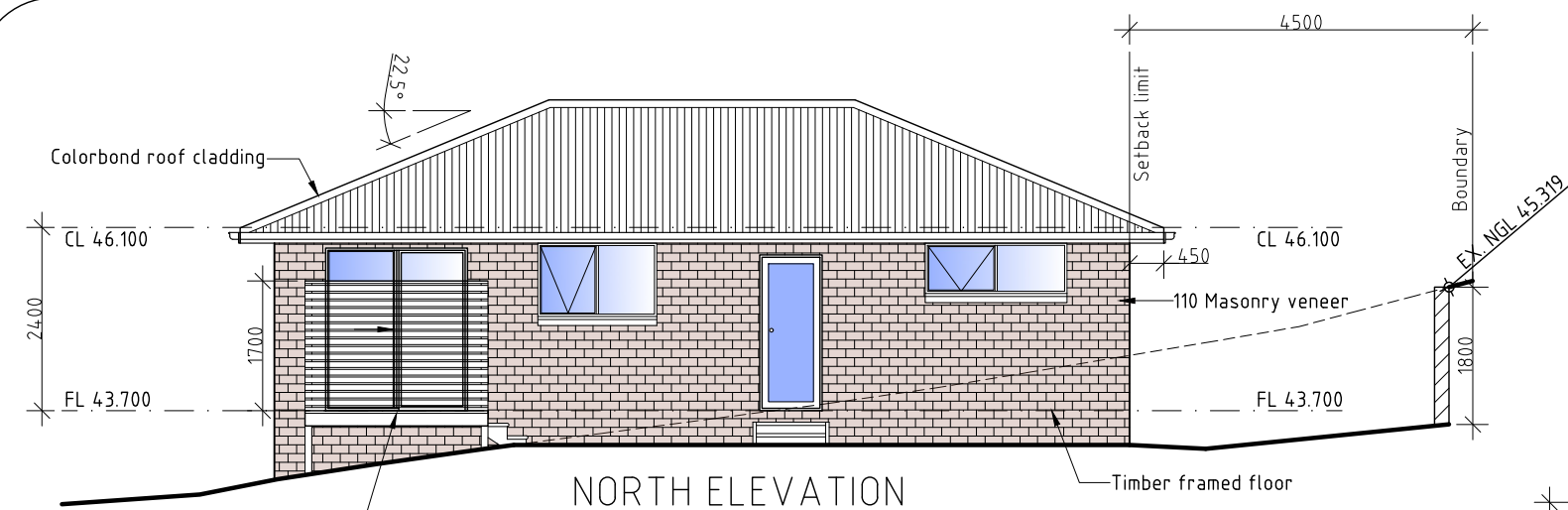
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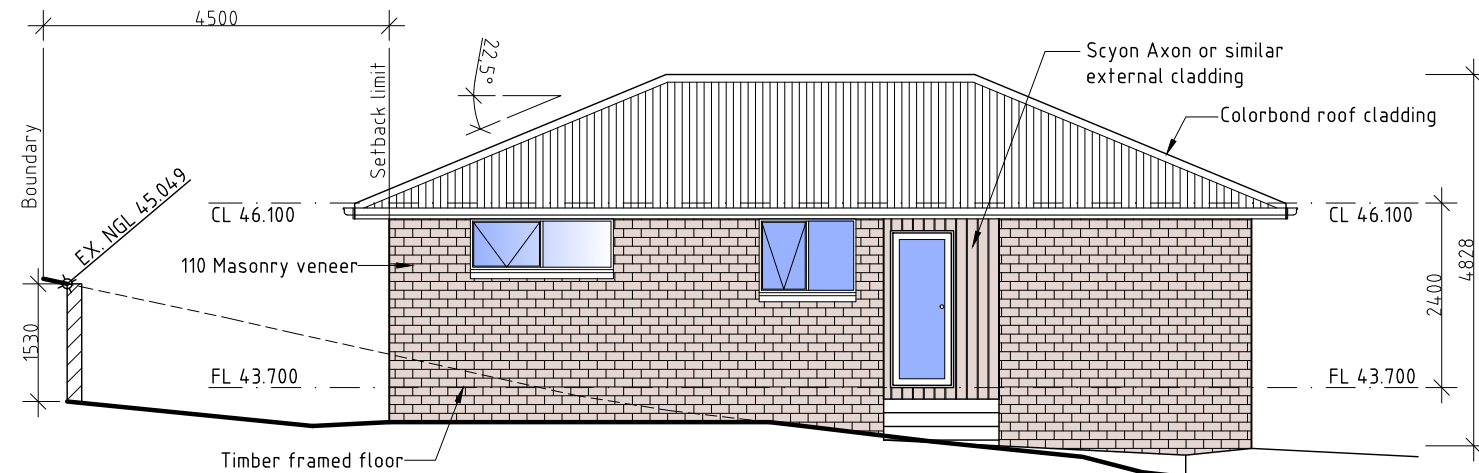
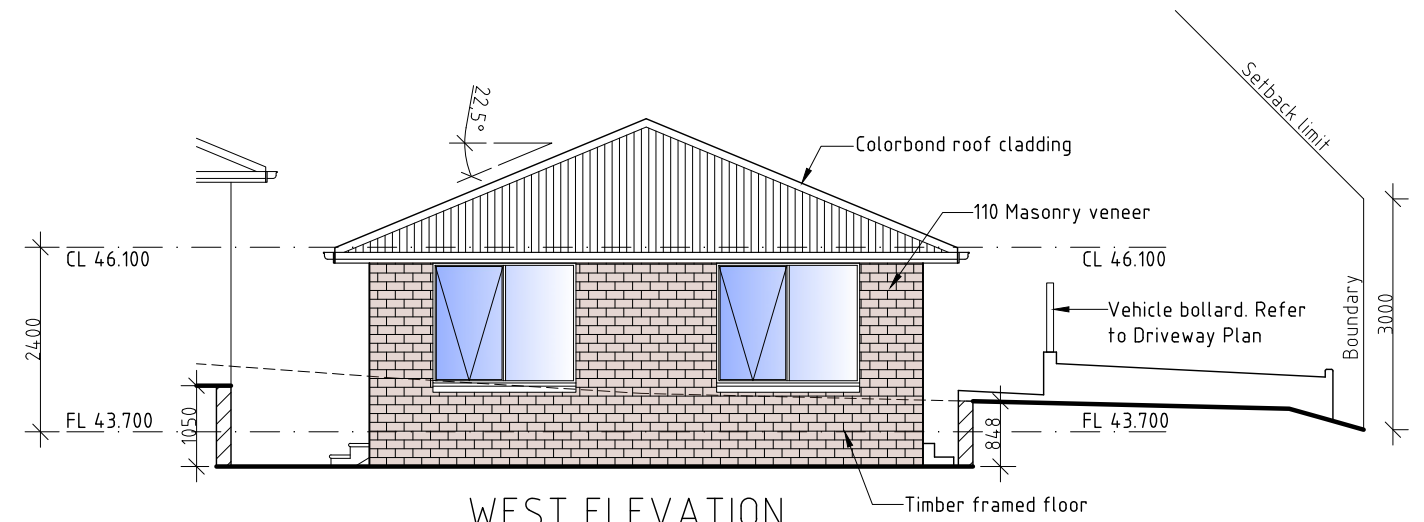
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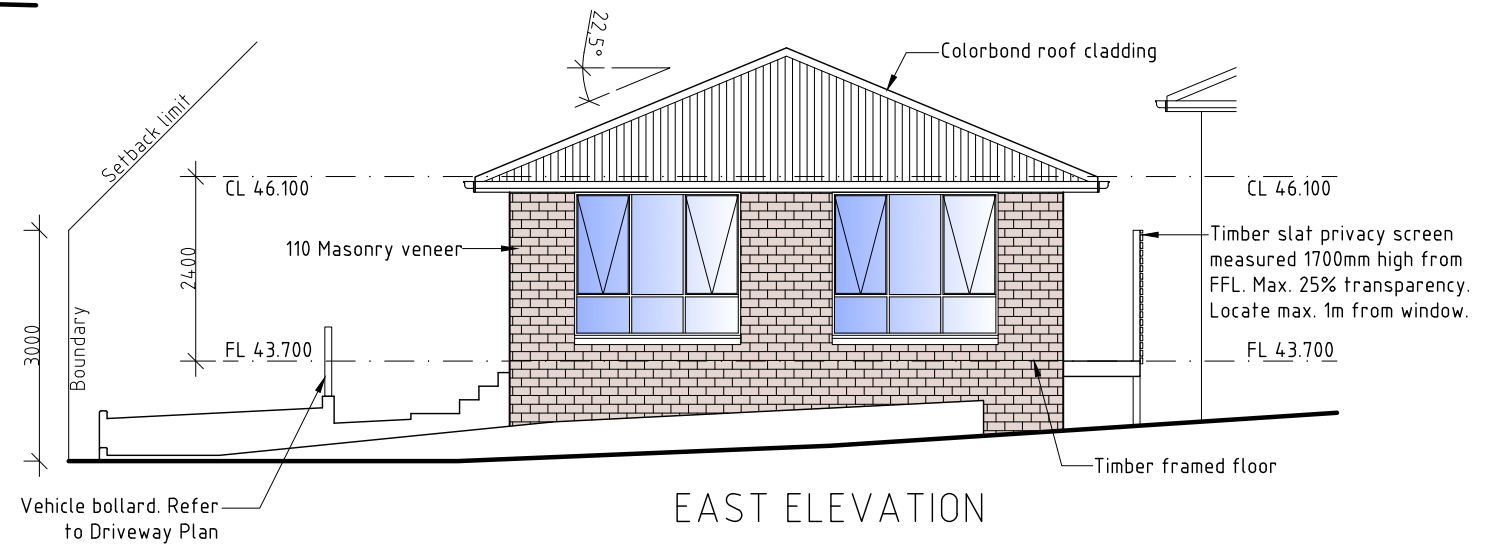




Timber slat privacy screen  
measured 1700mm high from FFL.  
Max. 25% transparency.  
Locate max. 1m from window.



SOUTH ELEVATION



EAST ELEVATION

## UNIT 1

DEVELOPMENT DRAWINGS ONLY  
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PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

### UNIT 1 ELEVATIONS

SCALE 1:100

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20/10/23

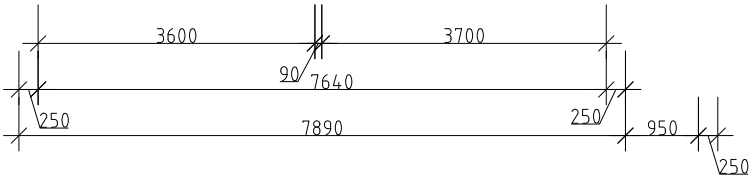
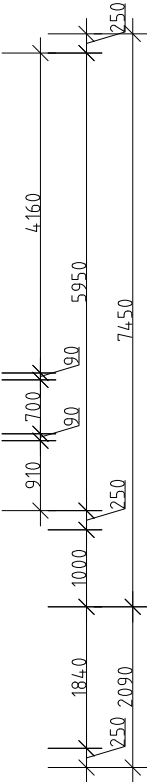
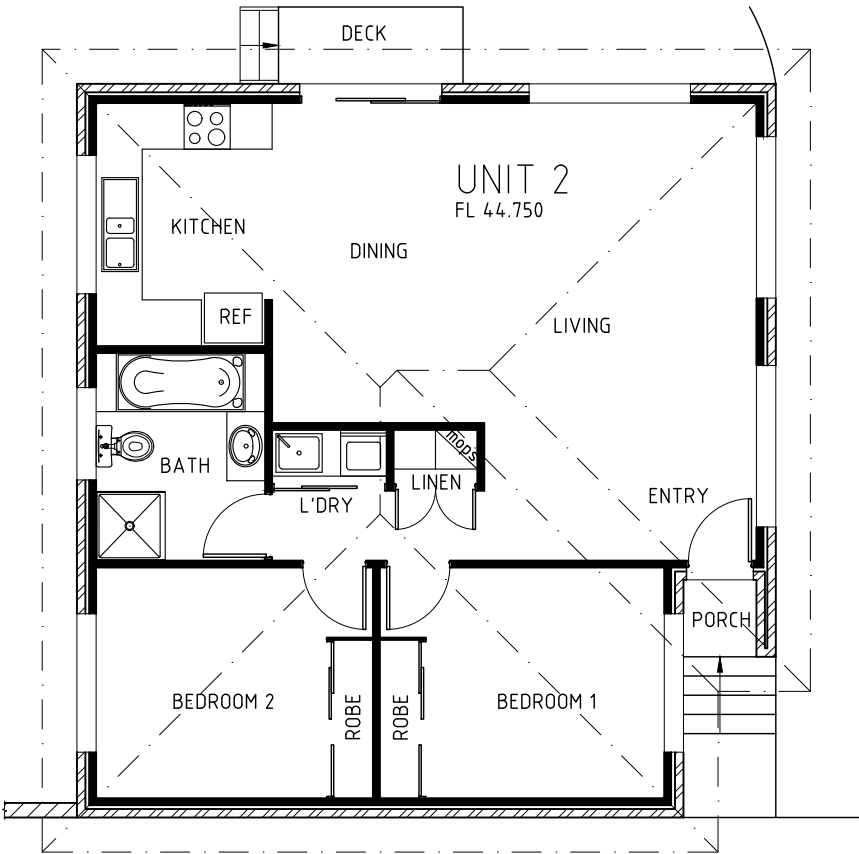
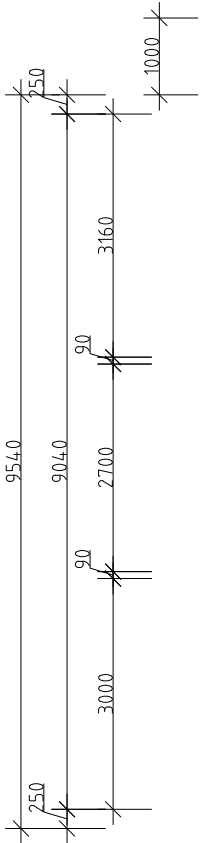
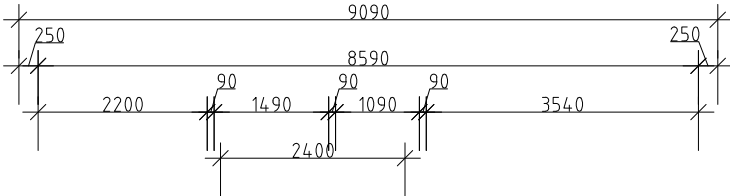
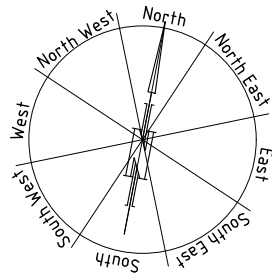
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AREAS	
Unit 2:	83.26m <sup>2</sup>
Deck:	2.4m <sup>2</sup>



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### UNIT 2

PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

UNIT 2 PLAN

SCALE 1:100

AMENDED

13/10/23

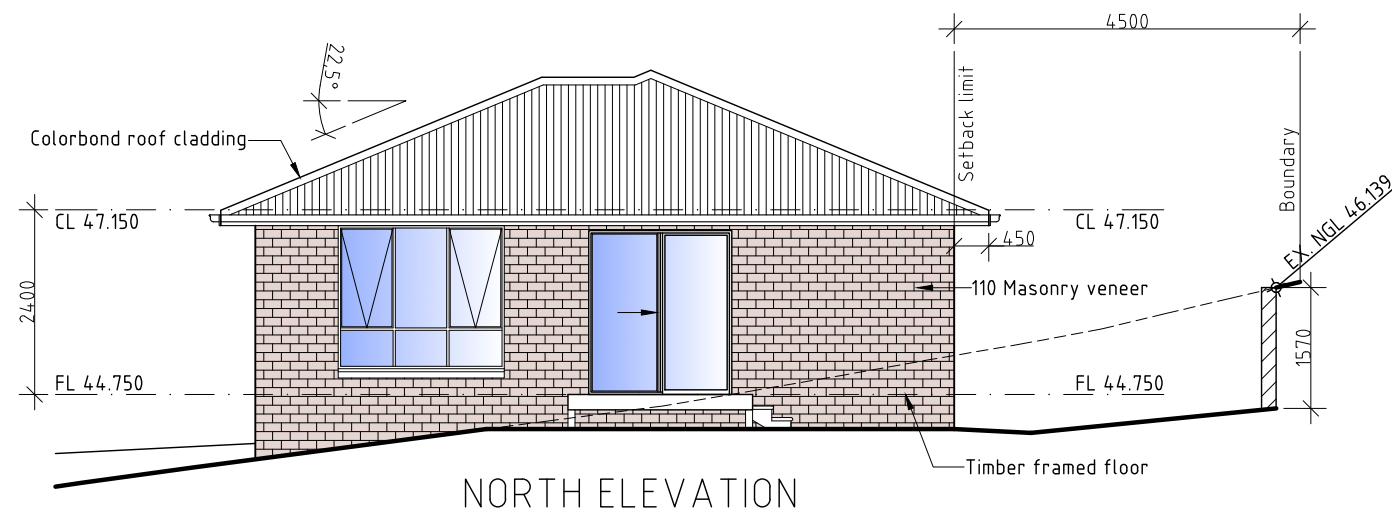
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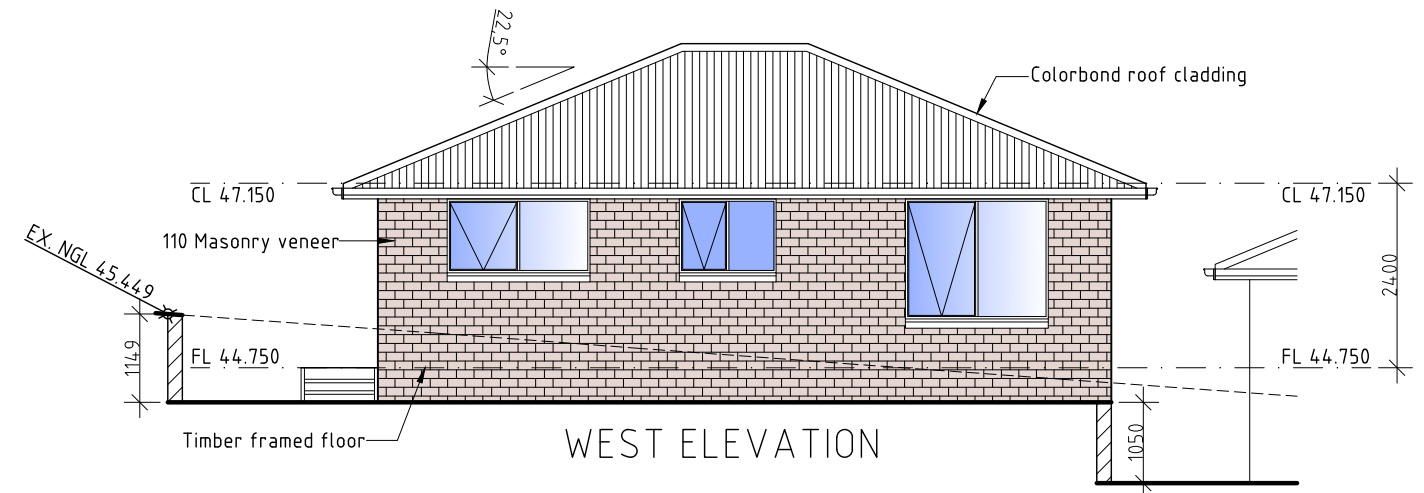
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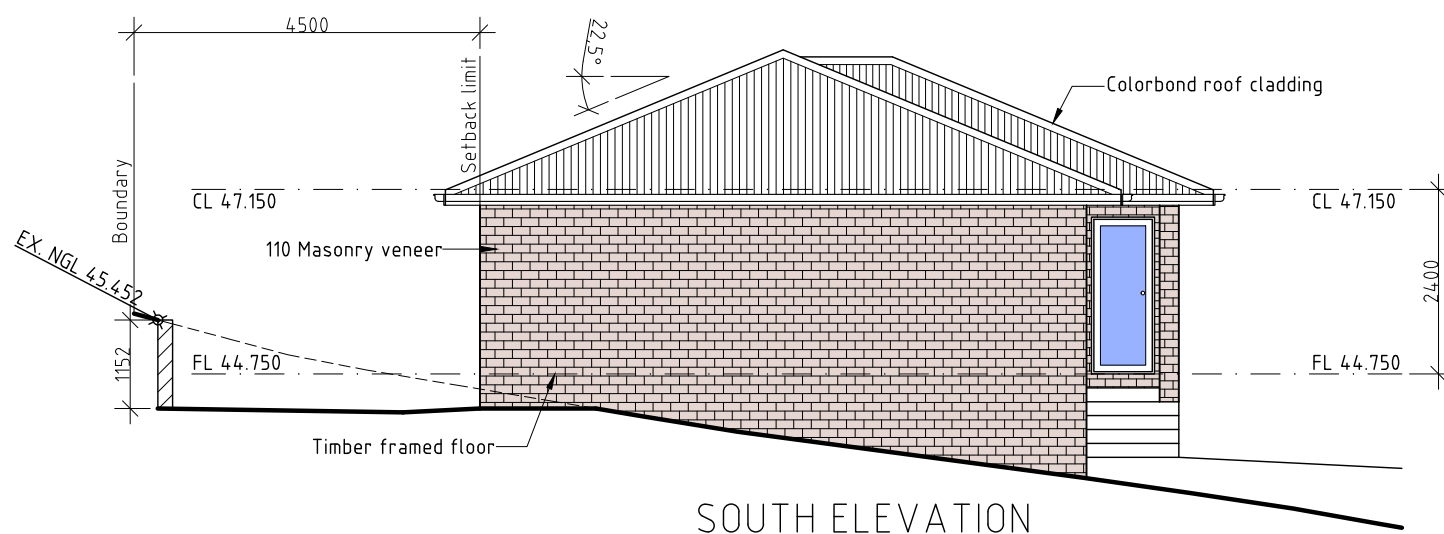
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NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

Unit 2's living window is 1896mm above the shared visitor park, greater than 1.7m above the park. This height of 1896mm has been designed to minimise unreasonable impact of vehicle noise and light intrusion to the living room of Unit 2.

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## UNIT 2

PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

### UNIT 2 ELEVATIONS

SCALE 1:100

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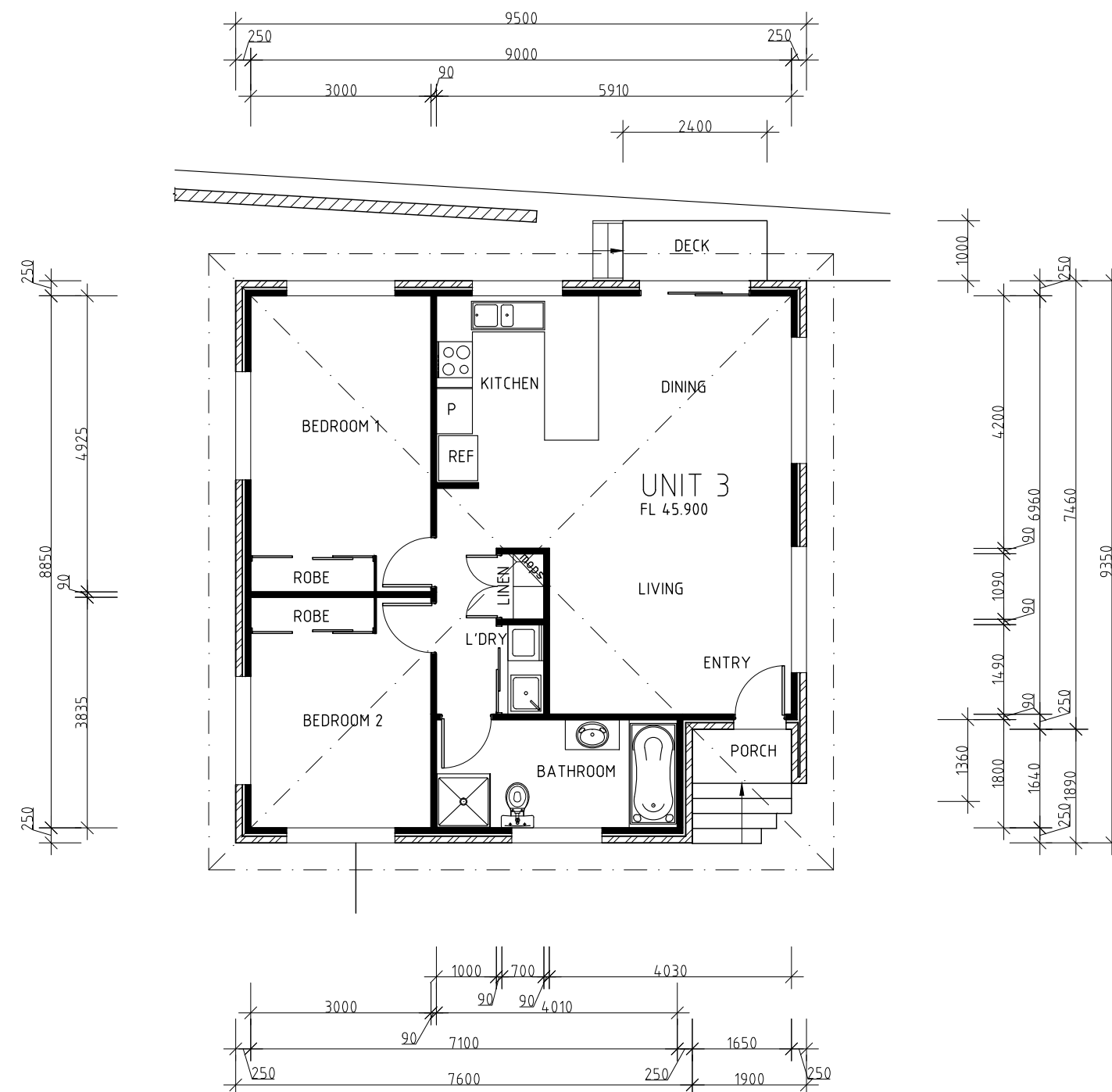
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AREAS	
Unit 3:	85.46m <sup>2</sup>
Deck:	2.4m <sup>2</sup>

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## UNIT 3

PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

## UNIT 3 PLAN

SCALE 1:100

AMENDED
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13/10/23

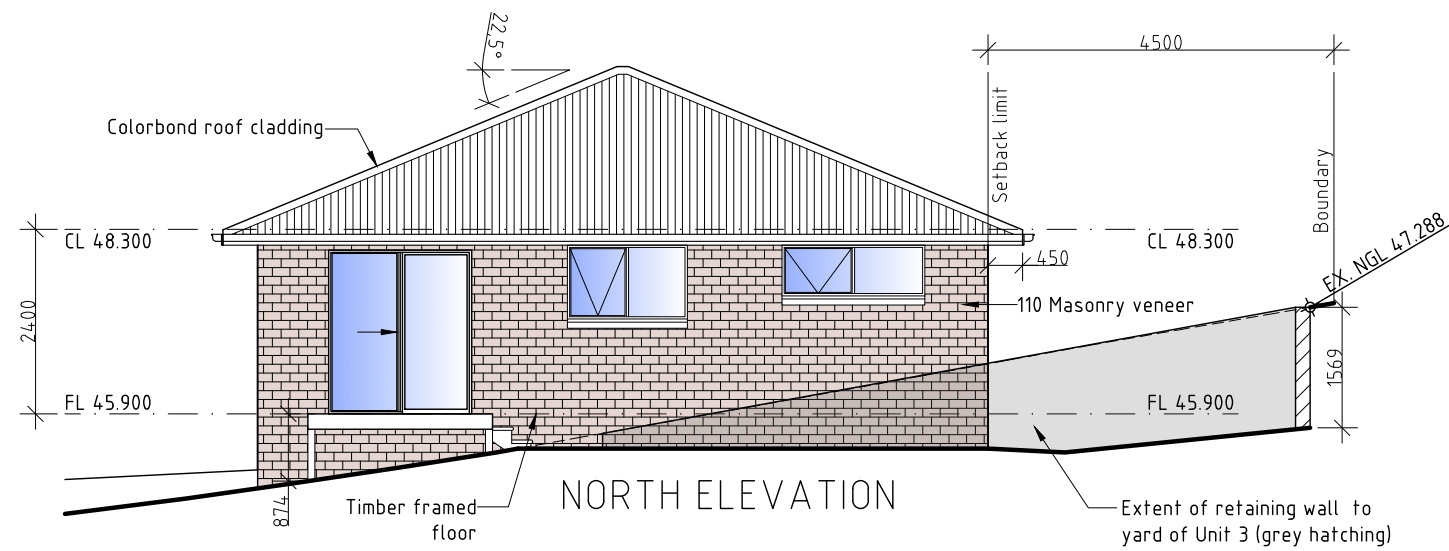
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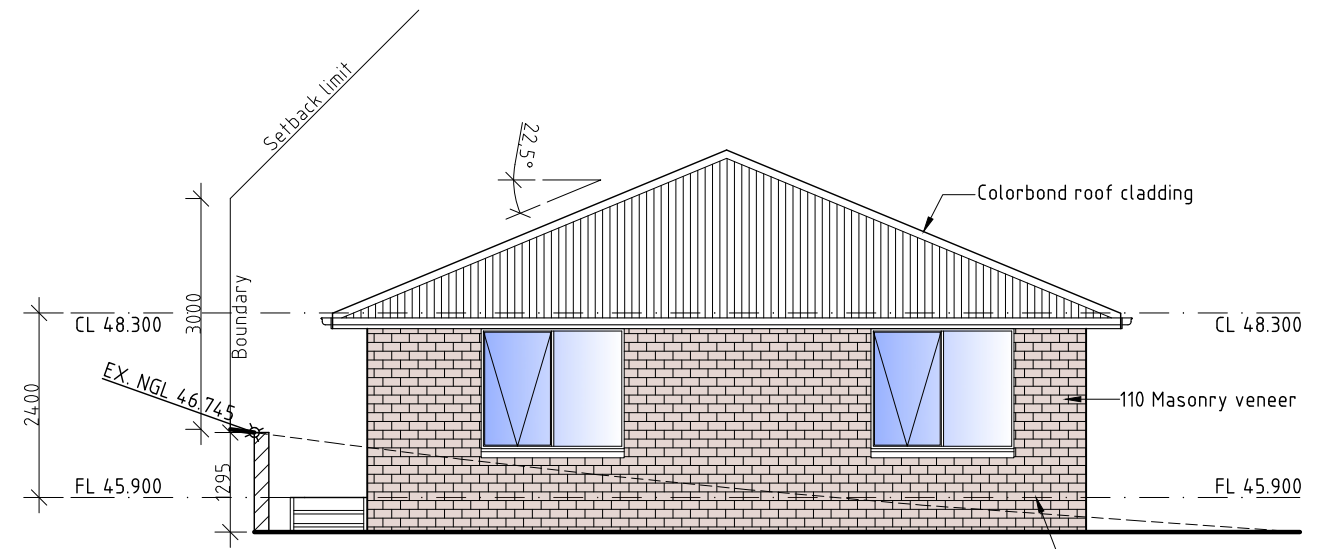
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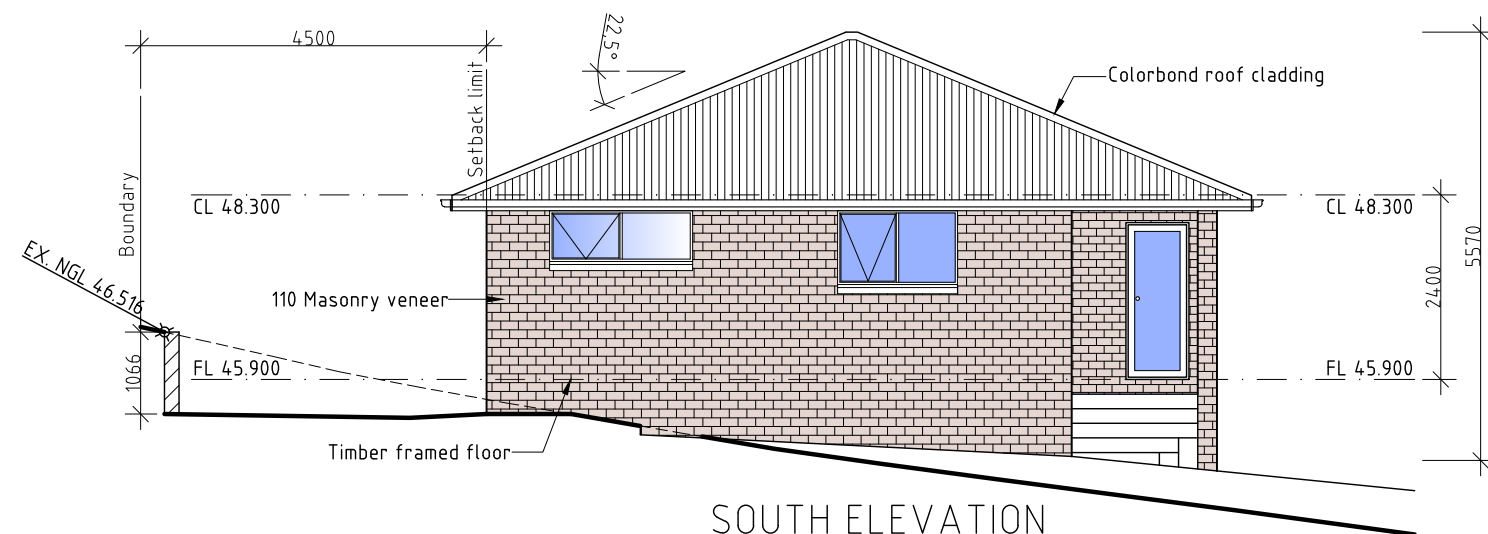
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NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

### UNIT 3

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PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

UNIT 3 ELEVATIONS

SCALE 1:100

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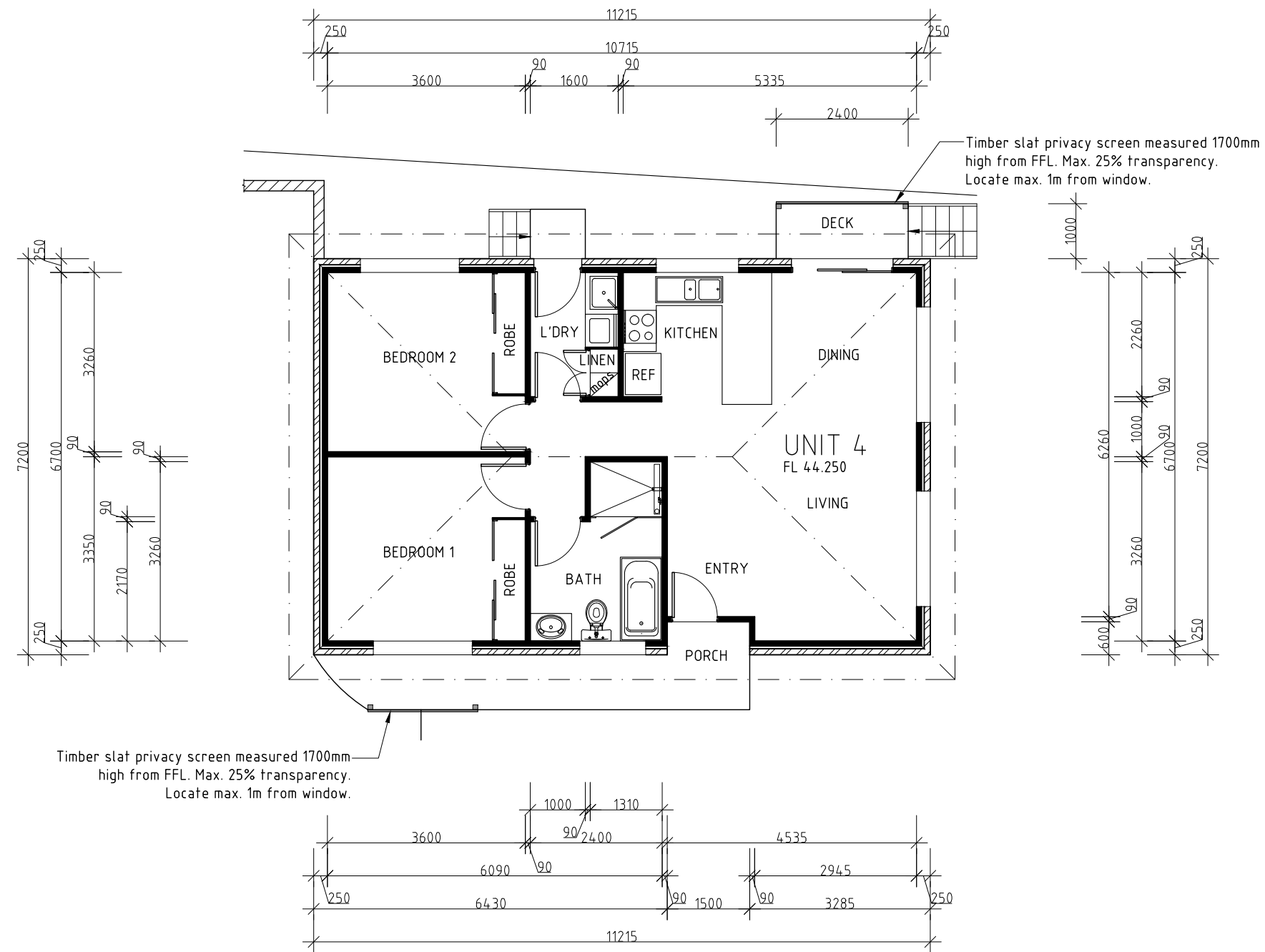
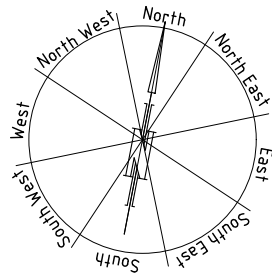
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AREAS	
Unit 4:	79.85m <sup>2</sup>
Deck:	2.4m <sup>2</sup>

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## UNIT 4

PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
TAYLOR & BEESON BUILDING PTY LTD AT  
11 VICARY PLACE, ROKEBY

UNIT 4 PLAN

SCALE 1:100

AMENDED

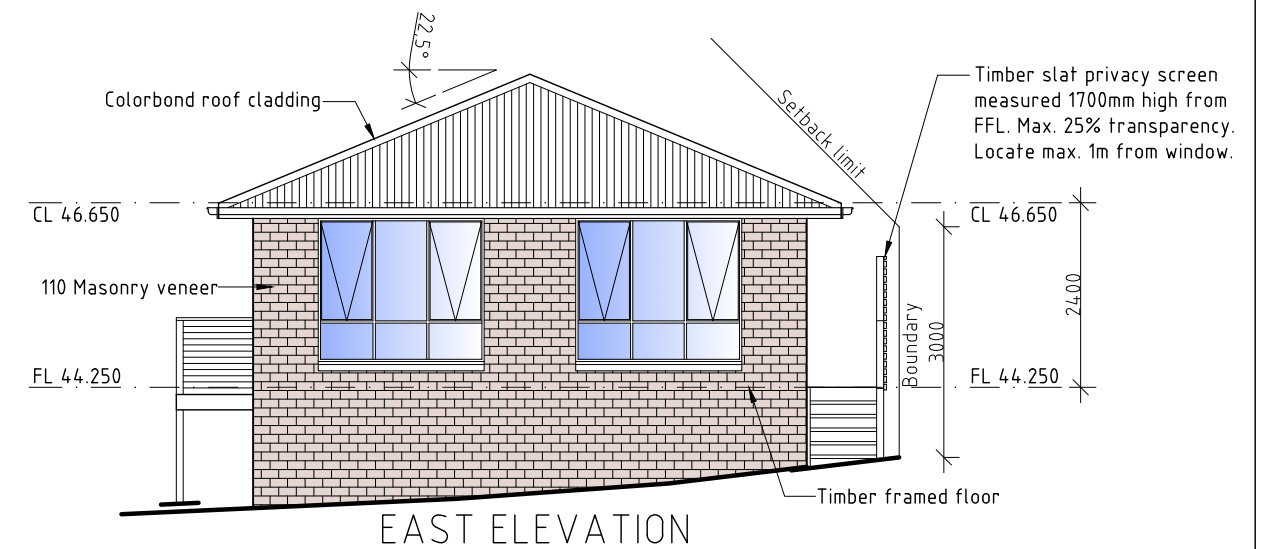
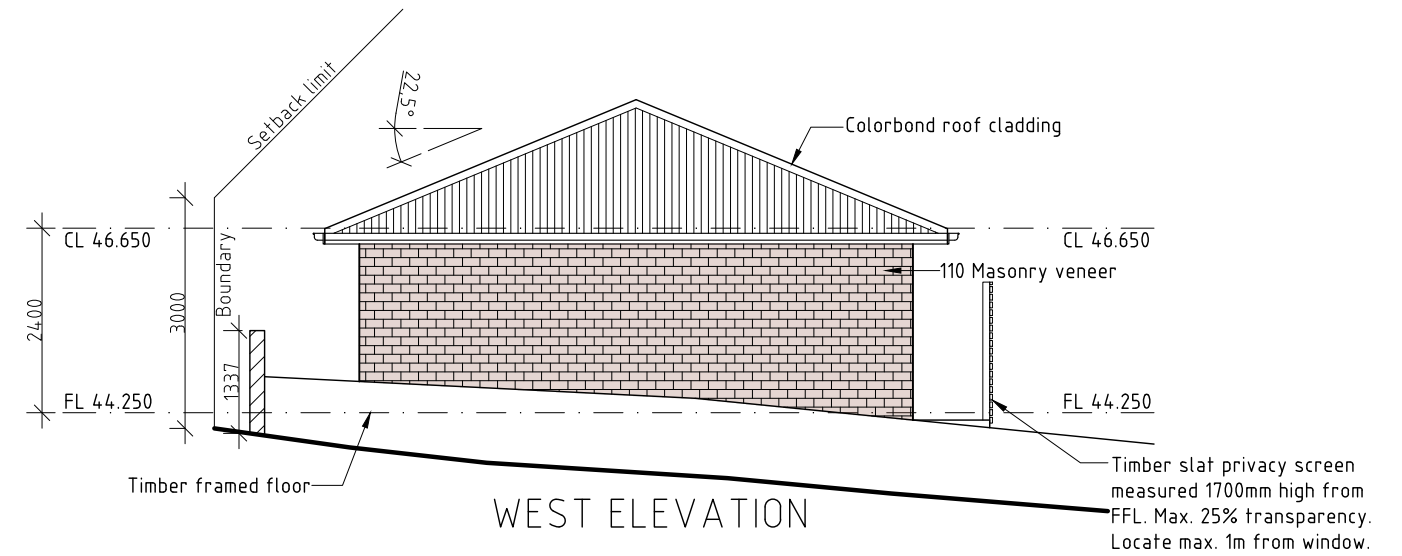
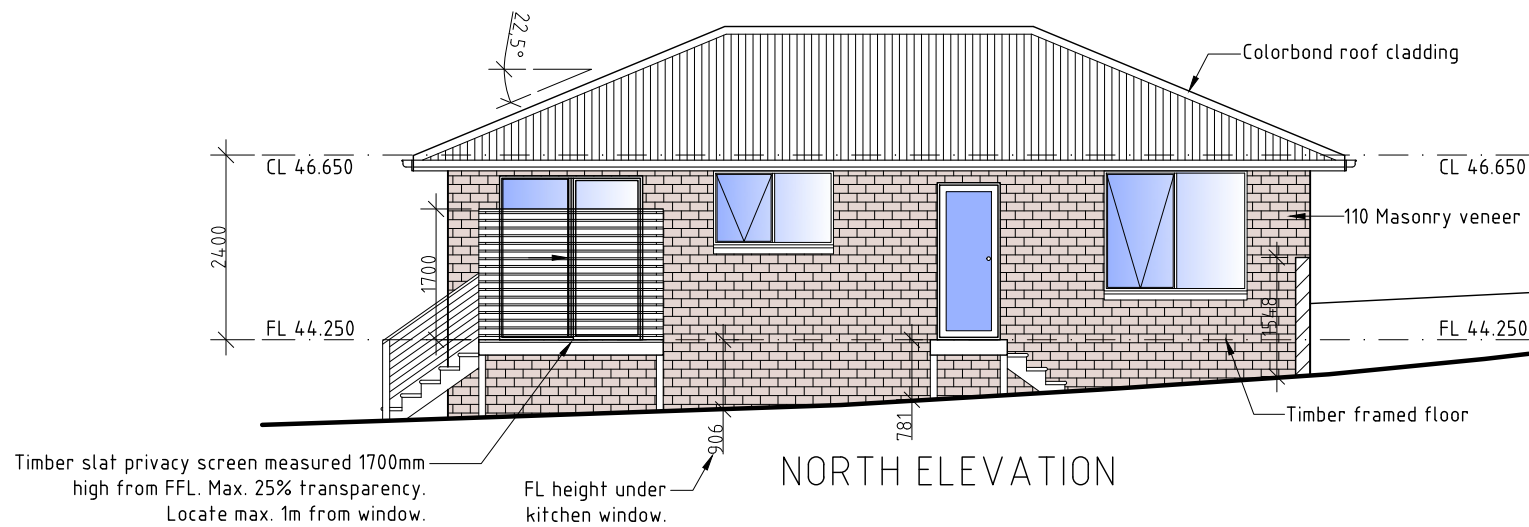
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## UNIT 4

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11 VICARY PLACE, ROKEBY

UNIT 4 ELEVATIONS

SCALE 1:100

AMENDED  
13/10/23

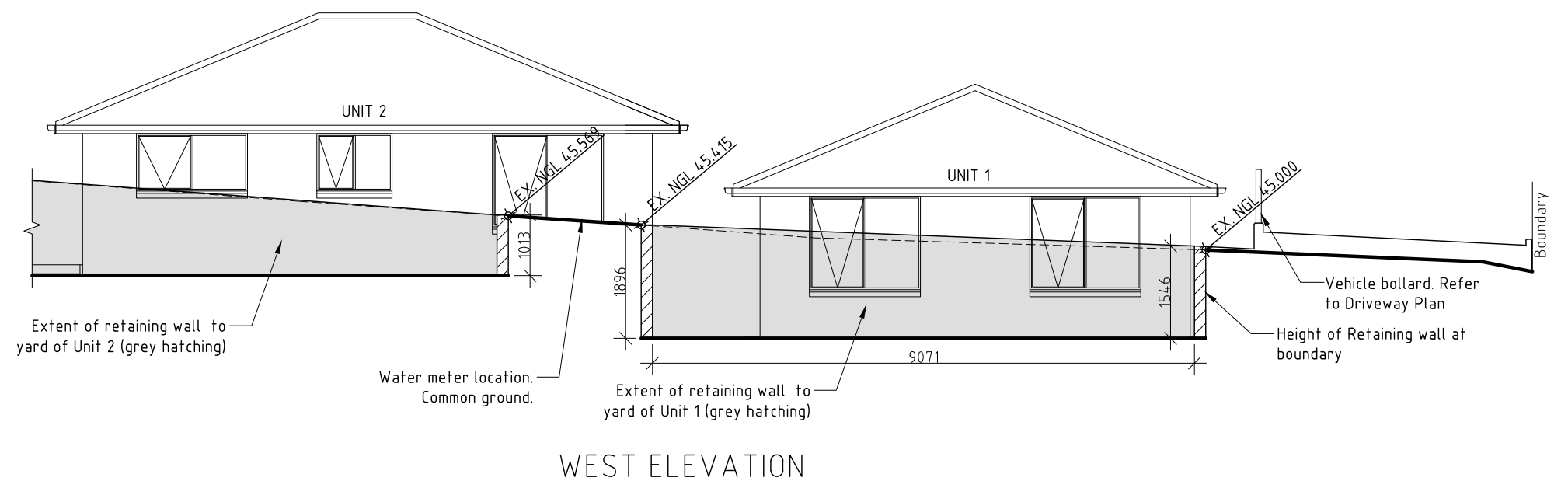
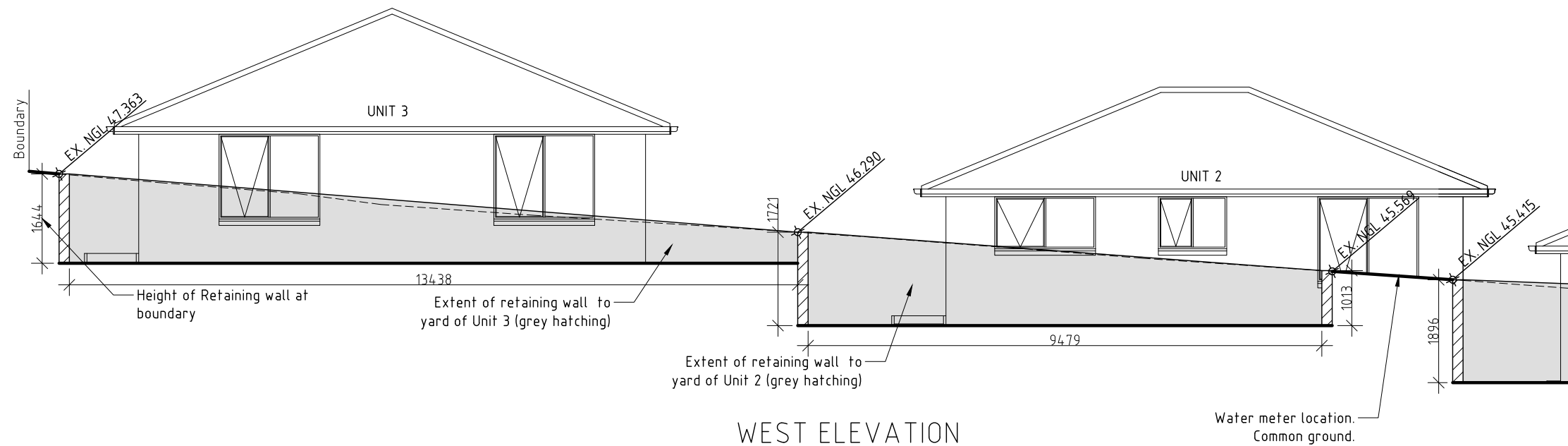
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PROPOSED MULTI-RESIDENTIAL DEVELOPMENT FOR  
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11 VICARY PLACE, ROKEBY

RETAINING WALL ELEVATIONS

SCALE 1:200

AMENDED  
20/10/23

DATE  
13/10/23

DRAWING NO.  
18 OF 18

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# 11 Vicary Place

Rokeby, Tas, 7019

## SunTracker - Shadow Diagrams

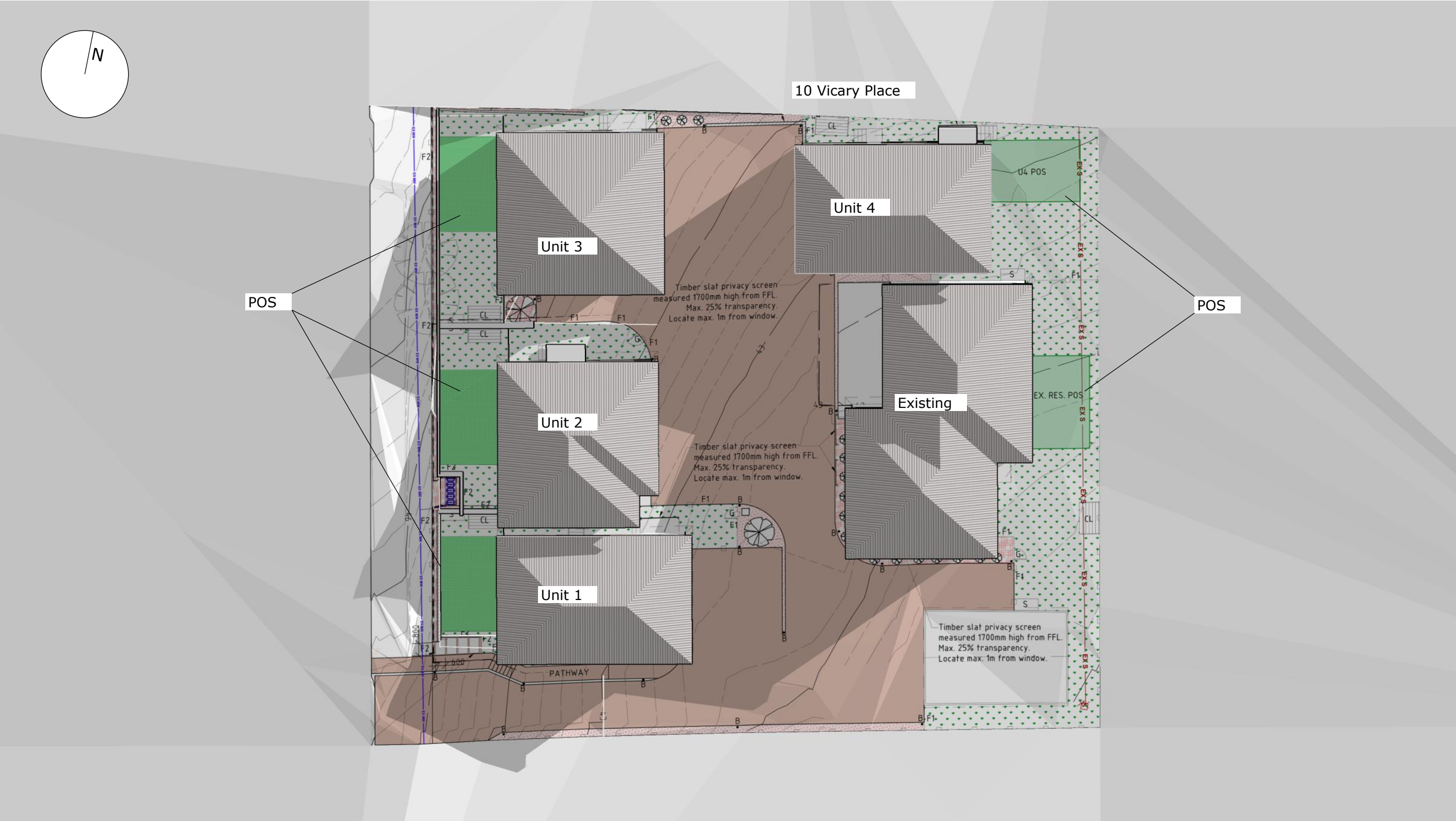
Unit 1,2,3,4 + Existing  
Private Open Space (POS) Shadowing  
June 21. 9am to 3pm

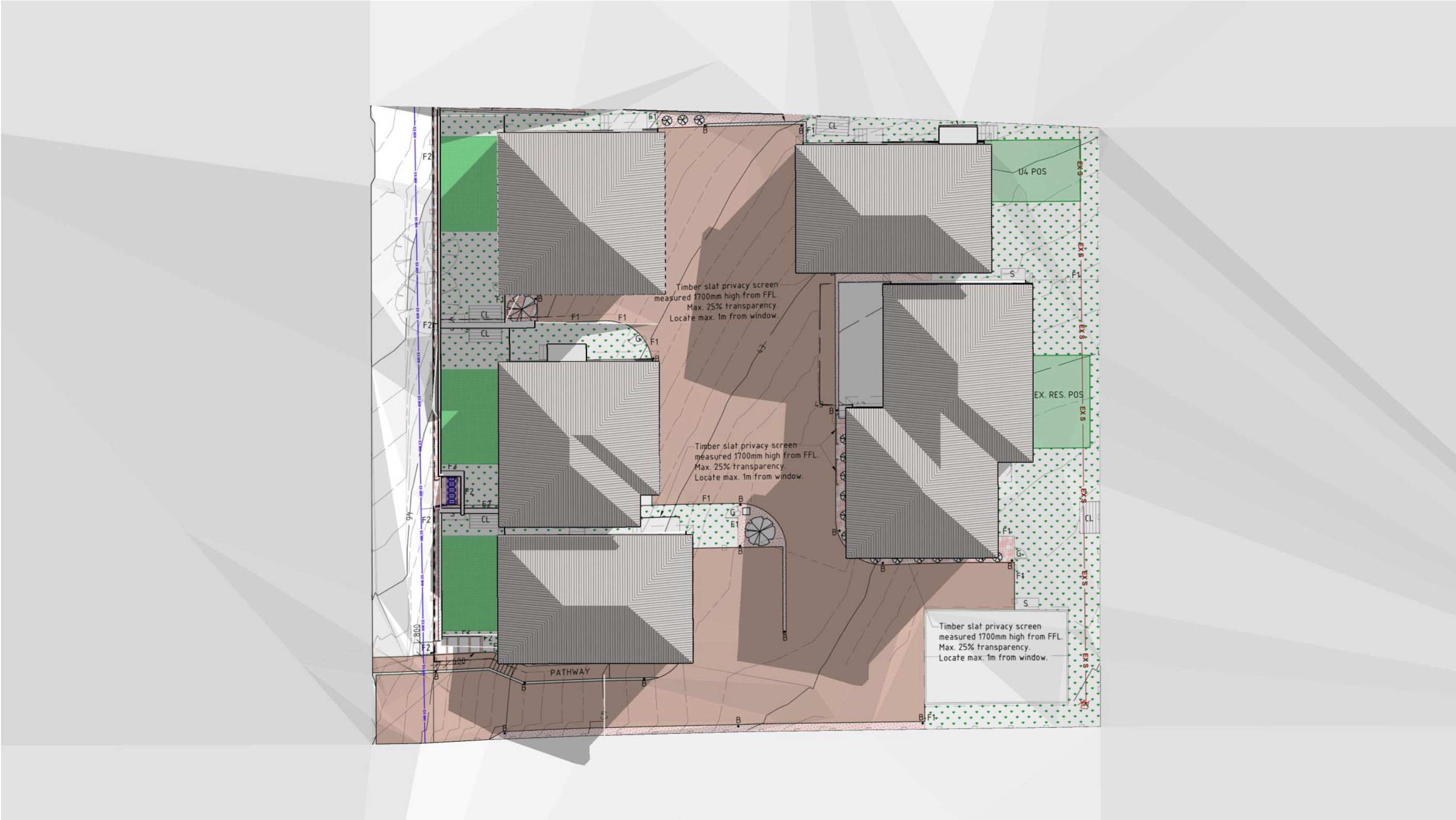


SunTracker - Shadow Diagrams

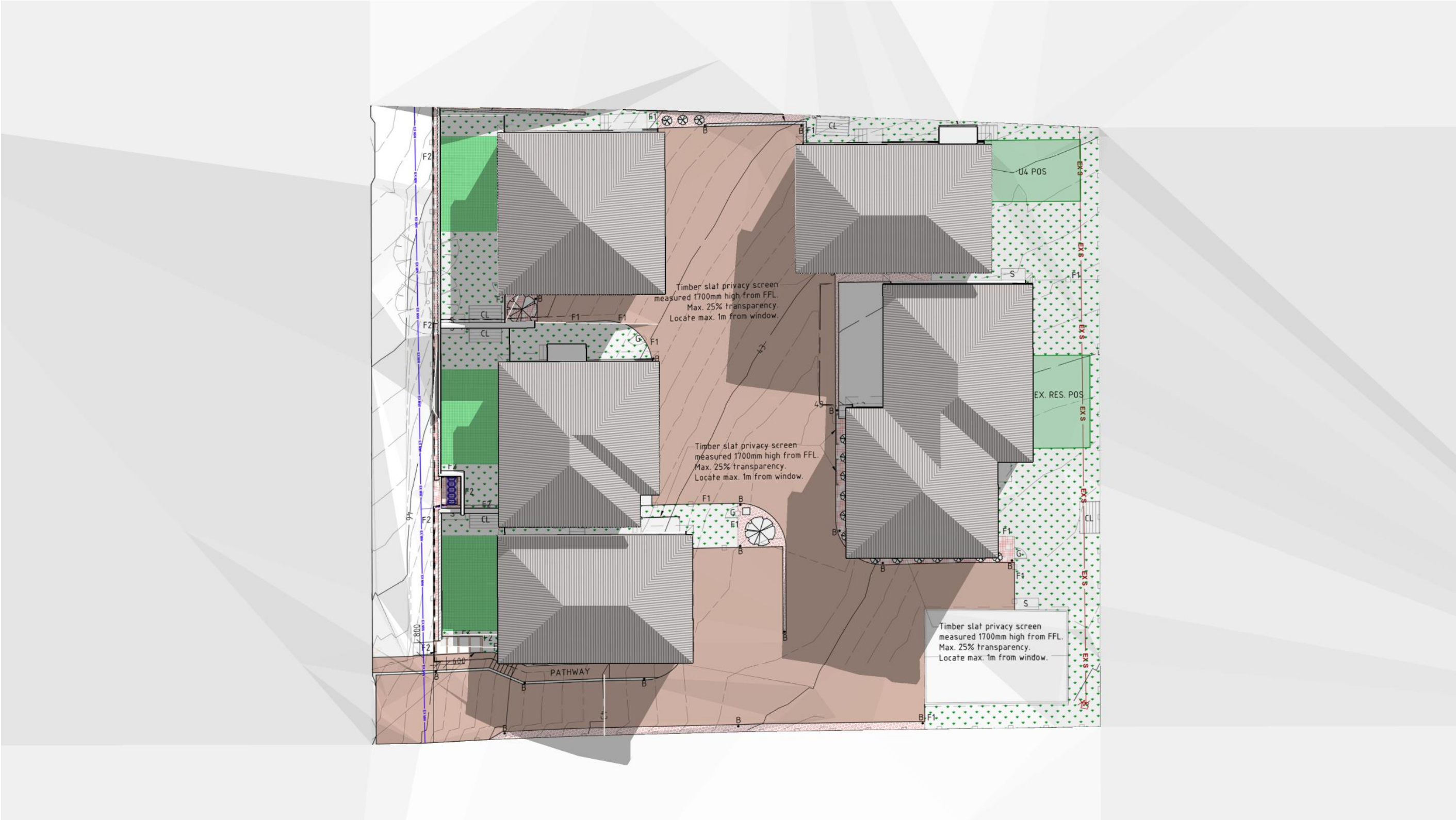
Jun 21 - 9 am

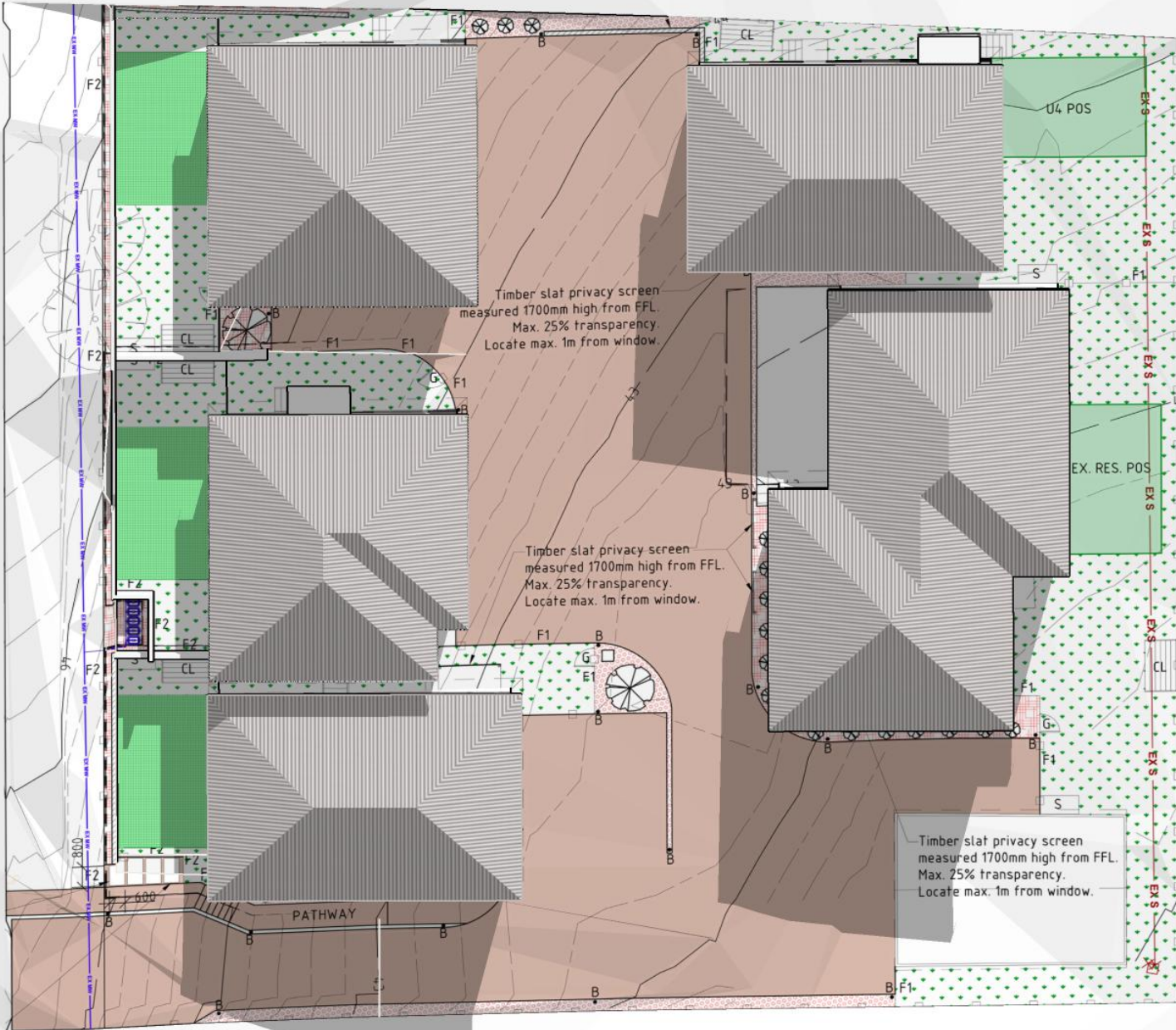
11 Vicary Place, Rokeby  
Private Open Space (POS) Shadowing  
June 21. 9am to 3pm



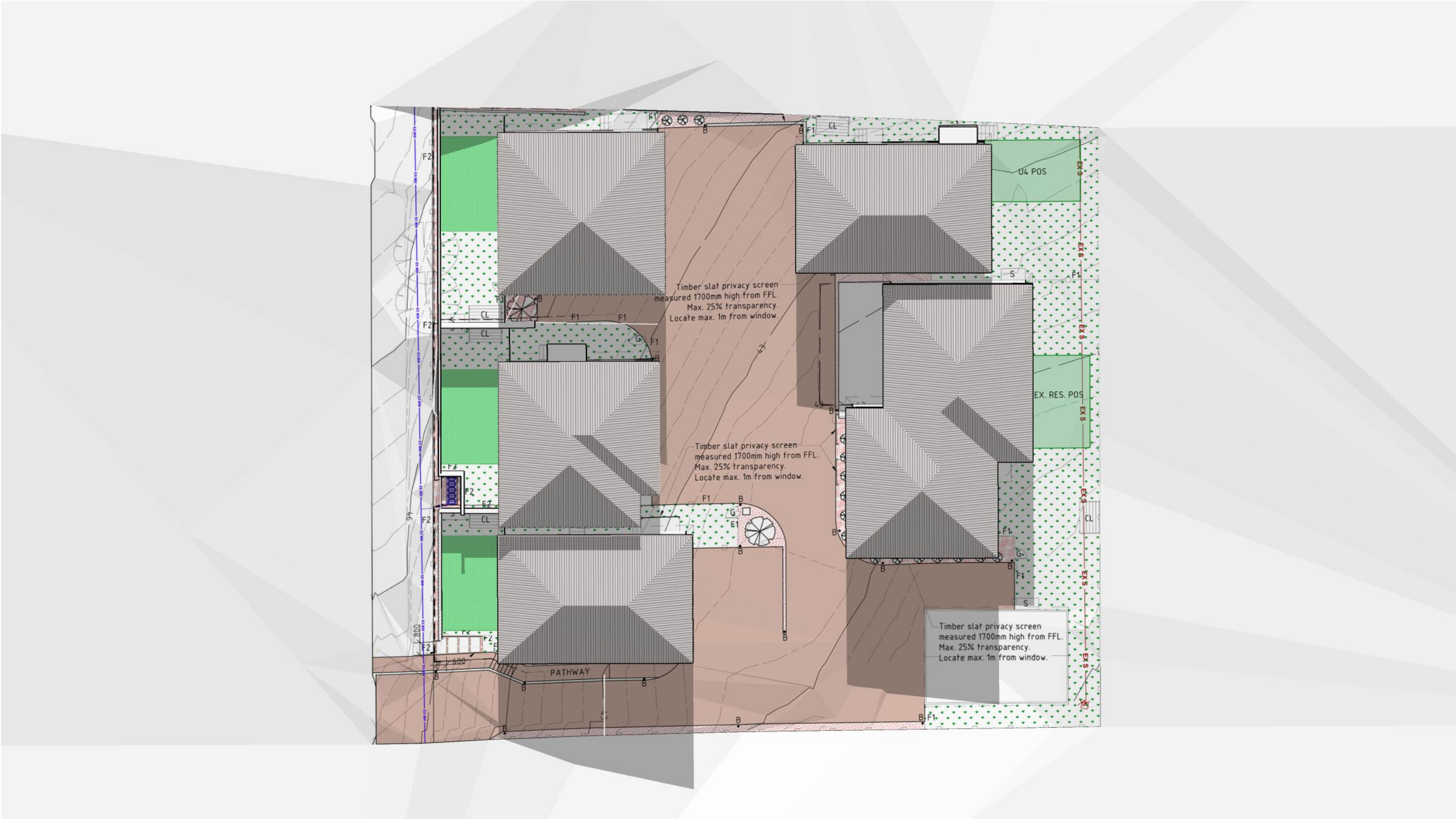


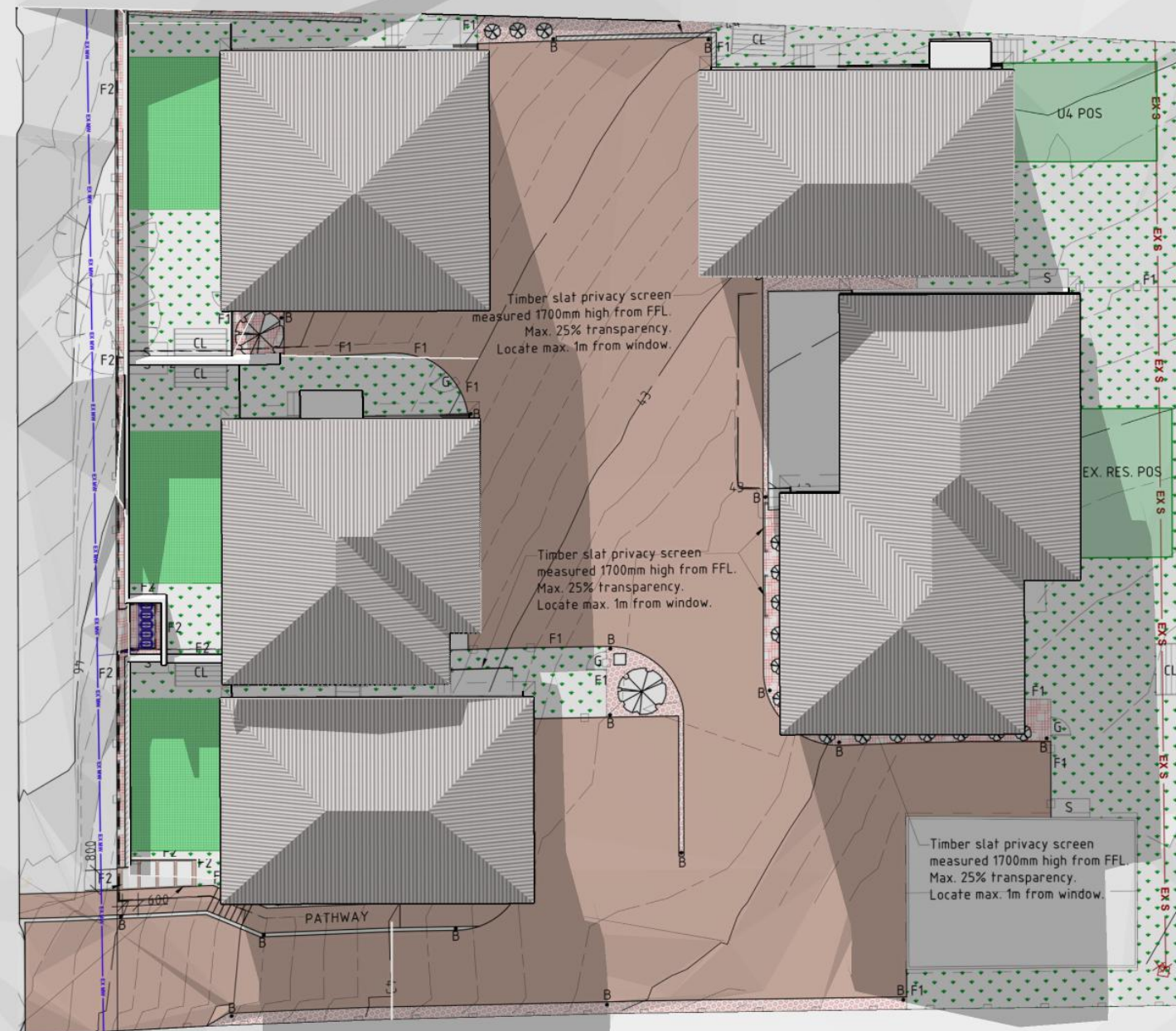




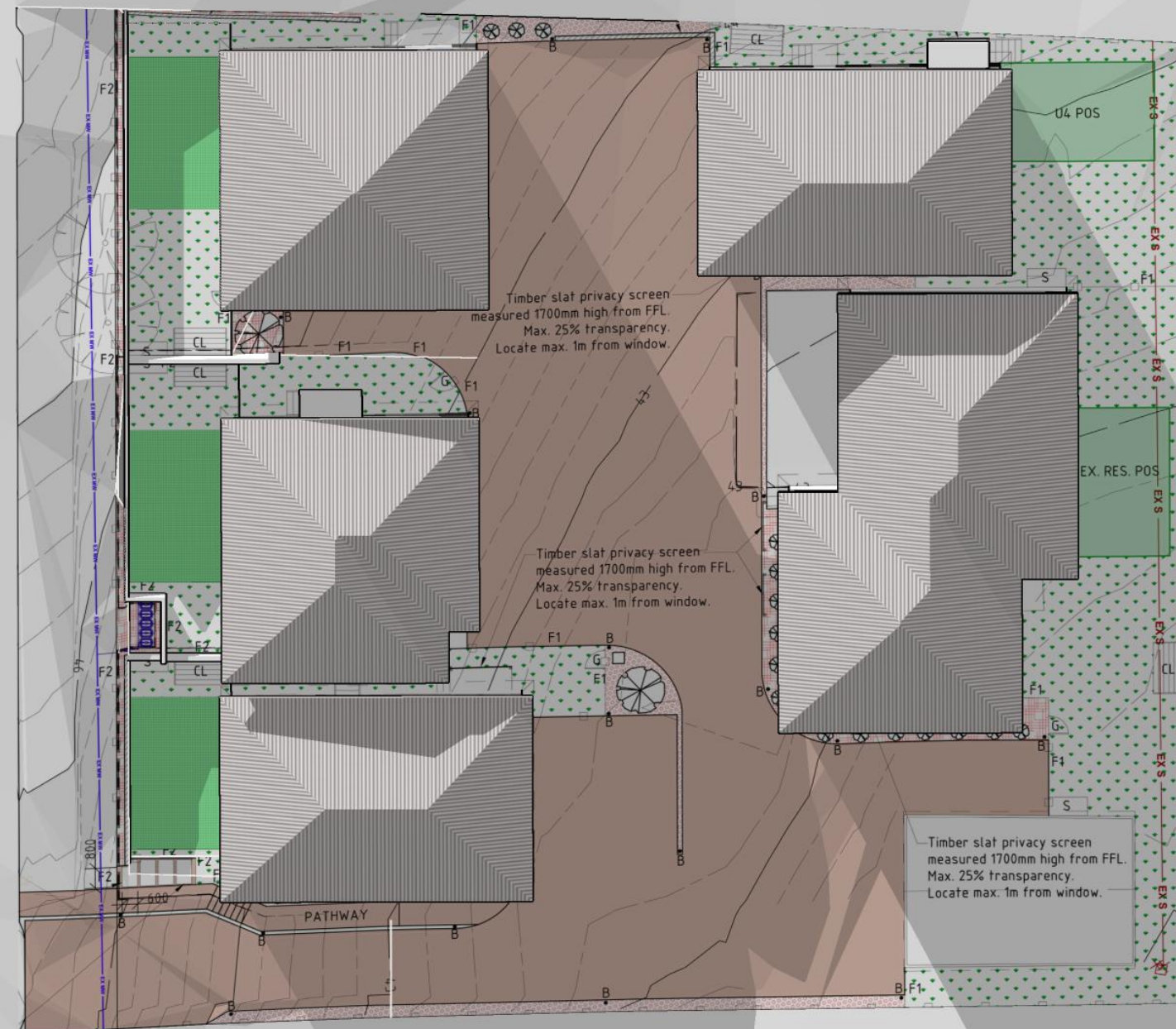












# 11 Vicary Place

Rokeby, Tas, 7019

## SunTracker - Detail Shadow Diagrams - REV-002

Unit 1,2,3  
Private Open Space (POS) Shadowing  
Includes % calculations  
June 21. 9am to 3pm



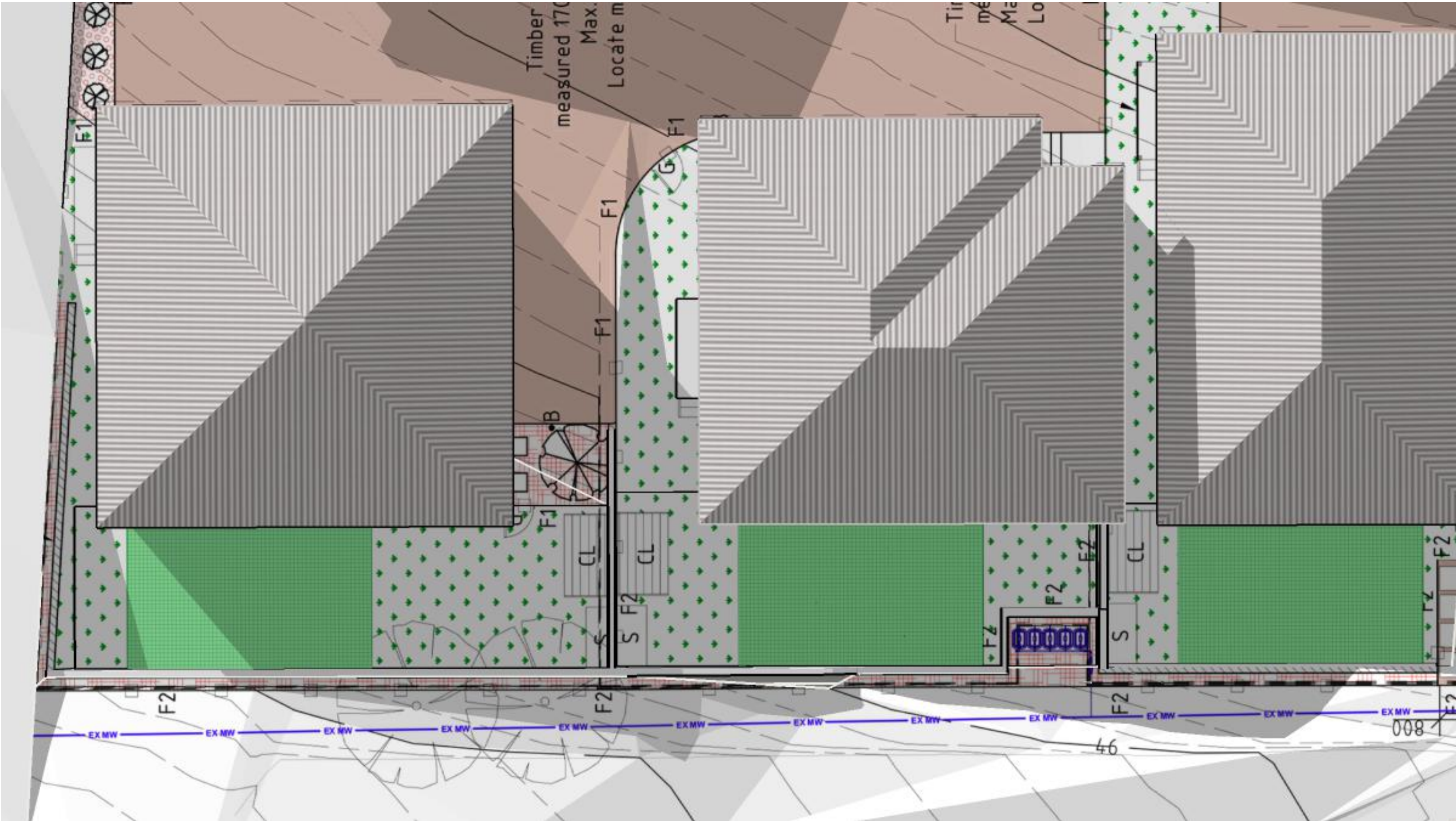
SunTracker - Shadow Diagrams

Jun 21 - 0900

11 Vicary Place, Rokeby  
Private Open Space (POS) Shadowing  
June 21. 9am to 3pm











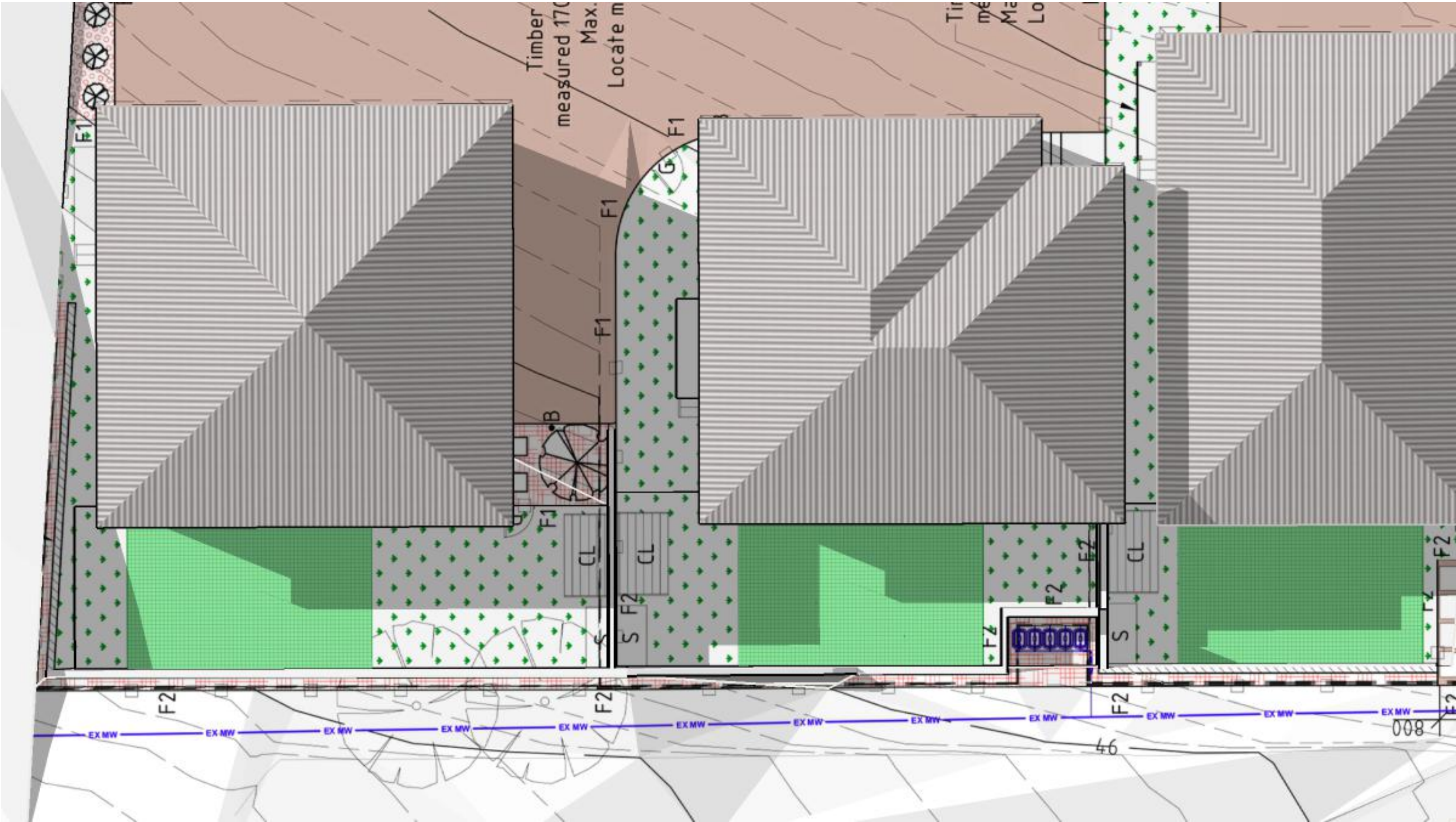
















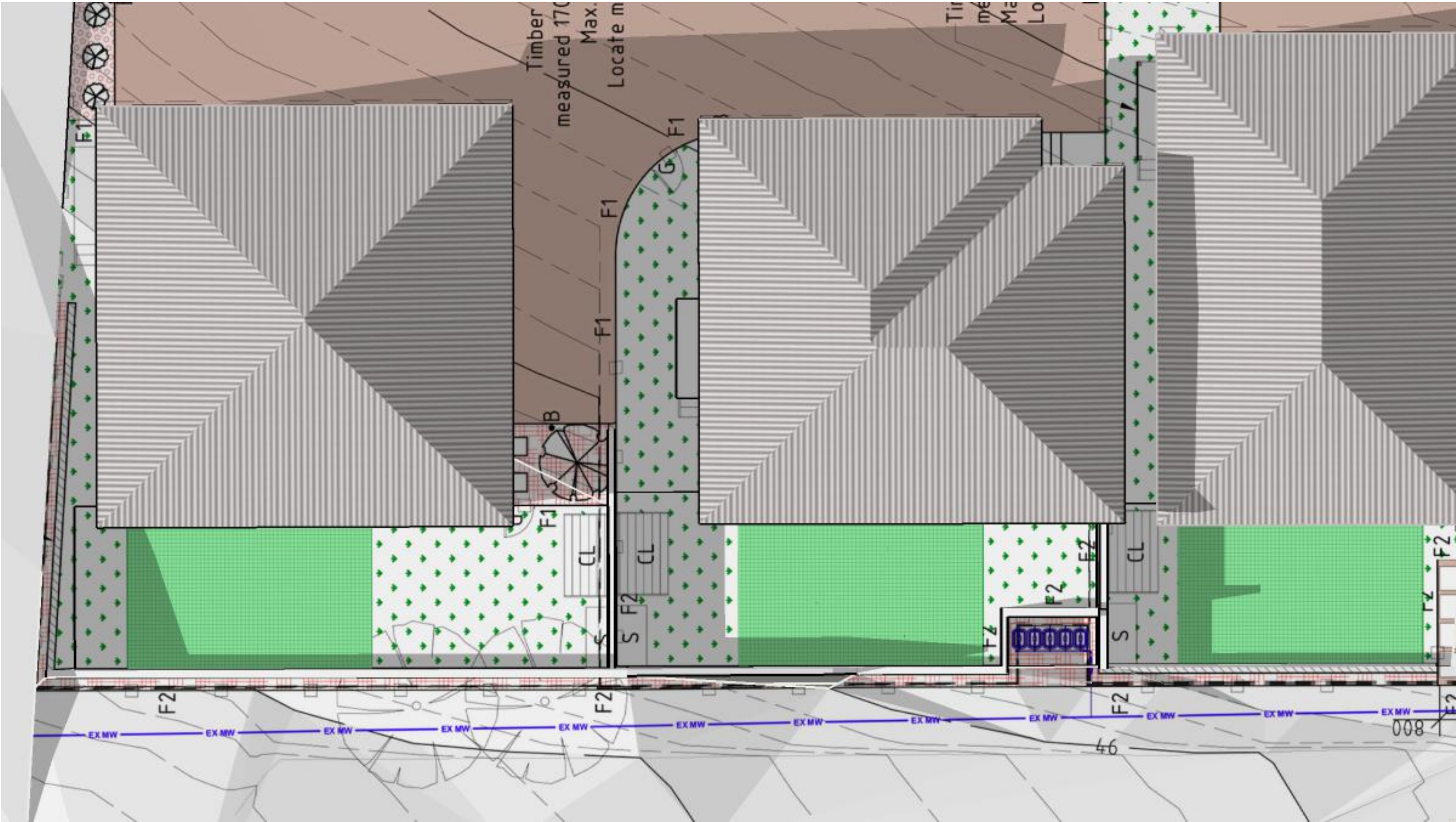




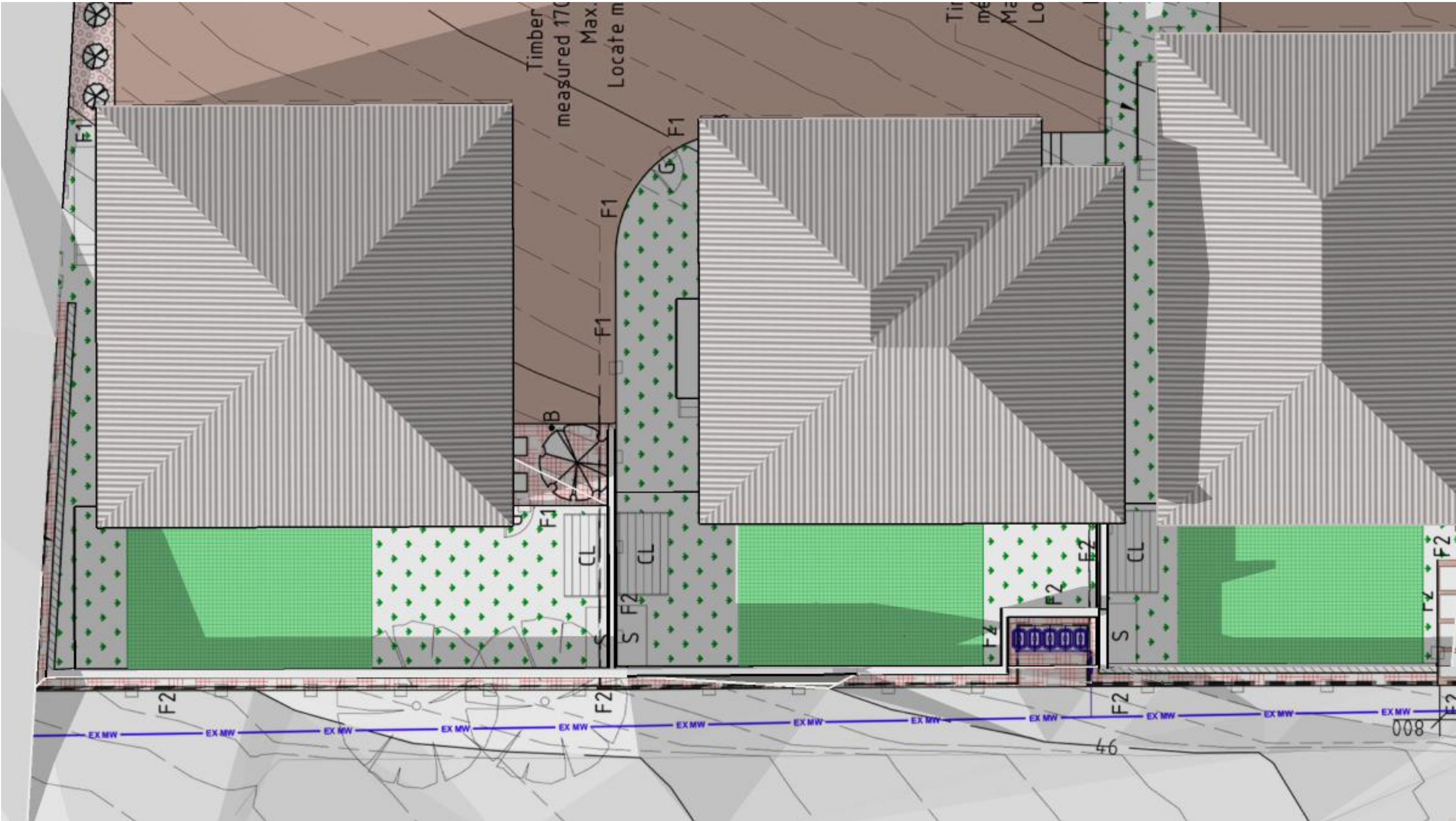




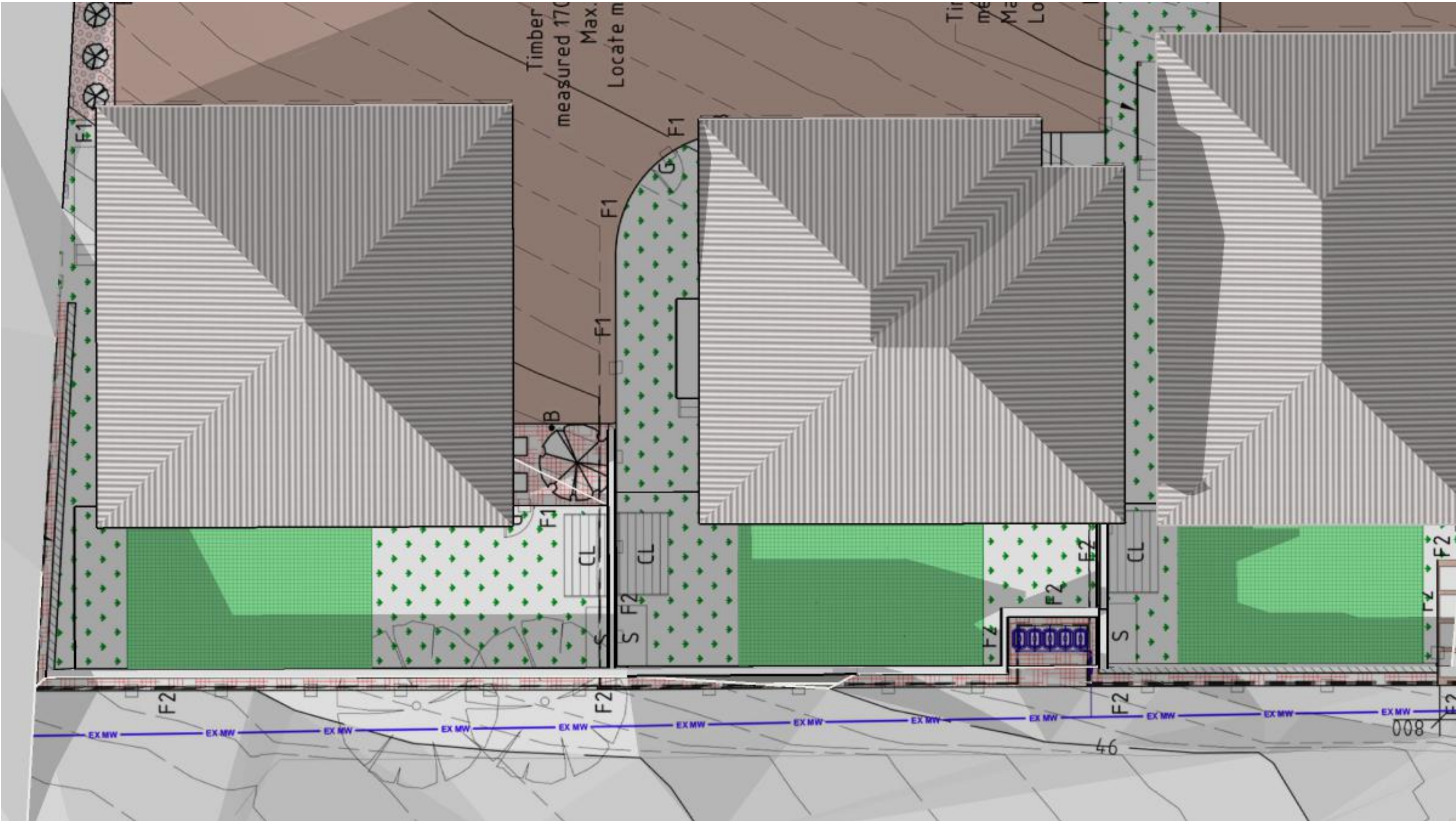




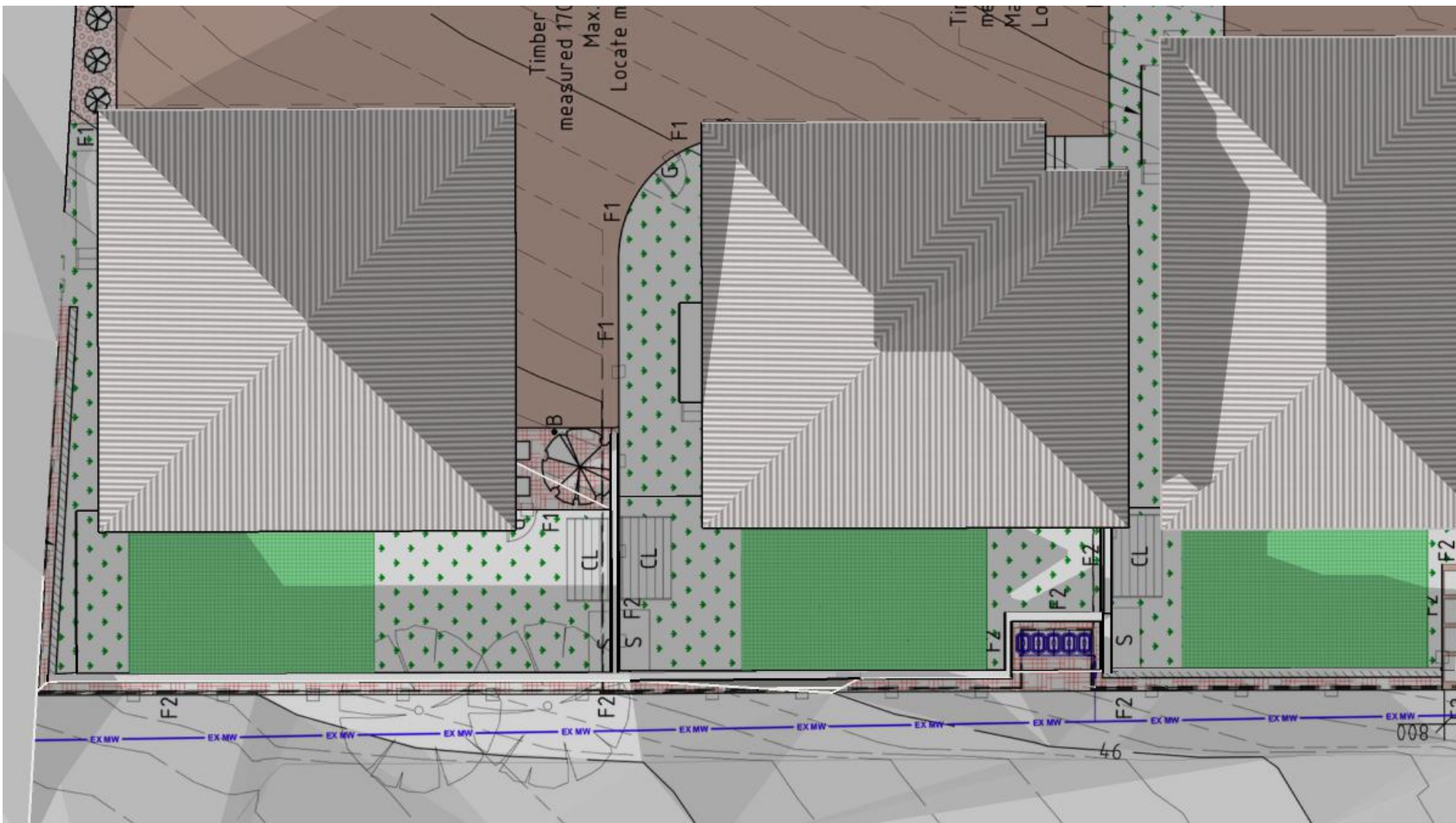












Jun-21		POS (MIN) m2	UNIT 1			UNIT 2			UNIT 3				
TIME		24	Shadow (m2)	sun (m2)	Sunlight %	Shadow (n sun (m2)		Sunlight %	Shadow (n sun (m2)		Sunlight %		
0900			24	0	0.00		23.85	0.15	0.63		24	0	0.00
0930			24	0	0.00		24	0	0.00		18.94	5.06	21.08
1000			24	0	0.00		23.39	0.61	2.54		17.2	6.8	28.33
1030			24	0	0.00		21.81	2.19	9.13		15.28	8.72	36.33
1100			23.55	0.45	1.88		18.79	5.21	21.71		12.61	11.39	47.46
1130			19.6	4.4	18.33		15.02	8.98	37.42		9.69	14.31	59.63
1200			14.83	9.17	38.21		10.51	13.49	56.21		7.17	16.83	70.13
1230			10.26	13.74	57.25		6.28	17.72	73.83		1.81	22.19	92.46
1300			5.99	18.01	75.04		1.83	22.17	92.38		3.2	20.8	86.67
1330			6.22	17.78	74.08		3.98	20.02	83.42		5.52	18.48	77.00
1400			9.03	14.97	62.38		13.34	10.66	44.42		9	15	62.50
1430			12.71	11.29	47.04		18.8	5.2	21.67		13.24	10.76	44.83
1500			18.25	5.75	23.96		24	0	0.00		18.76	5.24	21.83
		Sun Total	less than 3hrs			less than 3hrs			greater than 3hrs				



**ALDANMARK**  
CONSULTING ENGINEERS

## **STORMWATER REPORT**

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## PROJECT INFORMATION

DOCUMENT TITLE	Stormwater Report - 23 E 11 - 11 Rev A
PROJECT LOCATION	11 Vicary Place, Rokeby TAS 7019
CLIENT ORGANISATION	Taylor and Beeson Building
CLIENT REFERENCE	Taylor and Beeson
ALDANMARK REFERENCE	23 E 11 - 11
ALDANMARK CONTACT/S	Dylan Villiers (dvilliers@aldanmark.com.au)

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## DOCUMENT CONTROL

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## 1. INTRODUCTION

Aldanmark have been engaged to provide a stormwater report for the proposed development at 11 Vicary Place, Rokeby.

The development must comply with the stormwater quantity requirements of the Clarence City Council, PLANNING APPLICATION - PDPLANPMTD-2023/038860 – 11 Vicary Place, Rokeby and the Interim Planning Scheme Code E7.7.1:

- Stormwater runoff from the site will be no greater than pre-existing runoff for a 5% AEP rainfall event (Planning scheme Code E7.7.1 A3).

This report aims to demonstrate that the development at 11 Vicary Place, Rokeby complies with the above stormwater quantity requirement.

## 2. SITE OVERVIEW

The site contains an existing residence along with an existing shed, multiple outbuildings, a carport, and driveway.

Four residential units are proposed to be constructed on the subject site, as well as a new concrete driveway, parking areas and other paved areas. The increase in impervious area within the site is expected to increase the quantity of site stormwater runoff.

## 3. CATCHMENT MODEL

### 3.1 MODIFIED RATIONAL METHOD

The modified rational method was applied within a custom model to determine the increase in runoff between the pre-development and post-development conditions. This same model was then used to determine the volume and configuration of on-site detention required to reduce the site runoff below the pre-development condition for the 5% AEP storm.

### 3.2 DESIGN RAINFALL DEPTHS

Rainfall depths for the model were retrieved from the Bureau of Meteorology website (<http://www.bom.gov.au/water/designRainfalls/revised-ifu/>). The 5-minute duration of the 5% AEP storm was analysed.

**TABLE 1: IFD DESIGN RAINFALL DEPTH (REFERENCE)**

DESIGN RAINFALL EVENT	DESIGN RAINFALL (MM/HR)
5% AEP 5 minute	7.08

### 3.3 SITE CATCHMENTS

The site catchments assumed for the modified rational method calculations were determined from the architectural site plan prepared by Greg Tilley Design and Drafting dated 19/09/2023.

**TABLE 2 : PRE-DEVELOPMENT SITE CATCHMENTS**

CATCHMENT	AREA (m <sup>2</sup> )	RUNOFF COEFFICIENT C
Pre-development impervious roofed areas	305.5	1.00
Pre-development impervious paved areas	120	0.90
Pre-development pervious areas	1228.5	0.40

**TABLE 3 : POST-DEVELOPMENT SITE CATCHMENTS**

CATCHMENT	AREA (m <sup>2</sup> )	RUNOFF COEFFICIENT C
Post-development impervious roofed areas	622	1.00
Post-development impervious paved areas	530	0.90
Post-development pervious areas	502	0.40

### 3.4 DETENTION MODEL RESULTS

The model showed a pre-development site discharge of 21.36 L/s and a post-development site discharge of 30.68 L/s, an increase of 9.32 L/s. A multiple tank system is proposed, consisting of 1000 Litre Slimline tanks detaining the roof catchment of all 4 new units and a below ground Hudson ST670 tank detaining a minimum 230 m<sup>2</sup> of new paved area.

Modelling the scenario of 98 m<sup>2</sup> of roof area (belonging to Unit 1) being detained in a TankTec 1000 Litre Slimline tank equipped with a 25 mm orifice shows a reduction in flow rate of 1.37 L/s (**Figure 1**). Modelling the scenario of 101 m<sup>2</sup> of roof area (belonging to Unit 2) being detained in a TankTec 1000 Litre Slimline tank equipped with a 25 mm orifice shows a reduction in flow rate of 1.43 L/s (**Figure 2**). Modelling the scenario of 107m<sup>2</sup> of roof area (belonging to Unit 3) being detained in a TankTec 1000 Litre Slimline tank equipped with a 25 mm orifice shows a reduction in flow rate of 1.53 L/s (**Figure 3**). Modelling the scenario of 98 m<sup>2</sup> of roof area (belonging to Unit 4) being detained in a TankTec 1000 Litre Slimline tank equipped with a 25 mm orifice shows a reduction in flow rate of 1.137 L/s (**Figure 4**). Modelling the scenario of 230 m<sup>2</sup> of roof area (belonging to the new paved area) being detained in a Hudson ST670 2000 tank equipped with a 30 mm orifice shows a reduction in flow rate of 3.69 L/s (**Figure 5**).

Cumulatively, these detention measures reduce the site discharge by 9.40 L/s which is 0.08 L/s below the pre-development site discharge. The detention tank was then subsequently checked for capacity with all other durations for the 5% AEP (including the 10-, 15- and 20-minute events) and the flow rate was reduced as required for each case, and the tank has adequate capacity for all 5% AEP events.

### TANK 2: 5% AEP, 5 MINUTE DURATION HYDROGRAPH

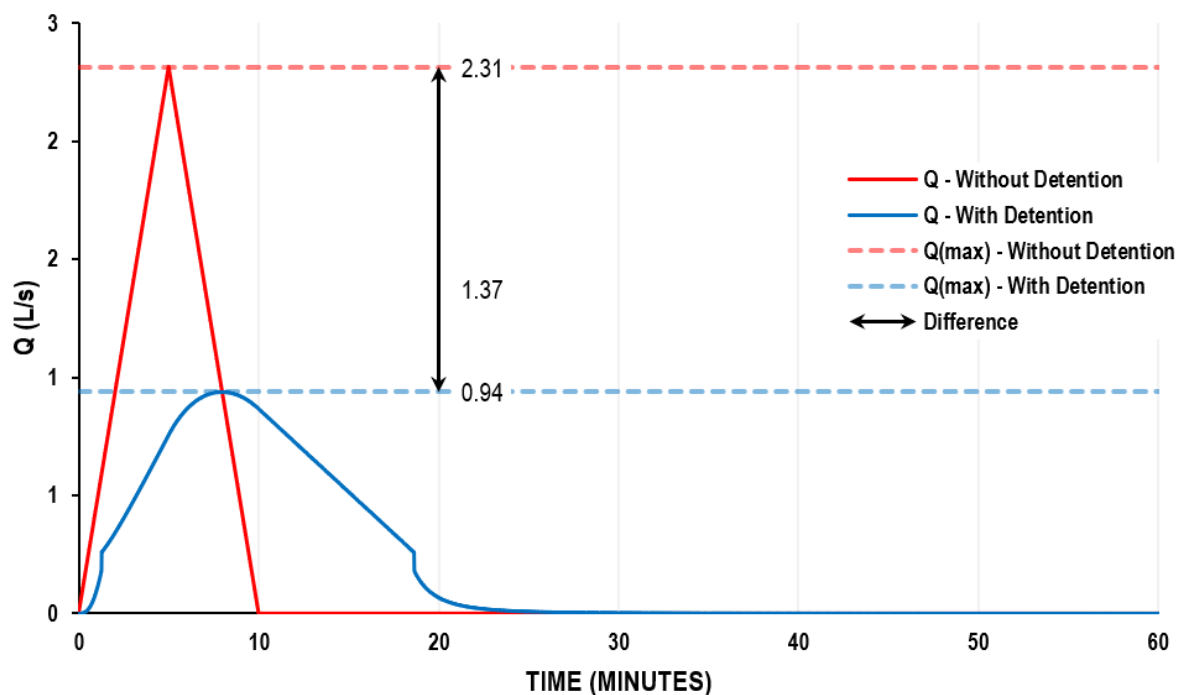


Figure 1. Impact of the detention of Unit 1 on the site discharge.

### TANK 3: 5% AEP, 5 MINUTE DURATION HYDROGRAPH

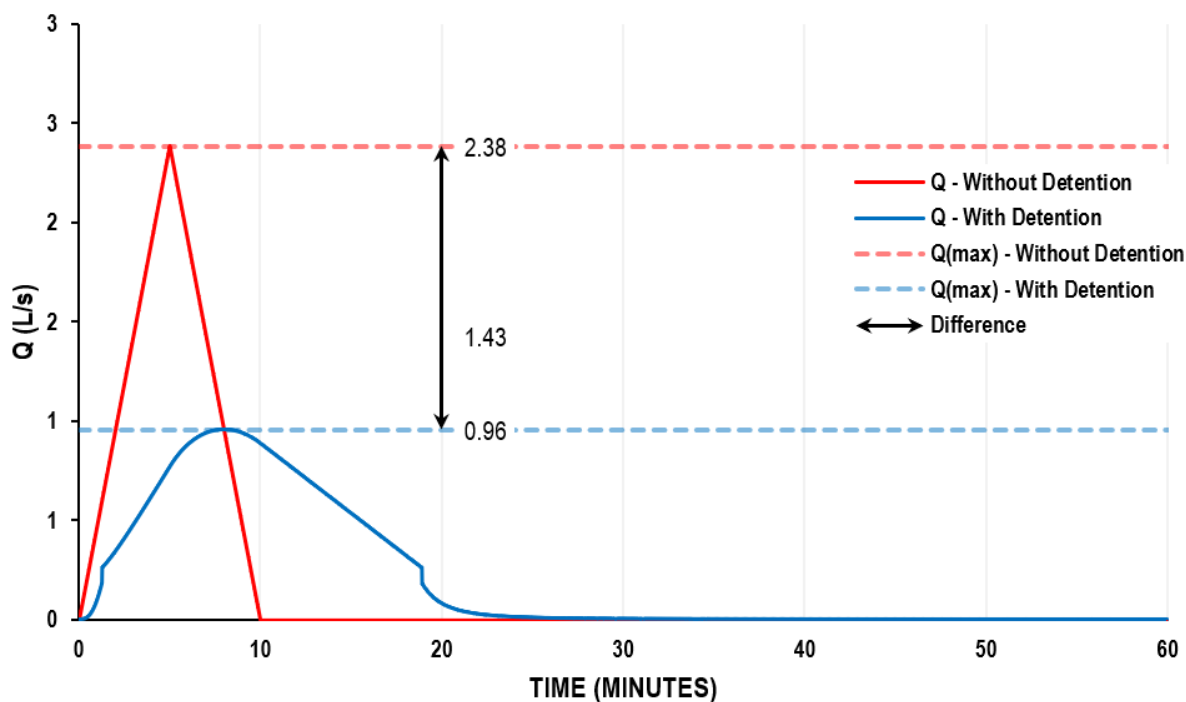


Figure 2. Impact of the detention of Unit 2 on the site discharge.

### TANK 4: 5% AEP, 5 MINUTE DURATION HYDROGRAPH

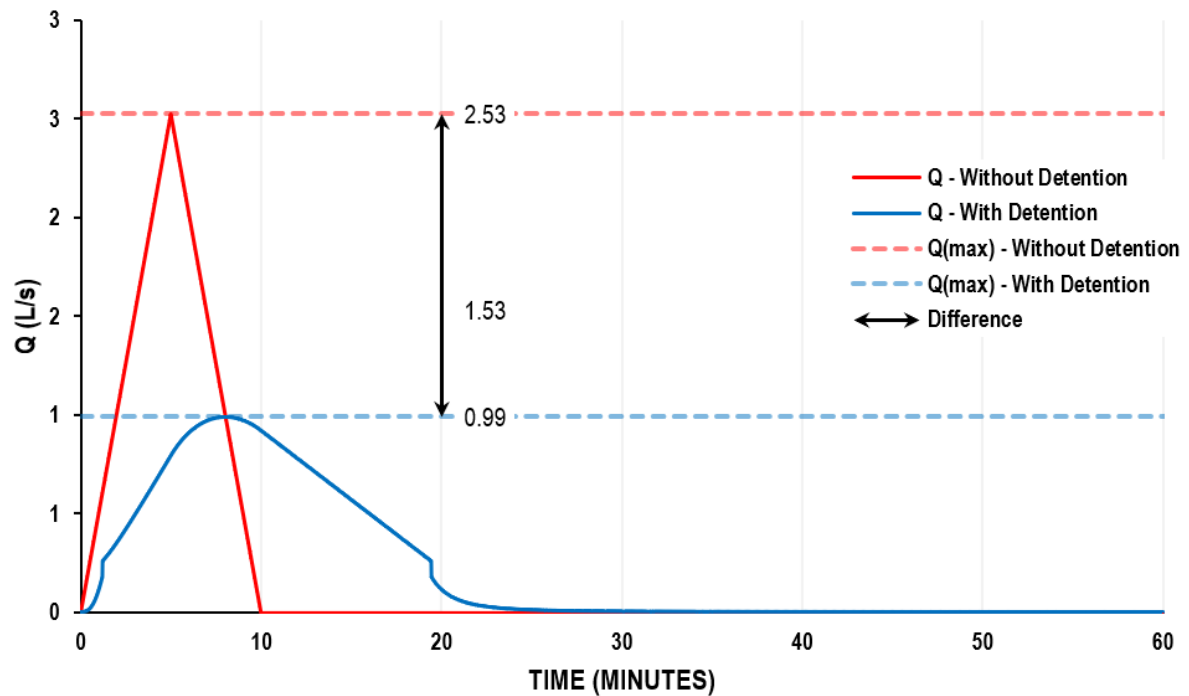


Figure 3. Impact of the detention of Unit 3 on the site discharge.



### TANK 5: 5% AEP, 5 MINUTE DURATION HYDROGRAPH

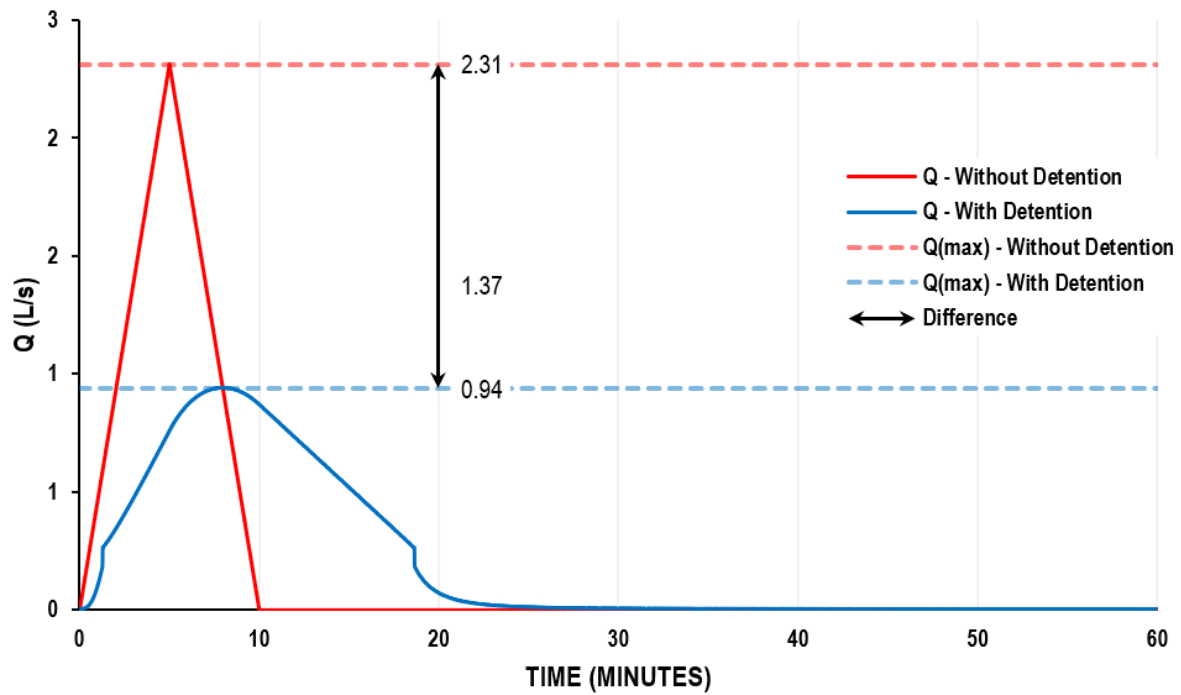


Figure 4. Impact of the detention of Unit 4 on the site discharge.

### TANK 1: 5% AEP, 5 MINUTE DURATION HYDROGRAPH

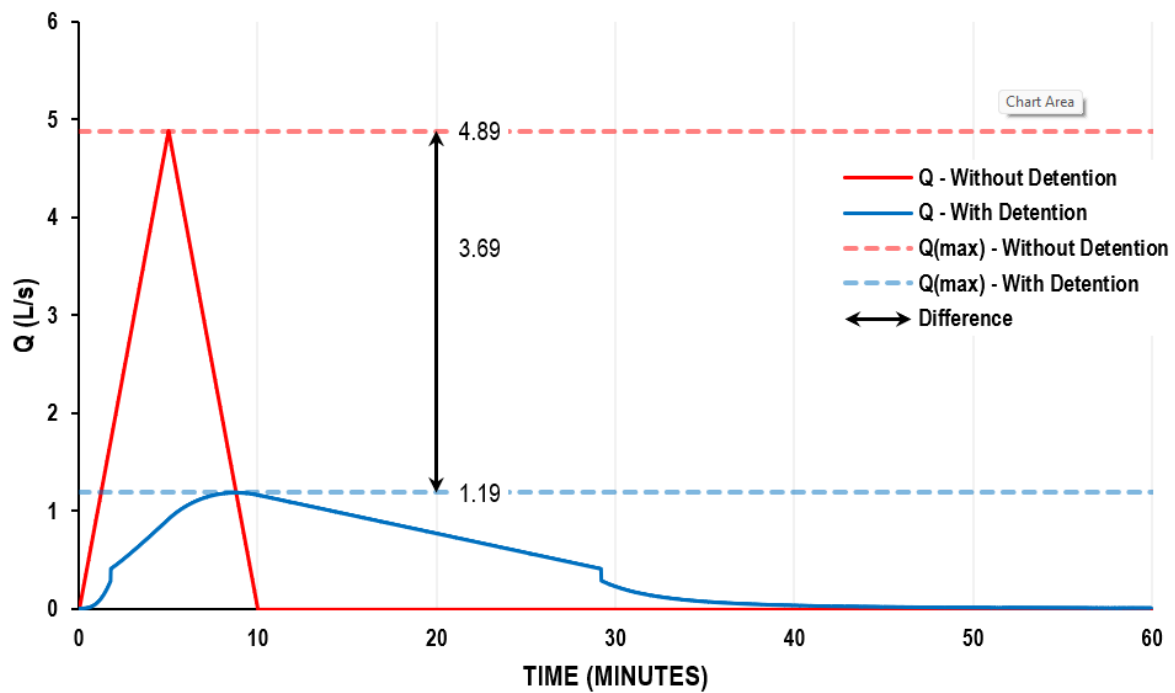


Figure 5. Impact of the detention of 230 m<sup>2</sup> of paved area on the site discharge.

## 4. MAINTENANCE

The recommended maintenance schedule for the on-site detention devices specified in this report are outlined in Table 4 and Table 5.

The manufacturer's maintenance requirements for the stormwater detention and treatment devices that are installed will form part of the project's Plumbing Maintenance Schedule.

**TABLE 4 : MAINTENANCE PLAN FOR RAINWATER TANKS**

ACTIVITY	FREQUENCY
Visual inspection of rainwater detention tank for sediment accumulation, sludge, and algae growth, and clogging at outlet orifice.	Every 6 months
Vacuum truck sediment removal/desludging of rainwater detention tank	Approximately every 2-3 years or if sediment/'sludge' is evident upon inspection
Inspection and cleaning of gutters	Every 6 months

**TABLE 5 : MAINTENANCE PLAN FOR CONCRETE BELOW GROUND TANKS**

ACTIVITY	FREQUENCY
Visual inspection inside each tank, ensure sludge zone does not exceed orifice height.	Year 1 & 2 – Every six months Years 3 - Onwards – Once per year depending on sediment accumulation rates.
Vacuum truck sediment removal/desludging of rainwater detention tank	Dictated by silt conditions on the site. approximately every 4-5 years.
Part Replacement. Check functionality of parts during visual inspection and replace as required.	Approximately every 20 years

## 5. CONCLUSION

This report has demonstrated that the proposed development at 11 Vicary Place, Rokeby complies with the stormwater quantity conditions of Clarence City Councils planning permit.

**Note:**

- No assessment has been undertaken of Council's stormwater infrastructure and its capacity.
- This report assumes the Council stormwater main has capacity for the pre-development peak discharge.
- It is the responsibility of Council to assess their infrastructure and determine the impact (if any) of altered inflows into their stormwater network.

Please contact me at [dvilliers@aldanmark.com.au](mailto:dvilliers@aldanmark.com.au) if you require any additional information.

Yours faithfully,



**Dylan Villiers**  
Civil/Structural Engineer



# Traffic Impact Statement



Additional four residential units at  
11 Vicary Place, Rokeby



November 2023

Disclaimer: This report has been prepared based on and in reliance upon the information provided to Hubble Traffic Consulting by the client and gathered by Hubble Traffic Consulting during the preparation of the report. Whilst all reasonable skill, care and diligence has been used in preparation of the report, Hubble Traffic Consulting take no responsibility for errors or omissions arising from misstatements by third parties.

This report has been prepared specifically for the exclusive use of the client named in the report and to the extent necessary, Hubble Traffic Consulting disclaim responsibility for any loss or damage occasioned by use of or reliance upon this report, or the data produced herein, by any third party.

Version	Date	Reason for Issue
<b>Draft</b>	November 2023	Draft issued for client feedback
<b>Final</b>	November 2023	Final issued

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## 1. Introduction

Taylor and Beeson Building have engaged Hubble Traffic on behalf of the developer, to prepare an independent Traffic Impact Statement for a proposed development at 11 Vicary Place, Rokeby.

A planning application was submitted to Clarence City Council (PDPLANPMTD-2023/038860), who have requested further information on the traffic generation at a vehicle crossing, level crossing or new junction, as per Tasmanian Planning Scheme C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction.

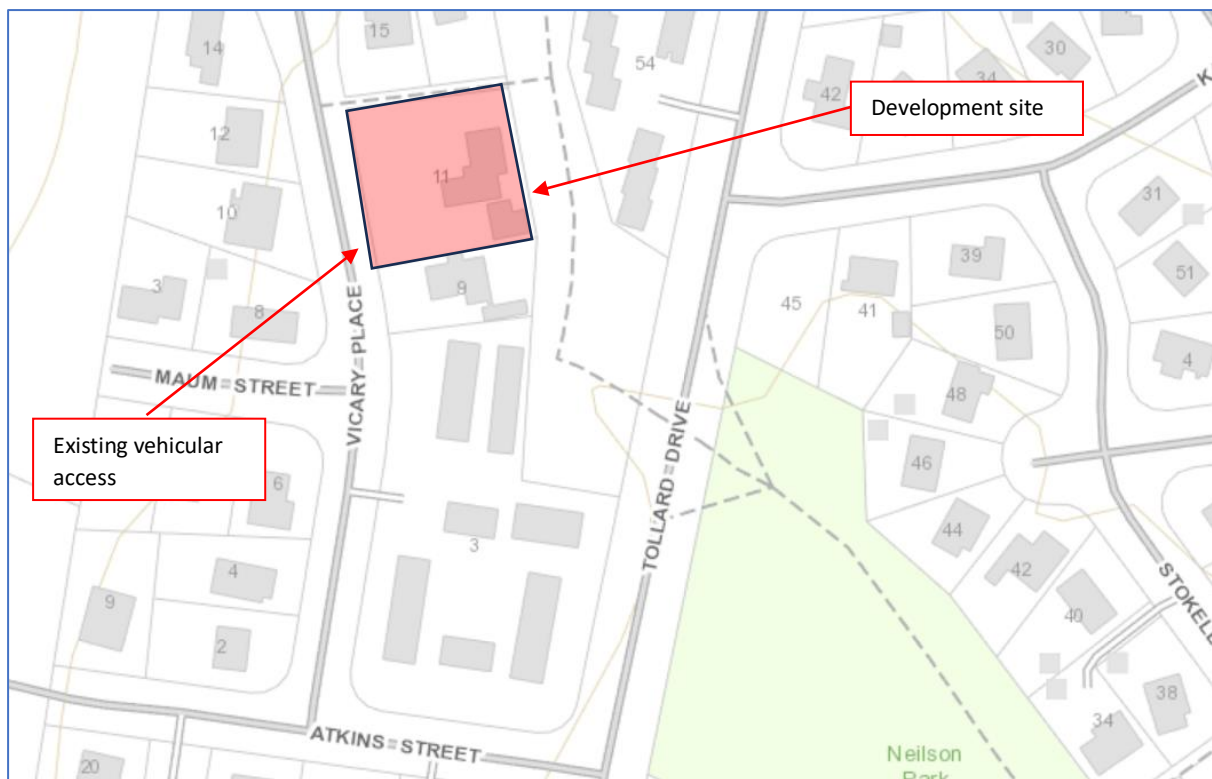
This assessment has referenced the following guidelines:

- Tasmanian Planning Scheme (Clarence City Council) - (Planning Scheme),
- The Australian Standard 2890.1:2004 - (The Standard) Off-street car parking, and
- RTA Guidelines for Traffic Generation Developments - (RTA Guide).

## 2. Development site

The development site is located at 11 Vicary Place, Rokeby, within an established urban residential area. The site has an existing residential dwelling with a vehicular access to Vicary Place.

Diagram 2.0 – Extract from LIST Land Information Database

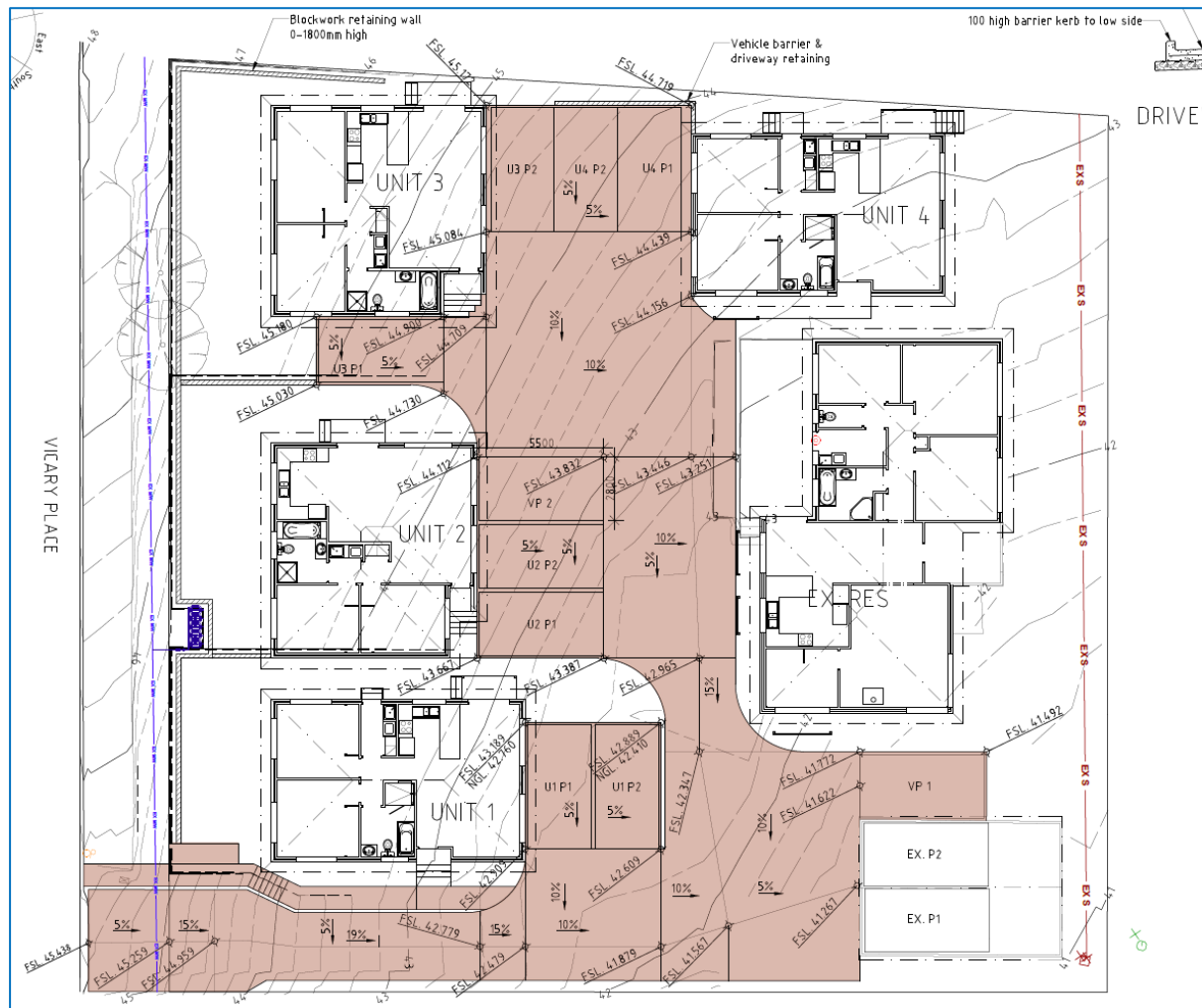


### 3. Development proposal

As advised by the developer, the development will consist of four two bedroom units, each with two dedicated parking spaces, plus two visitor parking spaces. The existing residence and vehicular access with Vicary Place will be retained and widened to comply with table C2.2 of the planning scheme.

For the purpose of this assessment the four new units and existing dwelling will be referred to as units.

Diagram 3.0 – Development proposal



## 4. Trip generation

A trip in this report is defined as a one-way vehicular movement from one point to another, excluding the return journey. Therefore, a return trip to and from a land use is counted as two trips.

To determine the number of trips likely to be generated by this development, reference has been taken from the RTA Guide, section 3.3 residential housing, which provides typical traffic generation rates, where it recommends that:

- a residential property generates 7.4 vehicle trips per day and 0.78 trips per peak hour periods,
- a three or more bedroom unit generates 6.5 trips per day and 0.65 trips per peak hour periods, and
- one or two bedroom units generate five trips per day and 0.5 trips per peak hour periods.

Table 4.0 below indicates the four units are predicted to generate 20 daily trips, with two of these trips likely to occur in the peak periods. The existing unit is currently generating on average seven daily trips, with one occurring during the peak periods.

Table 4.0 – Existing dwelling trips and prediction of unit generated trips

Dwelling Type	RTA Generation rate	Number of units/dwellings	Daily trips	Peak trips
Two-bedroom unit	5.0 per day 0.5 per peak	4	20	2
<b>New trips</b>			<b>20</b>	<b>2</b>
Existing dwelling	7.4 per day 0.78 per peak	1	7	1
<b>Existing trips</b>			<b>7</b>	<b>1</b>



## 5. Surrounding road network

All traffic generated by the development site must use Atkins Street to connect to Tollard Drive, which is the nearest local collector road, with Tollard Drive connecting to the State Road network via the South Arm Highway traffic signals.

At the end of Atkins Street, a new residential subdivision is under construction, once dwellings are constructed, they will generate additional traffic movements, using Atkins Street and Tollard Drive.

This section will discuss the road characteristics of the surrounding local streets, and the junction of Atkins Street and Tollard Drive

### 5.1. Vicary Place characteristics

Within the surrounding road network Vicary Place is a local access road that extends in a northern direction from Atkins Street, terminating in a cul-de-sac. The horizontal road alignment is generally straight, with a relatively flat vertical grade.

The road has been constructed to an urban standard, with street lighting, a 7.2 metre wide bitumen surface, concrete kerb, and 1.5 metre wide footpath on the western side of the road, which terminates at the Maum Street junction. There is no posted speed limit along Vicary Place, with the default 50 km/h speed limit applying for an urban environment.

Photograph 5.1 – Typical road standard for Vicary Place



## 5.2. Atkins Street characteristics

Within the surrounding road network Atkins Street operates as a local street that extends in a westerly direction from Tollard Drive, providing connection to a new residential subdivision under construction. The horizontal road alignment is straight, with a relatively gentle vertical grade extending from the Tollard Drive junction.

The road has been constructed to an urban standard, with street lighting, an 8.4 metre wide bitumen surface between kerb faces, concrete kerb and channel, and 1.5 metre wide footpath on the southern side of the road. There is no posted speed limit along Atkins Street, with the default 50 km/h speed limit applying for an urban environment.

Photograph 5.2 – Typical road standard for Atkins Street



## 5.3. Tollard Drive characteristics

Tollard Drive is a local collector road constructed to a high road standard, with 3.2 metre wide traffic lanes in each direction, 2.8 metre wide central turning lane, and 1.5 metre wide bicycle lanes in both directions. At the Atkins Street junction, the horizontal road alignment is straight with a flat gradient, with broken centre lines and solid edge lines providing alignment delineation. The road has a posted 50 km/h speed limit.

Photograph 5.3 – Typical road standard of Tollard Drive adjacent to Atkins Street



## 5.4. Atkins Street and Tollard Drive junction

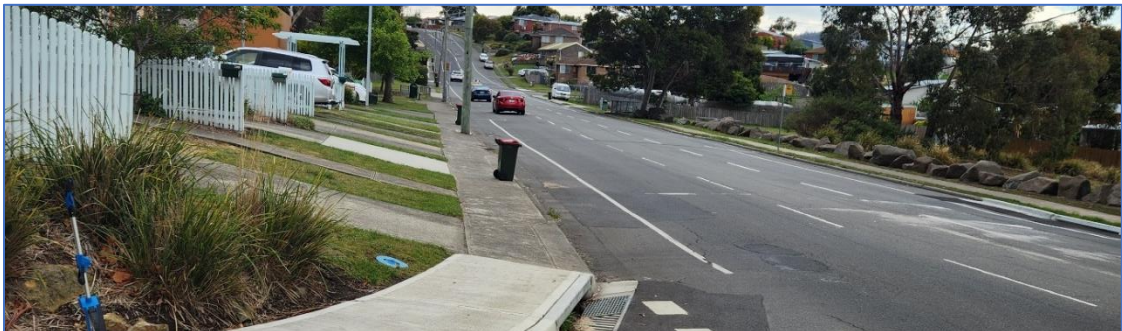
Traffic from the development site must use the Atkins Street and Tollard Drive junction, along with future traffic generated by the new subdivision, and it is important for this assessment to consider the current junctions suitability.

The junction has an asphalt surface that is in good condition, and widened throat to accommodate the swept path of turning vehicles, which provides sufficient pavement width to accommodate two-way traffic movements. The road alignment is straight, with relatively gentle vertical grades through the junction, causing no adverse impact for turning vehicles.

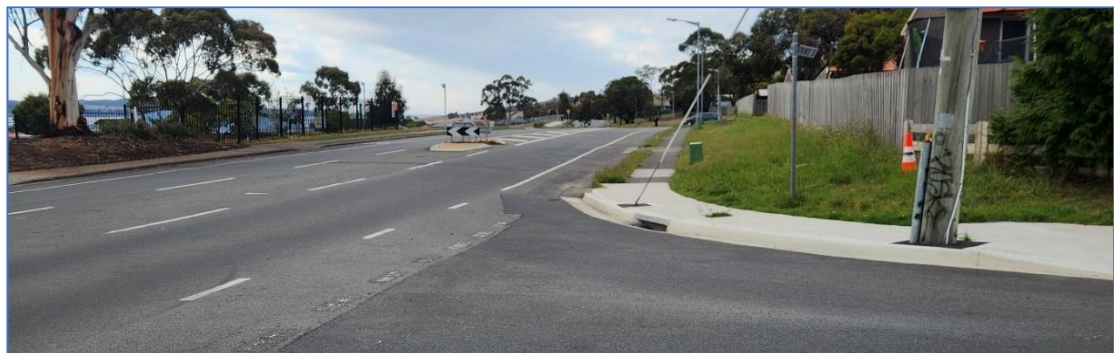
Austroads Guide to Road Design provides guidance on Safe Intersection Sight Distance (SISD), which recommends for a 50 km/h speed limit the SISD is 90 metres, with a driver reaction time of 1.5 seconds, and three seconds observation time.

Available sight distance was measured at the Atkins Street junction, based on the driver being 1.05 metres above the road surface, and approaching vehicles being 1.2 metres high. In both directions the available sight distance exceeds 150 metres, with sufficient sight distance for vehicles to turn at the junction in a safe and efficient manner, without causing adverse impact to other users.

Photograph 5.4A – Available sight distance to the left



Photograph 5.4B – Available sight distance to the right





## 5.5. Traffic activity on surrounding road network

To evaluate the traffic impact from the development, it is important to understand the current traffic flow on Atkins Street. A recent manual traffic survey was undertaken at the junction of Atkins Street and Tollard Drive, during the morning and evening peak periods.

The peak hour period has been extracted from the manual survey and will be used within this assessment. Overall, the traffic flow generated by Atkins Street was low, with moderate flows on Tollard Drive.

Diagram 5.5A – Morning peak hour traffic movements

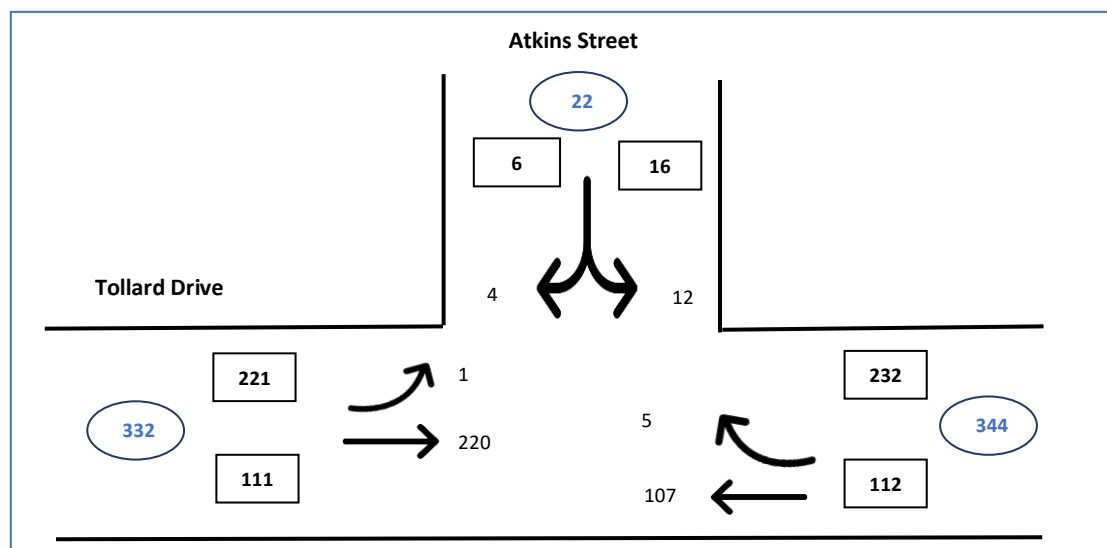
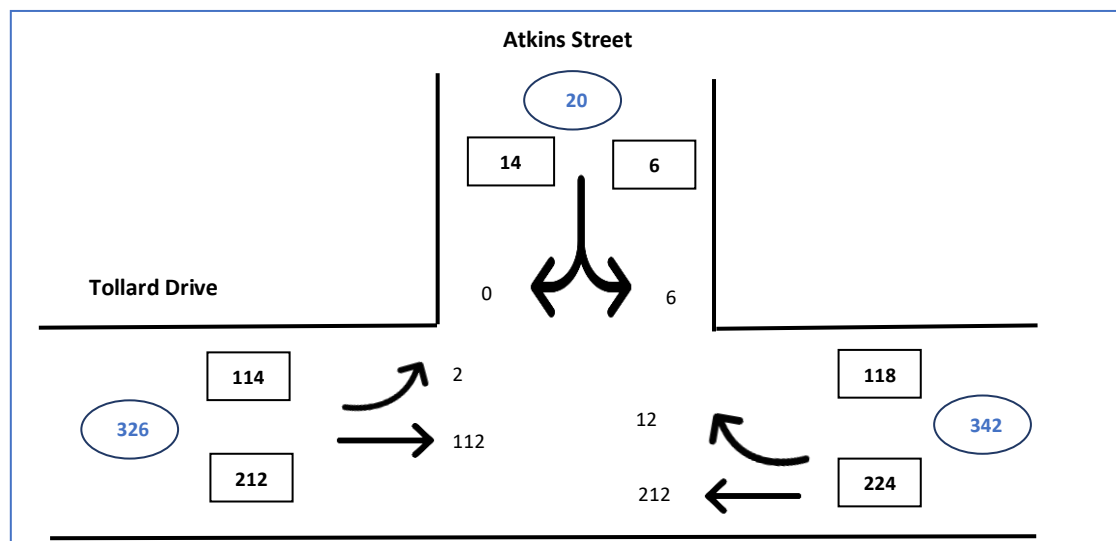


Diagram 5.5B – Evening peak hour traffic movements



## 5.6. Reported crash history

The Department of State Growth maintains a database of reported road crashes, a check of this database for the last five years, found one crash reported near the Atkins Street and Tollard Drive junction. The crash involved a single vehicle losing control, resulting in property damage only. The number of crashes does not indicate motorists are experiencing any difficulty with negotiating the road layout.

## 6. Development access

### 6.1. Existing vehicular access with Vicary Place

The development site has an existing 3.6 metre wide vehicular access with Vicary Place, which will be retained and widened to provide vehicular access to all units.

Photograph 6.1 – Existing vehicular access with Vicary Place



### 6.2. Sight distance at the existing vehicular access

The sight distance requirement for a residential driveway is less than the SISD requirement, as the number of daily traffic movements are estimated to be significantly lower, with the users being familiar with the access configuration. For these reasons, the Austroads Guide to Road Design allows for a lower sight distance requirement to be used at residential driveways, indicating minimum gap sight distance is applicable.

Minimum gap sight distance is specified in the Standard, with section 3.2.4 indicating that for a residential driveway access where vehicles are travelling in a 50 km/h speed environment, the minimum sight distance should be 45 metres, with a desirable sight distance of 69 metres. The desirable distance is based on the driver having a minimum five second gap to undertake the turning manoeuvre.

SISD was measured on site, with a driver leaving the access having in excess of 100 metres to the left and 83 metres to the right. The existing vehicular access has sufficient sight distance exceeding the Standards desirable sight distance of 69 metres, ensuring vehicles can enter and leave the development in a safe and efficient manner.



Photograph 6.2A – Available sight distance to the left



Photograph 6.2B - Available sight distance to the right



## 7. Lane capacity on Atkins Street and Tollard Drive

In evaluating the impact of additional vehicles on Atkins Street and Tollard Drive users, it is important to understand the Level of Service (LOS) motorists are currently receiving. The RTA Guide provides guidance on level of service for urban roads, based on peak hour directional traffic flows, with an extract provided in the diagram below.

Diagram 7.0 – Extract from the RTA Guide

Level of Service	One Lane (veh/hr)	Two Lanes (veh/hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

Comparing the directional traffic flows obtained from the manual traffic surveys with the RTA Guide, the northbound and southbound lanes on Tollard Drive are operating at LOS B, during the morning and evening peak period. While all other lanes on Tollard Drive and Atkins Street are operating at LOS A, during the morning and evening peak periods.

Level of service A and B provides motorists with a good level of traffic performance, where the traffic flow is stable, and motorists have freedom to select their own operating speed. There should be sufficient gaps in the traffic stream to enable vehicles to enter and leave, without causing any adverse impacts.

The additional trips generated from the development have been assigned to both Atkins Street and Tollard Drive, as shown in the table below. Demonstrating that additional traffic generated by the development will not cause adverse traffic impact, as there is no deterioration in LOS.

Table 7.0 – Level of service for motorists using Atkins Street and Tollard Drive

	Atkins Street				Tollard Drive			
	Morning		Evening		Morning		Evening	
	EB	WB	EB	WB	NB	SB	NB	SB
Directional flows	16	6	6	14	232	111	118	212
Level of service	A	A	A	A	B	A	A	B
With development	18	6	6	16	234	111	118	214
Level of service	A	A	A	A	B	A	A	B

## 7.1. Traffic efficiency at Atkins Street and Tollard Drive junction

The simplest method to determine the traffic performance at a junction, is to use SIDRA Intersection traffic modelling software. SIDRA uses gap acceptance theory to determine the average delay, queue lengths, and degree of saturation, which are all measures of traffic congestion and level of service.

LOS is a quantifiable assessment of the factors that contribute to the traffic performance, which includes traffic density, gaps in traffic streams, expected delays, and queues. For junctions, there are five levels from A to E, with A providing the highest level for give-way controlled junctions, meaning motorists are not incurring delays, with ample gaps in the traffic stream for vehicles to turn freely and safely without disrupting other users. The following table provides a reference to the level of service for the various traffic controls.

Diagram 7.1 – RTA level of service for intersections

<b>Table 4.2</b> <b>Level of service criteria for intersections</b>			
<b>Level of Service</b>	<b>Average Delay per Vehicle (secs/veh)</b>	<b>Traffic Signals, Roundabout</b>	<b>Give Way &amp; Stop Signs</b>
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

A traffic model was developed within the SIDRA software to replicate the junction of Atkins Street and Tollard Drive, with the recent peak hour traffic flows entered. Traffic modelling indicates the junction is performing at the highest level of service possible LOS A, with motorists not incurring any notable delays or traffic queues.

The additional peak hour traffic movements generated by the development have been assigned to the intersection and traffic modelling predicts there will be no deterioration in the level of traffic performance. Table 7.1 compares the junction traffic performance of the existing traffic flows, with the estimated traffic flows from the development, demonstrating the development is not expected to cause any deterioration in traffic performance.



Table 7.1 – Traffic modelling comparison between existing and with development traffic

Period	Scenario	Total vehicles	DOS	Worst average delay	LOS	Max queue
Morning peak hour	Existing	364	0.119	7.4 sec	A	0.3m
	Development	366	0.119	7.5 sec	A	0.3m
Evening peak hour	Existing	365	0.115	7.5 sec	A	0.2m
	Development	367	0.115	7.5 sec	A	0.3m

## 8. Traffic impact and efficiency from future residential development

Once the new residential subdivision is operating, it will generate additional vehicular trips on the surrounding road network. As the number of future residential dwellings are unknown, this assessment has considered the traffic outcomes from two scenarios, an additional 100 and 200 dwellings.

In addition to the future subdivision trips, this traffic assessment includes incremental traffic growth of two percent for ten years along Tollard Drive.

Table 8.0A shows the estimated number of peak hour trips based on the number of residential dwellings, and the distribution of peak hour trips during the morning and evening periods, using the Atkins Street and Tollard Drive junction.

Table 8.0A – Number of peak trips per residential dwellings

Number of dwellings	Morning peak trips					Evening peak trips				
	Total	Leaving		Arriving		Total	Arriving		Leaving	
		Left out	Right out	Left in	Right in		Left in	Right in	Left out	Right out
100	78	53	17	1	7	78	10	60	8	0
200	156	106	34	2	14	156	20	120	16	0

Additional traffic likely to be generated under the two scenarios (100 and 200 dwellings) has been assigned to the Atkins Street traffic model, including the additional traffic generated by the development, plus incremental traffic growth on Tollard Drive.

Traffic modelling predicts the junction will continue to perform at LOS A, during the morning and evening peak periods. This is the highest level of service possible for give way controls, with the modelling predicting virtually no traffic queues or delays. With the junction operating with degree of saturation (DOS) of less than 0.145, it signifies there will be spare traffic capacity to accommodate future traffic growth.

Table 8.0B – Traffic modelling comparison between existing and with future residential traffic

Period	Scenario	Total vehicles	DOS	Worst average delay	LOS	Max queue
Morning peak hour	Existing	364	0.119	7.4 sec	A	0.3m
	100 dwellings	499	0.141	8.1 sec	A	2.2m
	200 dwellings	563	0.145	8.3 sec	A	4.2m
Evening peak hour	Existing	365	0.115	7.5 sec	A	0.2m
	100 dwellings	482	0.127	8.3 sec	A	1.5m
	200 dwellings	564	0.127	8.9 sec	A	2.9m

Printout of the modelling results is available in appendix A.

The lane capacity impact of additional traffic generated by the new subdivision on Atkins Street and Tollard Drive has been assessed based on the RTA Guide, with the table below comparing the lane capacity under the two scenarios. This traffic analysis demonstrates the lane capacity on Atkins Street and Tollard Drive, will not deteriorate with the additional trips generated by the construction of new dwellings. This means current motorists using the local road network will not be adversely impacted.

Table 8.0C – Comparison of lane capacity

Scenario	Traffic measure	Atkins Street				Tollard Drive			
		Morning		Evening		Morning		Evening	
		EB	WB	EB	WB	NB	SB	NB	SB
Existing with development	Directional flows	18	6	6	16	234	111	118	214
	Level of service	A	A	A	A	B	A	A	B
With 100 dwellings	With development	88	14	14	86	287	118	126	274
	Level of service	A	A	A	A	B	A	A	B
With 200 dwellings	With development	158	22	22	156	340	125	134	334
	Level of service	A	A	A	A	B	A	A	B



## 9. Planning scheme

### **C3.5.1 – Traffic generation at a vehicle crossing, level crossing or new junction**

The development will increase the number of daily trips using the existing vehicular access with Vicary Place by more than 20 percent and will need to be assessed against performance criteria P1, to ensure that it can operate safely and efficiently.

Performance criteria	Assessment
To ensure that the safety and efficiency of roads is not reduced by the creation of a new access and junctions.	
a) Any increase in the traffic caused by the use;	The development of four new residential units is estimated to generate an additional 20 daily trips, with two of these trips occurring during the morning and evening peak periods. The existing unit is already generating on average seven daily trips, with one trip occurring during the morning and evening peak periods.
b) The nature and frequency of the traffic generated by the use;	The development is for residential units, with most vehicle movements to be generated by the development to be less than 5.5 metres in length, these types of vehicles are associated with urban residential living, and compatible with the existing vehicles using the surrounding local road network.
c) The nature of the road;	Vicary Place is a local residential street, built to an urban standard, has sufficient road width to accommodate two-way traffic movements, and can support on-street parking. The street standard is suitable to accommodate additional traffic movements generated by the development. There is sufficient sight distance at the existing vehicular access to enable vehicles to enter and leave the development site in a safe and efficient manner. All the development traffic will need to use Atkins Street to connect with Tollard Drive, which is the nearest local collector road, and this assessment has determined both Atkins Street and Tollard Drive are of a suitable standard to accommodate the small increase in traffic flow.
d) The speed limit and traffic flow of the road;	The urban default 50 km/h speed limit applies to Vicary Place and Atkins Street, with Tollard Drive having a posted 50 km/h speed limit. Recent manual traffic surveys found that Atkins Street is lightly trafficked, with 22 two-way traffic movements during the morning peak hour, and 20 two-way traffic movements during the evening peak hour. Motorists are currently receiving a good level of service, and the increase in traffic generated by the development is not expected to cause a deterioration in traffic flow. Traffic modelling at the junction of Atkins Street and Tollard Drive found motorists are receiving the highest level of traffic performance, and additional traffic generated by the development is not expected to cause a deterioration in traffic performance or have an adverse impact on traffic flow. At the end of Atkins Street, a new residential subdivision is under construction. Traffic analysis including traffic modelling confirms the surrounding road network will have sufficient spare traffic capacity, to absorb a substantial increase in traffic flow generated by the subdivision, without causing adverse impact to other users.

e) Any alternative access;	No alternative road connection.
f) The need for the access or junction;	Urban infill in established residential areas is an excellent method to increase the supply of housing, while optimising the current infrastructure and community facilities.
g) Any traffic impact assessment; and	An independent traffic assessment found there was no reason for this development not to proceed.
h) Any written advice received from the road authority.	Council RFI dated 18 <sup>th</sup> October 2023, requesting a Traffic Impact Statement to quantify the traffic generation and the suitability of the surrounding road network to absorb an increase in traffic flow.

## 10. Conclusion

This traffic assessment has demonstrated that the four additional residential units will not adversely impact the surrounding road network. The amount of traffic generated by the development is considered to be low and there is sufficient capacity in the road network to absorb these movements without impacting other users.

Traffic analysis and modelling demonstrates there is sufficient spare traffic capacity on the surrounding road network, to absorb a substantial traffic increase predicted to be generated by the new residential subdivision under construction, without adversely impacting the traffic flow, or level of service motorists are currently receiving.

This assessment found no reason this development should not proceed.



## 11. Appendix A – Traffic modelling for Tollard Drive and Atkins Street

Existing morning peak hour

<b>MOVEMENT SUMMARY</b>								
▽ <b>Site: 101 [Tollard and Atkins - Existing morning traffic conditions]</b>								
New Site Site Category: (None) Giveaway / Yield (Two-Way)								
<b>Movement Performance - Vehicles</b>								
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m
<b>East: Tollard Drive (To South Arm Rd)</b>								
5	T1	113	0.0	0.058	0.0	LOS A	0.0	0.0
6	R2	5	0.0	0.004	6.1	LOS A	0.0	0.1
Approach		118	0.0	0.058	0.3	NA	0.0	0.1
<b>North: Atkins Street</b>								
7	L2	13	0.0	0.011	6.2	LOS A	0.0	0.3
9	R2	1	0.0	0.011	7.4	LOS A	0.0	0.3
Approach		14	0.0	0.011	6.3	LOS A	0.0	0.3
<b>West: Tollard Drive</b>								
10	L2	1	0.0	0.119	5.6	LOS A	0.0	0.0
11	T1	232	0.0	0.119	0.0	LOS A	0.0	0.0
Approach		233	0.0	0.119	0.0	NA	0.0	0.0
All Vehicles		364	0.0	0.119	0.4	NA	0.0	0.3

Existing evening peak hour

<b>MOVEMENT SUMMARY</b>								
▽ <b>Site: 101 [Tollard and Atkins - Existing evening traffic conditions]</b>								
New Site Site Category: (None) Giveaway / Yield (Two-Way)								
<b>Movement Performance - Vehicles</b>								
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m
<b>East: Tollard Drive (To South Arm Rd)</b>								
5	T1	223	0.0	0.115	0.0	LOS A	0.0	0.0
6	R2	13	0.0	0.008	5.8	LOS A	0.0	0.2
Approach		236	0.0	0.115	0.3	NA	0.0	0.2
<b>North: Atkins Street</b>								
7	L2	6	0.0	0.006	5.9	LOS A	0.0	0.2
9	R2	1	0.0	0.006	7.5	LOS A	0.0	0.2
Approach		7	0.0	0.006	6.1	LOS A	0.0	0.2
<b>West: Tollard Drive</b>								
10	L2	2	0.0	0.063	5.5	LOS A	0.0	0.0
11	T1	120	0.0	0.063	0.0	LOS A	0.0	0.0
Approach		122	0.0	0.063	0.1	NA	0.0	0.0
All Vehicles		365	0.0	0.115	0.4	NA	0.0	0.2

## Morning peak hour with development traffic

**MOVEMENT SUMMARY**

▽ **Site: 101 [Tollard and Atkins - Morning traffic conditions with development traffic]**

New Site  
 Site Category: (None)  
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles								
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
East: Tollard Drive (To South Arm Rd)								
5	T1	113	0.0	0.058	0.0	LOS A	0.0	0.0
6	R2	5	0.0	0.004	6.1	LOS A	0.0	0.1
Approach		118	0.0	0.058	0.3	NA	0.0	0.1
North: Atkins Street								
7	L2	15	0.0	0.012	6.2	LOS A	0.0	0.3
9	R2	1	0.0	0.012	7.5	LOS A	0.0	0.3
Approach		16	0.0	0.012	6.3	LOS A	0.0	0.3
West: Tollard Drive								
10	L2	1	0.0	0.119	5.6	LOS A	0.0	0.0
11	T1	232	0.0	0.119	0.0	LOS A	0.0	0.0
Approach		233	0.0	0.119	0.0	NA	0.0	0.0
All Vehicles		366	0.0	0.119	0.4	NA	0.0	0.3

## Evening peak hour with development traffic

**MOVEMENT SUMMARY**

▽ **Site: 101 [Tollard and Atkins - Evening traffic conditions with development traffic]**

New Site  
 Site Category: (None)  
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles								
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
East: Tollard Drive (To South Arm Rd)								
5	T1	223	0.0	0.115	0.0	LOS A	0.0	0.0
6	R2	15	0.0	0.009	5.8	LOS A	0.0	0.3
Approach		238	0.0	0.115	0.4	NA	0.0	0.3
North: Atkins Street								
7	L2	6	0.0	0.006	5.9	LOS A	0.0	0.2
9	R2	1	0.0	0.006	7.5	LOS A	0.0	0.2
Approach		7	0.0	0.006	6.1	LOS A	0.0	0.2
West: Tollard Drive								
10	L2	2	0.0	0.063	5.5	LOS A	0.0	0.0
11	T1	120	0.0	0.063	0.0	LOS A	0.0	0.0
Approach		122	0.0	0.063	0.1	NA	0.0	0.0
All Vehicles		367	0.0	0.115	0.4	NA	0.0	0.3

Morning peak hour with additional 100 dwellings and 1% traffic growth on Tollard Drive for 10 years

## MOVEMENT SUMMARY

▽ Site: 101 [Tollard and Atkins - Morning with 100 dwellings, plus 1% growth]

New Site  
Site Category: (None)  
Giveaway / Yield (Two-Way)

### Movement Performance - Vehicles

Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m
East: Tollard Drive (To South Arm Rd)								
5	T1	124	0.0	0.064	0.0	LOS A	0.0	0.0
6	R2	13	0.0	0.009	6.3	LOS A	0.0	0.3
Approach		137	0.0	0.064	0.6	NA	0.0	0.3
North: Atkins Street								
7	L2	68	0.0	0.078	6.4	LOS A	0.3	2.2
9	R2	19	0.0	0.078	8.1	LOS A	0.3	2.2
Approach		87	0.0	0.078	6.8	LOS A	0.3	2.2
West: Tollard Drive								
10	L2	18	0.0	0.141	5.6	LOS A	0.0	0.0
11	T1	257	0.0	0.141	0.0	LOS A	0.0	0.0
Approach		275	0.0	0.141	0.4	NA	0.0	0.0
All Vehicles		499	0.0	0.141	1.5	NA	0.3	2.2

Evening peak hour with additional 100 dwellings with 1% traffic growth on Tollard Drive for 10 years

## MOVEMENT SUMMARY

▽ Site: 101 [Tollard and Atkins - Evening with 100 dwellings plus 1% growth]

New Site  
Site Category: (None)  
Giveaway / Yield (Two-Way)

### Movement Performance - Vehicles

Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m
East: Tollard Drive (To South Arm Rd)								
5	T1	246	0.0	0.127	0.0	LOS A	0.0	0.0
6	R2	76	0.0	0.048	5.9	LOS A	0.2	1.5
Approach		322	0.0	0.127	1.4	NA	0.2	1.5
North: Atkins Street								
7	L2	15	0.0	0.013	5.9	LOS A	0.1	0.4
9	R2	2	0.0	0.013	8.3	LOS A	0.1	0.4
Approach		17	0.0	0.013	6.2	LOS A	0.1	0.4
West: Tollard Drive								
10	L2	13	0.0	0.074	5.5	LOS A	0.0	0.0
11	T1	131	0.0	0.074	0.0	LOS A	0.0	0.0
Approach		143	0.0	0.074	0.5	NA	0.0	0.0
All Vehicles		482	0.0	0.127	1.3	NA	0.2	1.5



Morning peak hour with additional 200 dwellings with 1% traffic growth on Tollard Drive for 10 years

**MOVEMENT SUMMARY****▽ Site: 101 [Tollard and Atkins - Morning with 200 dwellings, plus 1% growth]**

New Site  
 Site Category: (None)  
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
East: Tollard Drive (To South Arm Rd)								
5	T1	124	0.0	0.064	0.0	LOS A	0.0	0.0
6	R2	20	0.0	0.014	6.2	LOS A	0.1	0.4
Approach		144	0.0	0.064	0.9	NA	0.1	0.4
North: Atkins Street								
7	L2	124	0.0	0.145	6.4	LOS A	0.6	4.2
9	R2	37	0.0	0.145	8.3	LOS A	0.6	4.2
Approach		161	0.0	0.145	6.9	LOS A	0.6	4.2
West: Tollard Drive								
10	L2	2	0.0	0.132	5.6	LOS A	0.0	0.0
11	T1	256	0.0	0.132	0.0	LOS A	0.0	0.0
Approach		258	0.0	0.132	0.1	NA	0.0	0.0
All Vehicles		563	0.0	0.145	2.2	NA	0.6	4.2

Evening peak hour with additional 200 dwellings with 1% traffic growth on Tollard Drive for 10 years

**MOVEMENT SUMMARY****▽ Site: 101 [Tollard and Atkins - Evening with 200 dwellings plus 1% growth]**

New Site  
 Site Category: (None)  
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles								
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m
East: Tollard Drive (To South Arm Rd)								
5	T1	246	0.0	0.127	0.0	LOS A	0.0	0.0
6	R2	139	0.0	0.088	5.9	LOS A	0.4	2.9
Approach		385	0.0	0.127	2.1	NA	0.4	2.9
North: Atkins Street								
7	L2	23	0.0	0.019	5.9	LOS A	0.1	0.5
9	R2	2	0.0	0.019	8.9	LOS A	0.1	0.5
Approach		25	0.0	0.019	6.2	LOS A	0.1	0.5
West: Tollard Drive								
10	L2	23	0.0	0.079	5.5	LOS A	0.0	0.0
11	T1	131	0.0	0.079	0.0	LOS A	0.0	0.0
Approach		154	0.0	0.079	0.8	NA	0.0	0.0
All Vehicles		564	0.0	0.127	2.0	NA	0.4	2.9