DEVELOPMENT PROPOSAL FOR PUBLIC COMMENT

The following development proposal has been submitted to the Council and although not designated under the Environmental Planning & Assessment Act, 1979, is notified for public comment:

Portal Application Number	DA No.	Location	Proposal
PAN-611925	44/2026	LOT: 3 DP: 1223485, 79 Prince Street CLARENCE TOWN Applicant: Hunter Homes Pty Ltd Owners: L E & G J Prummel Consent Authority: Dungog Shire Council	Single Storey Dwelling

Details of the above proposal are available for inspection on the NSW Planning Portal website from Monday 23 February 2026**.**

https://www.dungog.nsw.gov.au/Council/Council-Advertisements/Development-Applications

Submissions can be made via the NSW Planning Portal until **Monday 9 March 2026**. If you require assistance making a submission via the Planning Portal, please contact Council.

In accordance with *Section 10.4* of the *Environmental Planning & Assessment Act 1979*, a person who makes a public submission to Council in relation to this application is required to disclose all reportable political donations within two years prior to the submission being made and ending when the application is determined.

If the submission includes an objection to the proposal, the grounds of objection must be given. Council may also be obliged to release your submission as required by the *Government Information (Public Access) Act 2009* and the *Environmental Planning and Assessment Act 1979.*

Further, as stipulated in Council's Public Submissions Policy C1.19, Council will not place any weight on anonymous submissions when determining the respective development application.

DUNGOG SHIRE COUNCIL
EXHIBITED COPY

Commencement Date 23rd February 2026

Closing Date 9th March 2026

WORKING DOCUMENTATION

DWG No.	DRAWING TITLE
WD01	COVER SHEET
WD02	SURVEY
WD03	SITE SETOUT PLAN
WD04	FLOOR PLAN
WD05	ELEVATIONS
WD06	ELEVATIONS
WD07	SECTION A-A
WD08	CONSTRUCTION DETAILS
WD09	STORMWATER PLAN
WD10	ELECTRICAL SERVICES PLAN
WD11	KITCHEN ELEVATIONS
WD12	WET AREA ELEVATIONS
WD13	WET AREA ELEVATIONS
WD14	WET AREA ELEVATIONS
WD15	INTERNAL ELEVATIONS
WD16	INTERNAL ELEVATIONS

Certificate No. #HR-1EZWX8-01

Scan QR code or follow website link for rating details.

Assessor name	Krzysztof Kwiatkowski
Accreditation No.	DMN/24/2214
Property Address	79 Prince Street , Clarence Town, NSW, 2321

http://www.hero-software.com.au/pdf/HR-1EZWX8-01

December 2025	**BSA Reference: 21749**
Building Sustainability Assessments	**Ph: (02) 4962 3439**
enquiries@buildingsustainability.net.au	**www. buildingsustainability.net.au**

Important Note

The following specification was used to achieve the thermal performance values indicated on the Assessor Certificate. If the proposed construction varies to those detailed below than the Assessor and NatHERS certificates will no longer be valid. Assessments assume that the BCA provisions for building sealing & ventilation are complied with at construction.

Be aware that BASIX does not over-ride the BCA and the NSW variations must be complied with.

Thermal Performance Specifications (does not apply to garage)

External Wall Construction	*Added Insulation*
Brick Veneer & Lightweight	Foil + R2.5

Internal Wall Construction	*Added Insulation*
Plasterboard on studs	R2.5 to walls adjacent to garage

Ceiling Construction	*Added Insulation*
Plasterboard	R4.0 to ceilings adjacent to roof space

Roof Construction	*Colour (Solar Absorptance)*	*Added Insulation*
Metal	Medium	Foil + R1.3 blanket

Floor Construction	*Covering*	*Added Insulation*
Concrete (225mm Waffle pod)	As drawn	None

Windows	*Glass and frame type*	*U value*	*SHGC Range*	*Area sq m*
TND-001-001		*6.50*	*0.70 - 0.77*	sliding windows
TND-002-001		*6.54*	*0.63 - 0.69*	awning windows
LBS-002-005		*6.52*	*0.70 - 0.77*	sliding doors

Type A windows are awning windows, bifolds, casements, tilt 'n 'turn' windows, entry doors, french doors
Type B windows are double hung windows, sliding windows & doors, fixed windows, stacker doors, louvres

Skylights	*Glass and frame type*	*U*	*SHGC*	*Area sq m*	*Detail*
n/a					

U and SHGC values are according to AFRC. Alternate products may be used if the U value is lower & the SHGC is within the range specified

Shade elements *(eaves, verandahs, awnings etc)*

All shade elements modelled as drawn

Ceiling Penetrations *(downlights, exhaust fans, flues etc)*

Downlights are modelled as IC rated with insulation fitted over the fixtures

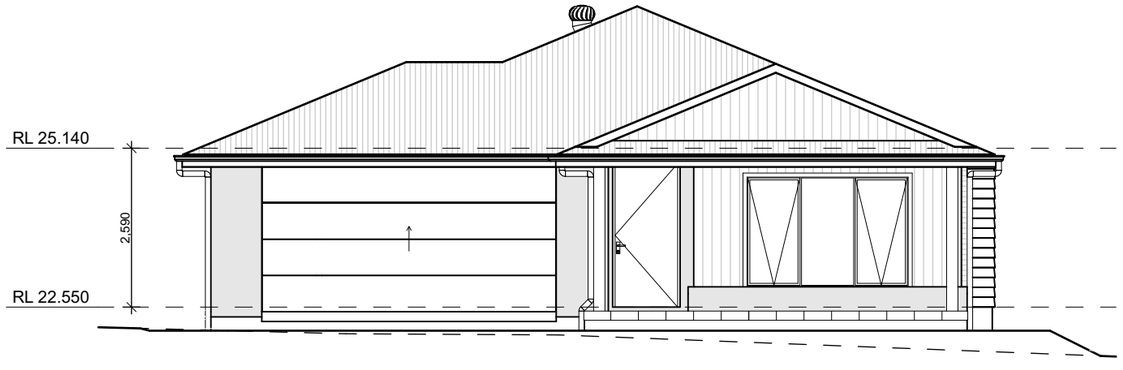
All exhaust fans are modelled as sealed

Additional Notes

Nil

SITE LOCALITY

NOT TO SCALE



WD01 of 16

COVER SHEET

For Job:

25036

On:

14/01/2026

CONTRACT PLANS

For the design of a:

CHELSEA 235 BRICK VENEER RESIDENCE AND CLAD ATTACHED GARAGE WITH SUMMERHILL V2 FACADE

For:

Lauren and Gavin Prummel

At:

3 / - / 1223485
79 PRINCE STREET,
CLARENCE TOWN,
NSW, 2321

- UNLESS NOTED OTHERWISE ALL DIMENSIONS ARE FRAME DIMESNIONS AND DO NOT ACCOUNT FOR FLOOR, WALL OR CEILING COVERINGS UNO.
- ANY PAGE MAY CONTAIN COLOUR CODED INFORMATION AND AS SUCH BLACK AND WHITE COPIES MAY NOT REFLECT INFORMATION AS INTENDED
- ALL DIMENSIONS AND LEVELS ARE TO BE CONFIRMED PRIOR TO COMMENCEMENT OF WORK ONSITE, ANY ERRORS,DISCREPANCIES OR OMMISSIONS ARE TO BE REFERED TO THE BUILDER FOR CLARIFICATION
- ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH RELEVANT CONSULTANT DOCUMENTATION
- EQUIPMENT, FIXTURES AND FITTINGS ARE DIAGRAMATIC ONLY AND SPECIFICATION IS TO BE OBTAINED FROM COLOUR SELECTION DOCUMENTATION
- ALL MATERIALS AND WORKMANSHIP IS TO BE IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS, NCC AND HIA GUIDELINES.
- UNLESS NOTED OTHERWISE THE FOLLOWING STANDARD DIMENSIONS APPLY:
  - ALL SQUARE SETS 2150mm HEAD HEIGHT (FRAME)
  - ALL DOORS ARE 2040mm LEAF HEIGHT
  - ALL WINDOW HEAD HEIGHTS ARE 2130mm
  - WINDOW SILLS WHERE NOTED ARE TO FINISHED SILL HEIGHT
- WATERPROOFING COMPLIANCE IS TO BE IN ACCORDANCE WITH NCC2022 HOUSING PROVISIONS PART 10.2.WHERE FLOOR WASTES ARE PROVIDED THE FLOOR SURFACE SHALL HAVE FALLS BETWEEN 1:50 & 1:80

Wind Classification:	Soil Classification:
N2	**H1**
Mine Subsidence:	Acid Sulphate Soil:
NO	**NO**
Acoustic Requirements:	Mains Power:
NO	**OHNS**
Mains Water Available:	Mains Gas Available:
YES	**LPG**
Mains Sewer Available:	Stormwater Drainage:
YES	**PIT**
<1km to Breaking Surf:	<100m to Salt Water:
NO	**NO**
Rock:	Flood Min RL:
YES @2.3m	**22.550m AHD**

Bushfire Requirements:

BAL 12.5

HUNTER HOMES BUILDING LEGACY.

No.	DETAIL	DATE
1.TD	CONTRACT PLANS	25/11/2025
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3.TD	SALES ESTIMATING MARKUPS	02/12/2025
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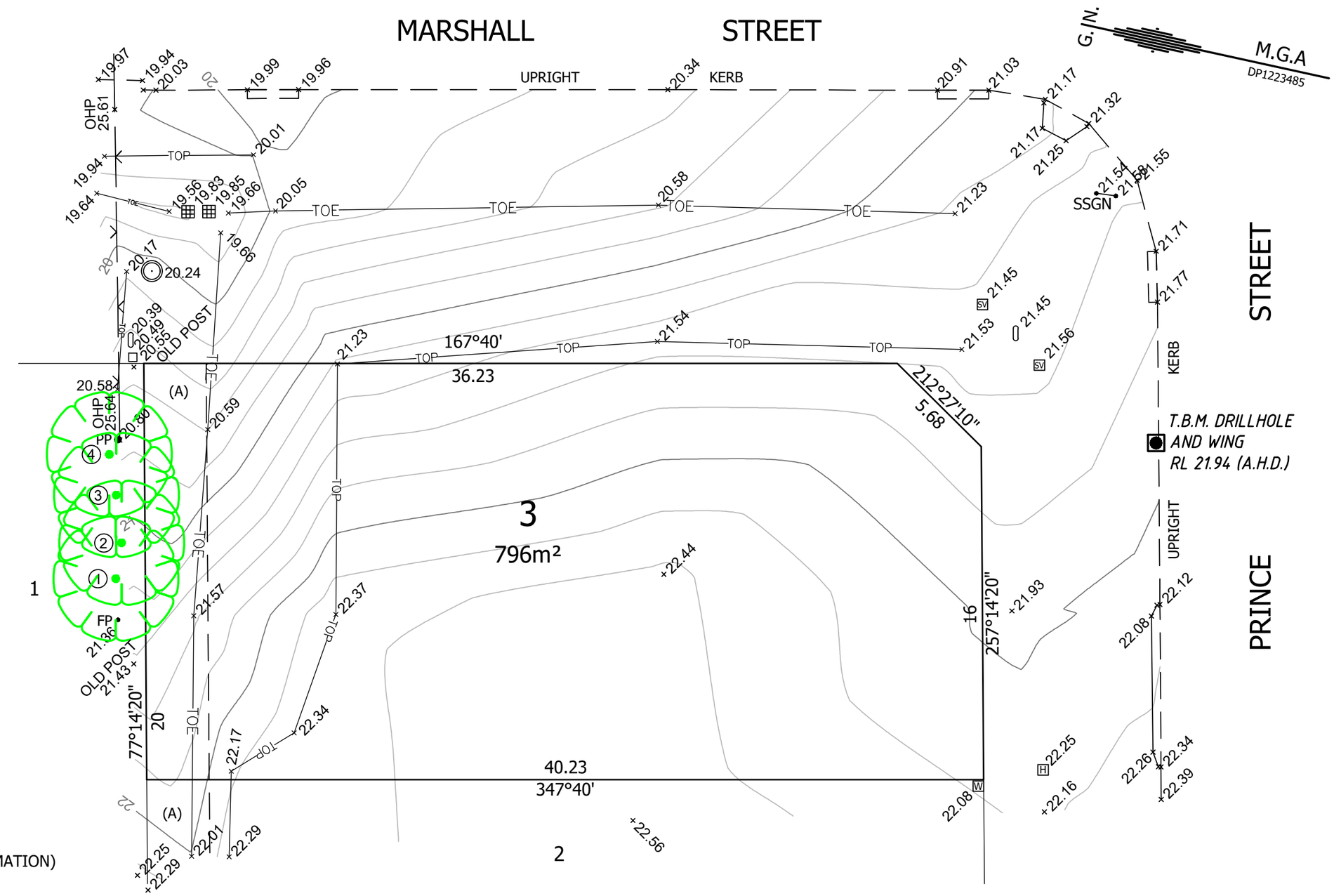
7. HP	CT AMENDMENT	09/12/2025
8. DT	PLAN AMENDMENTS, COUNCIL DOCS	14/01/2026

Hunter Homes Pty Ltd Builders Lic. 216162C
11 Hank Street, Heatherbrae, NSW, 2324
Website: www.hunterhomesnsw.com
Email: info@hunterhomesnsw.com
Phone: (02) 4987 4909 ABN: 76 133 887 064

LEGEND

- TELSTRA PILLAR
- COMMS PIT
- PP● POWER POLE
- SEWER MAINTENANCE HOLE
- FP• FLUSH POINT
- STORMWATER DRAINAGE PIT
- WM WATER METER
- SV WATER STOP VALVE
- H WATER HYDRANT
- SSGN• STREET SIGN
- DRIVE CROSSING
- KERB INLET PIT



SURVEY AREA	
OLD OR NEW	NEW

GAS MAIN	NO *
WATER MAIN	YES *

* AS PER "BEFORE YOU DIG" SEARCH DATED 16/09/225

WITHIN 1 KM. OF BREAKING SALT WATER	NO
WITHIN 100 M. OF SALT WATER	NO

Table of Tree Data			
No.	Trunk	Spread	Height
1	0.4mØ	6mØ	6m
2	0.4mØ	6mØ	6m
3	0.4mØ	6mØ	6m
4	0.4mØ	6mØ	6m

WARNING: PROTECTED SURVEY MARK
(REFER TO R.M.S. GOV.AU FOR INFORMATION)

NOTES:
1. CONTOURS, WHERE SHOWN, HAVE BEEN DERIVED FROM THE SPOT LEVELS TAKEN, AND PROVIDE A GENERAL INDICATION ONLY OF THE GROUND SURFACE.
2. CONTOUR INTERVALS ARE 0.2 METRES.
3. ONLY VISIBLE SERVICES HAVE BEEN LOCATED.
4. IT IS RECOMMENDED THE POSITION AND DEPTHS OF ALL SERVICES BE INVESTIGATED. A "BEFORE YOU DIG" SEARCH SHOULD BE UNDERTAKEN.
5. THIS DOCUMENT IS FOR PLANNING PURPOSES ONLY.
6. ONLY SIGNIFICANT TREES LOCATED AT TIME OF SURVEY.

(A) EASEMENT TO DRAIN WATER 3 WIDE (DP1223485)

CAUTION:
LAND IS AFFECTED BY (SEE CERTIFICATE OF TITLE):-
- EASEMENT TO DRAIN WATER 3 WIDE
THE ABOVE ENCUMBRANCES HAVE NOT BEEN INVESTIGATED AS PART OF THIS SURVEY

0m 1.0 2.0 3.0 4.0 5.0 7.5 10.0 15.0 20.0m
SCALE 1 : 200

PARKER SCANLON REF: 19754CON-A

REV	DETAILS & AMENDMENTS	DATE
A	INITIAL PLAN	19/09/2025

SHEET 1 OF 1 A3

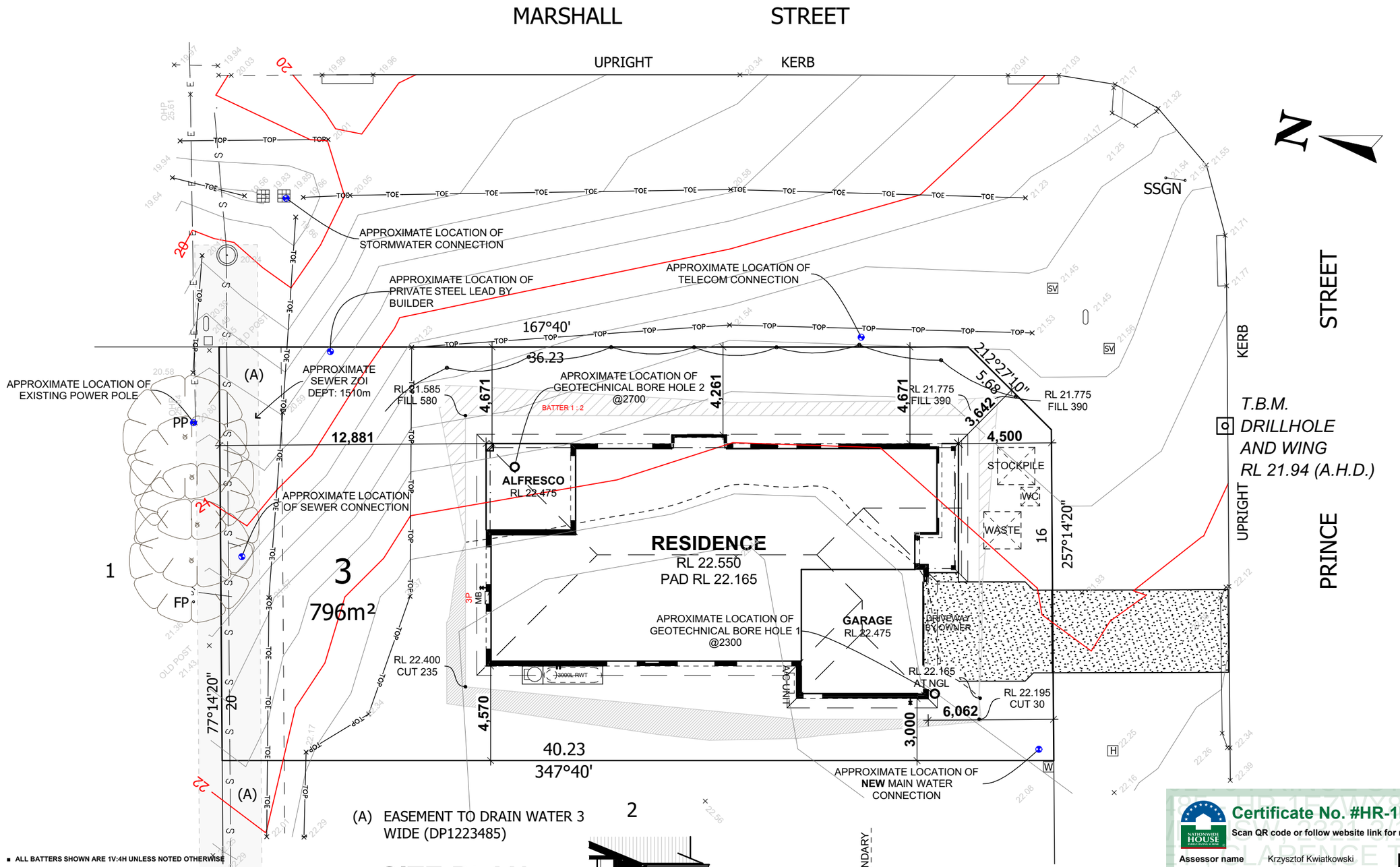
PLAN TITLE: CONTOUR PLAN

ADDRESS: 79 PRINCE STREET, CLARENCE TOWN	CLIENT: HUNTER HOMES
LOT: 3 SECTION: -- DP: 1223485	CLIENT REFERENCE: 25036
DATUM: A.H.D.	PARKER SCANLON CONTACT: JOEL SHEARER SURVEYED/DRAWN/CHECKED: HS/KE/JH
SOURCE: PM53917 RL21.341 BY SCIMS DATED 16/09/2025	

17 William Street HAMILTON,
PO Box 986 HAMILTON, NSW 2303
www.parkerscanlon.com.au
surveys@parkerscanlon.com.au
planning@parkerscanlon.com.au
Phone: 4969 6995
ABN 36124 624 022

PARKER SCANLON

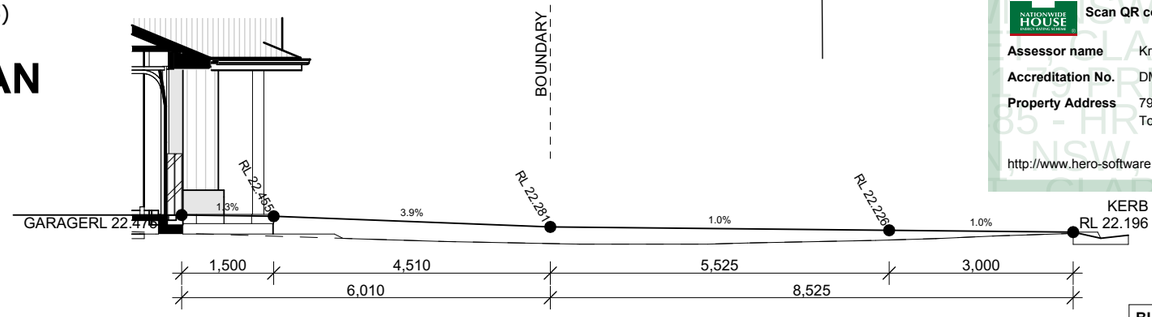
Plotted By: joe holt Plot Date: 24/09/2025 Cad File: A:\19754\19754 - AutoCAD\19754 - Dwgs



(A) EASEMENT TO DRAIN WATER 3 WIDE (DP1223485)

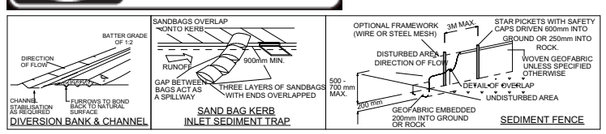
SITE PLAN

SCALE 1:200 @A3



- **ALL BATTERS SHOWN ARE 1V:4H UNLESS NOTED OTHERWISE**
- CONTOURS SHOWN ARE BASED ON COMPUTER INTERPRETATION OF POINT LEVELS, CARE SHOULD BE TAKEN IF EXTRAPOLATING
- SERVICES LOCATED HEREIN ARE APROXIMATE ONLY AND TAKEN FROM INFORMATION AVAILABLE AT THE TIME OF DRAFTING. CONSULT DIAL BEFORE YOU DIG TO ESTABLISH EXACT DETAILS AT THE COMMENCEMENT OF WORKS
- ALL EROSION AND SEDIMENTATION CONTROLS ARE TO BE WITHIN THE ALLOTMENT BOUNDARIES
- ALL EROSION AND SEDIMENTATION CONTROLS ARE TO BE INSPECTED AND MAINTAINED BY SITE SUPERVISOR REGULARLY AND CLEANED UPON REACHING 50% CAPACITY. FOOTWAYS, DRIVEWAYS AND ROADS SHOULD BE TREATED SIMLIARLY
- ALL STORMWATER MUST BE CONNECTED TO LEGAL POINT OF DISCHARGE AS SOON AS PRACTICAL DURING CONSTRUCITON.

DIAL BEFORE YOU DIG www.1100.com.au



Driveway Requirements For Dungog Council

Concrete		Design	
Strength	30Mpa @ 28 Days	**Max Grade**	20% (5% Crossfall)
Thickness	150mm	**Max Kerb Width**	3m Min-6m Max
Reinforcement	SL72	**Max Boundary Width**	3m Min-6m Max
Cover	40mm Bottom Cover	**Footpath Removal**	
Base Course Thickness	Compacted Natural ground	**Footpath Colour**	
Tool Joints		**Kerb Type**	Upright Kerb

DRIVEWAY GRADIENT

SCALE 1:100 @A3

WD03 of 16

SITE SETOUT PLAN

For Job:

25036

On:

14/01/2026

CONTRACT PLANS

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For:

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NSW, 2321

	CUT	FILL	SPLIT
Cubic Meters	45.05	30.55	14.50
Tonne	99.12	67.19	31.90

SITE COVERAGE

HARDSTAND		
DRIVEWAY	29.75	
	29.75 m²	
RESIDENCE		
ALFRESCO	17.06	
GARAGE	38.63	
PORCH	6.64	
RESIDENCE	187.88	
	250.21 m²	
	279.96 m²	
SITE	**796.65**	

BUILDER IS TO PROVIDE A RUBBLE CROSSOVER (KERB TO BOUNDARY) ONLY.

WHERE THE SUPERVISOR DEEMS SITE CONDITIONS REQUIRE, AN ALL WEATHER ACCESS IS TO BE CONSTRUCTED BY THE OWNER BETWEEN THE BOUNDARY AND THE GARAGE OF THE PROPOSED DWELLING.

Certificate No. #HR-1EZWX8-01

Scan QR code or follow website link for rating details.

Assessor name	Krzysztof Kwiatkowski
Accreditation No.	DMN/24/2214
Property Address	79 Prince Street , Clarence Town, NSW, 2321

http://www.hero-software.com.au/pdf/HR-1EZWX8-01

Wind Classification:	Soil Classification:
N2	**H1**
Mine Subsidence:	Acid Sulphate Soil:
NO	**NO**
Acoustic Requirements:	Mains Power:
NO	**OHNS**
Mains Water Available:	Mains Gas Available:
YES	**LPG**
Mains Sewer Available:	Stormwater Drainage:
YES	**PIT**
<1km to Breaking Surf:	<100m to Salt Water:
NO	**NO**
Rock:	Flood Min RL:
YES @2.3m	**22.550m AHD**
Bushfire Requirements:	
BAL 12.5	

- CUT BATTER (1:4 UNLESS NOTED OTHERWISE)
- FILL BATTER (1:4 UNLESS NOTED OTHERWISE)

BUILDER AND OWNER ARE REQUIRED TO COMPLY WITH CSIRO BTF18 IN REGARDS TO REACTIVE SOILS FOR THE LIFE OF THE BUILDING

No.	DETAIL	DATE
1.TD	CONTRACT PLANS	25/11/2025
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HUNTER HOMES BUILDING LEGACY.

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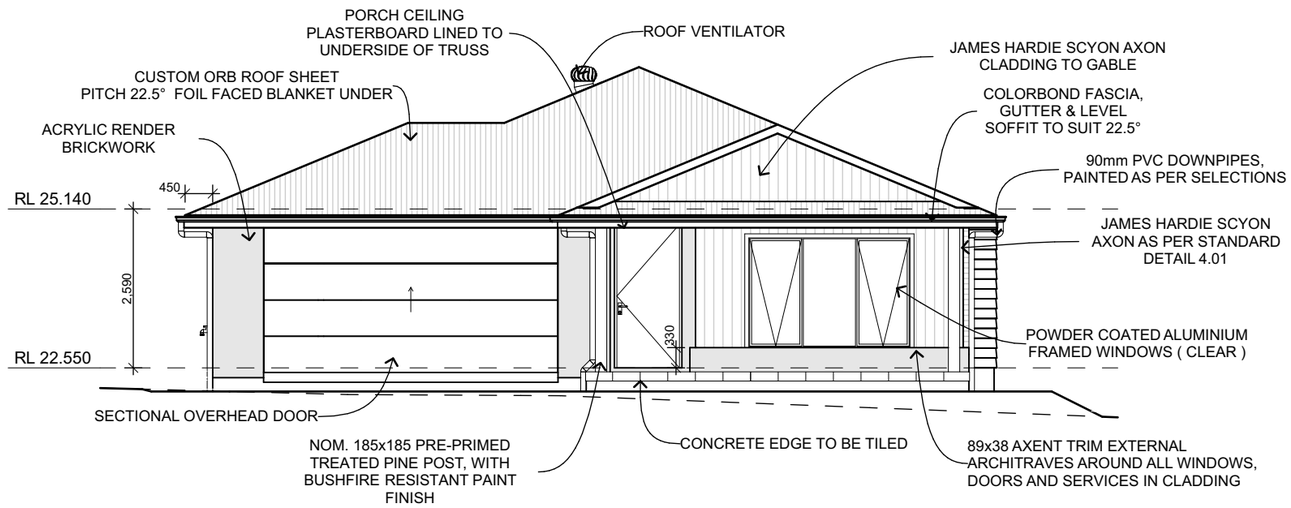
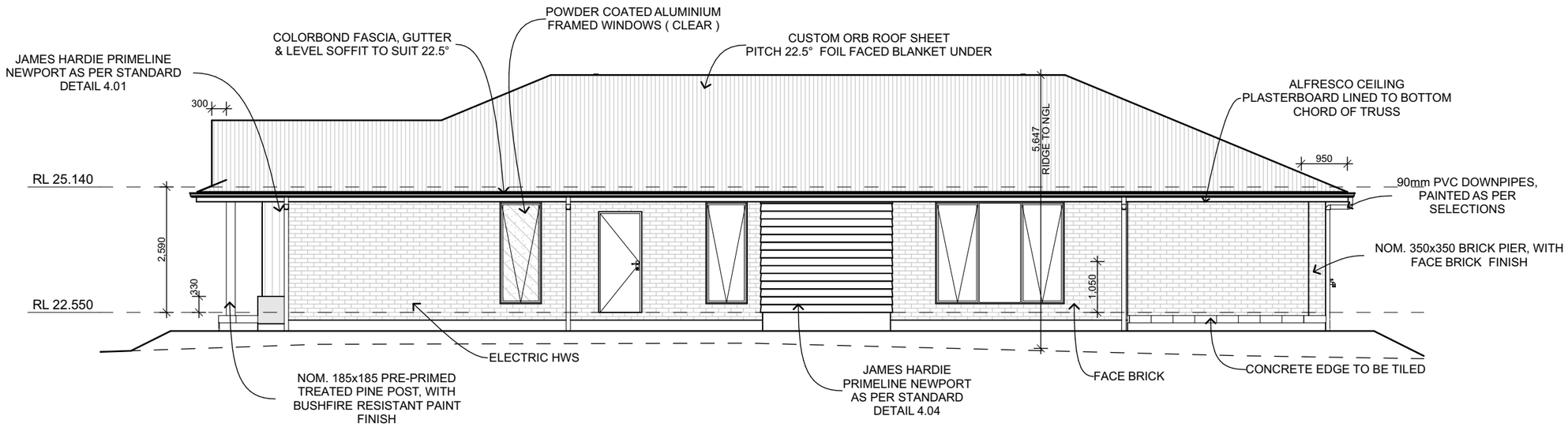


FRONT ELEVATION

SCALE 1:100 @A3



RIGHT ELEVATION

SCALE 1:100 @A3

ELEVATIONS

For Job:

25036

On:

14/01/2026

CONTRACT PLANS

For the design of a:

CHELSEA 235 BRICK VENEER RESIDENCE AND CLAD ATTACHED GARAGE WITH SUMMERHILL V2 FACADE

For:

Lauren and Gavin Prummel

At:

3 / - / 1223485
79 PRINCE STREET,
CLARENCE TOWN,
NSW, 2321

NOTE: HEBEL SILLS ARE TO BE SNAP SILLS IN ALL CASES U.N.O

NOTE: BRICK SILLS ARE TO BE PROVIDED TO WINDOWS AS PER BELOW, U.N.O;

- ALL WINDOWS FACING OUTDOOR LIVING AREAS (ALFRESCO) SNAP HEADER

- SPLASHBACK WINDOWS SNAP HEADER

- ALL OTHER CASES RAKED SILL

Wind Classification: **N2**
Soil Classification: **H1**
Mine Subsidence: **NO**
Acid Sulphate Soil: **NO**
Acoustic Requirements: **NO**
Mains Power: **OHNS**
Mains Water Available: **YES**
Mains Gas Available: **LPG**
Mains Sewer Available: **YES**
Stormwater Drainage: **PIT**
<1km to Breaking Surf: **NO**
<100m to Salt Water: **NO**
Rock: **YES @2.3m**
Flood Min RL: **22.550m AHD**
Bushfire Requirements: **BAL 12.5**

Certificate No. #HR-1EZWX8-01

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Accreditation No.	DMN/24/2214
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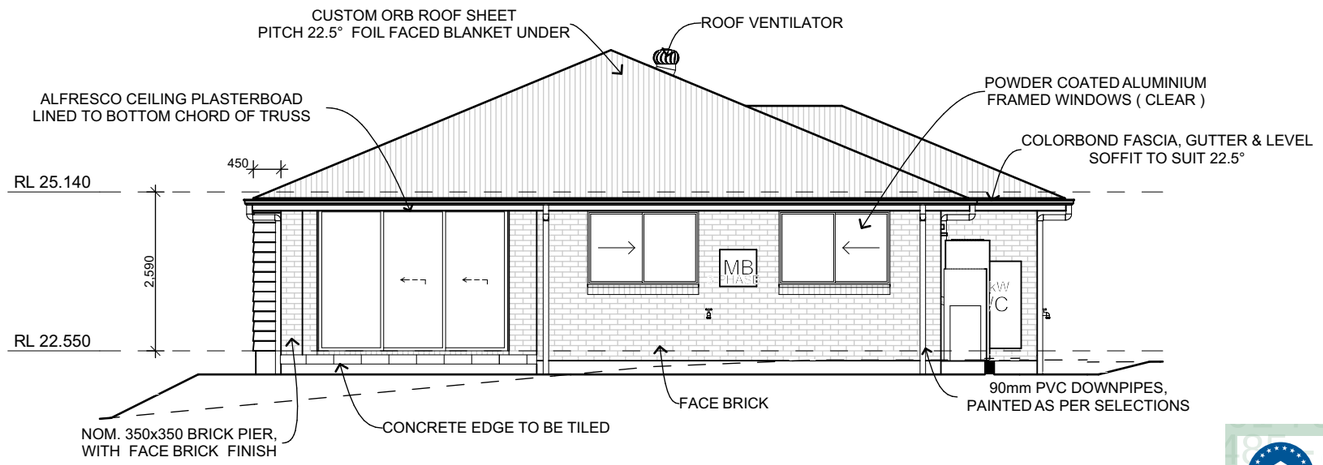
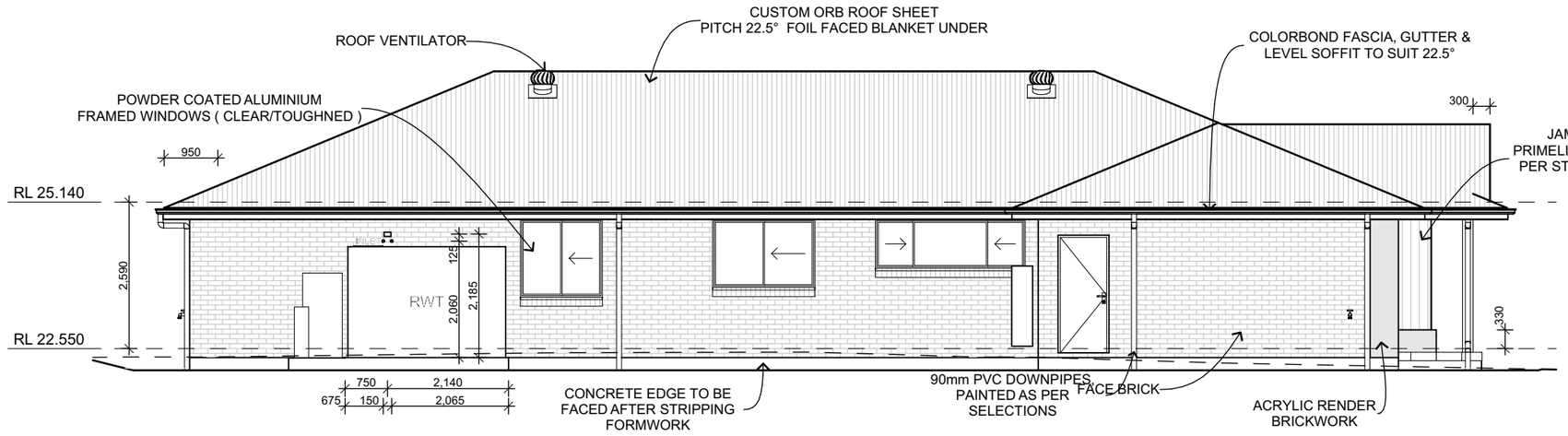


REAR ELEVATION

SCALE 1:100 @A3



LEFT ELEVATION

SCALE 1:100 @A3

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Rock:	Flood Min RL:
YES @2.3m	**22.550m AHD**

Bushfire Requirements:

BAL 12.5

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For Job:

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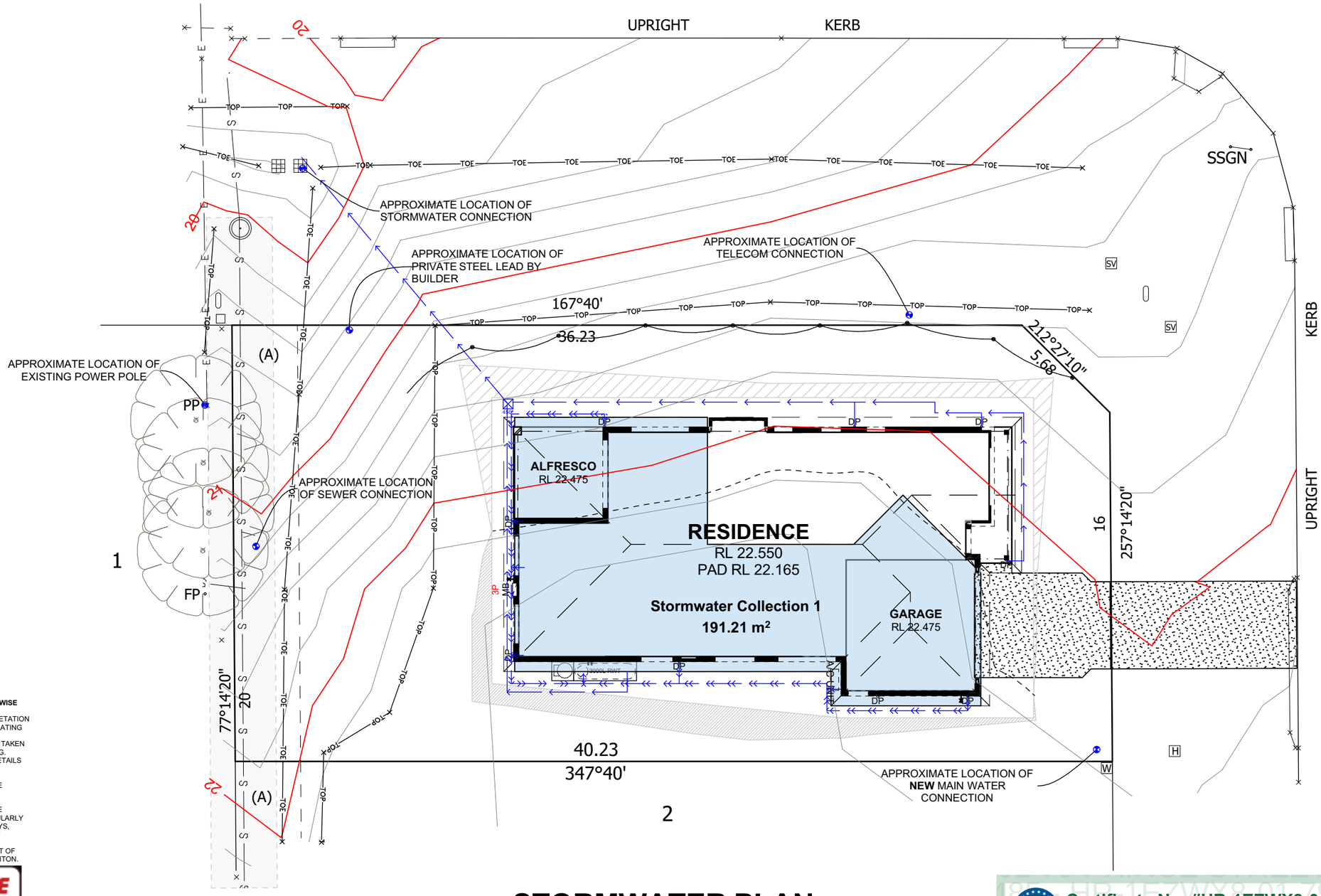

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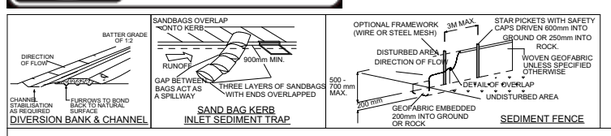


SEDIMENT CONTROL BARRIER TO ATTACHED DETAILS

Ø100mm Ø150mm — CHARGED DRAINAGE LINE FROM DOWNPIPES TO RAINWATER TANK (REQUIRED)

Ø100mm Ø150mm — UNCHARGED DRAINAGE LINE AND PITS FROM RAINWATER TANK OVERFLOW TO LEGAL POINT OF DISCHARGE (REQUIRED)

UNCHARGED PVC DRAINAGE LINE AND PITS FOR SURFACE WATER COLLECTION

SLOTTED AND SOCKED "AGG LINE" FOR RETAINING WALLS AND SURFACE WATER COLLECTION

STORMWATER PLAN

SCALE 1:200 @A3

ROOF DETAILS

Roof Type	Pitch	Flat Area
CUSTOM ORB ROOF SHEET		
Pitched Roof, Flat Ceiling	22.5°	283.38
		283.38 m²

Certificate No. #HR-1EZWX8-01

Scan QR code or follow website link for rating details.

Assessor name Krzysztof Kwiatkowski
Accreditation No. DMN/24/2214
Property Address 79 Prince Street , Clarence Town, NSW, 2321

http://www.hero-software.com.au/pdf/HR-1EZWX8-01

BUILDER AND OWNER ARE REQUIRED TO COMPLY WITH CSIRO BTF18 IN REGARDS TO REACTIVE SOILS FOR THE LIFE OF THE BUILDING

No.	DETAIL	DATE
1.TD	CONTRACT PLANS	25/11/2025
2.TD	DRAFTING MARKUPS	27/11/2025
3.TD	SALES ESTIMATING MARKUPS	02/12/2025
4.TD	ESTIMATING MARKUPS EXTRA	04/12/2025
5. HP	WINDOW HEAD HIGHT TO 2280	08/12/2025
6. CM	FRONT DOOR 2400, COFFERED CEILING TO PORCH	09/12/2025
7. HP	CT AMENDMENT	09/12/2025
8. DT	PLAN AMENDMENTS, COUNCIL DOCS	14/01/2026

WD09 of 16

STORMWATER PLAN

For Job:

25036

On:

14/01/2026
CONTRACT PLANS

For the design of a:
CHELSEA 235 BRICK VENEER RESIDENCE AND CLAD ATTACHED GARAGE WITH SUMMERHILL V2 FACADE
For:
Lauren and Gavin Prummel
At:
3 / - / 1223485
79 PRINCE STREET,
CLARENCE TOWN,
NSW, 2321

Wind Classification:	Soil Classification:
N2	H1
Mine Subsidence:	Acid Sulphate Soil:
NO	NO
Acoustic Requirements:	Mains Power:
NO	OHNS
Mains Water Available:	Mains Gas Available:
YES	LPG
Mains Sewer Available:	Stormwater Drainage:
YES	PIT
<1km to Breaking Surf:	<100m to Salt Water:
NO	NO
Rock:	Flood Min RL:
YES @2.3m	22.550m AHD
Bushfire Requirements:	
BAL 12.5	

HUNTER HOMES BUILDING LEGACY.

Hunter Homes Pty Ltd Builders Lic. 216162C
11 Hank Street, Heatherbrae, NSW, 2324
Website: www.hunterhomesnsw.com
Email: info@hunterhomesnsw.com
Phone: (02) 4987 4909 ABN: 76 133 887 064

BUILDING PLAN ASSESSMENT

Clear of Hunter Water Assets

Reference No: 187997

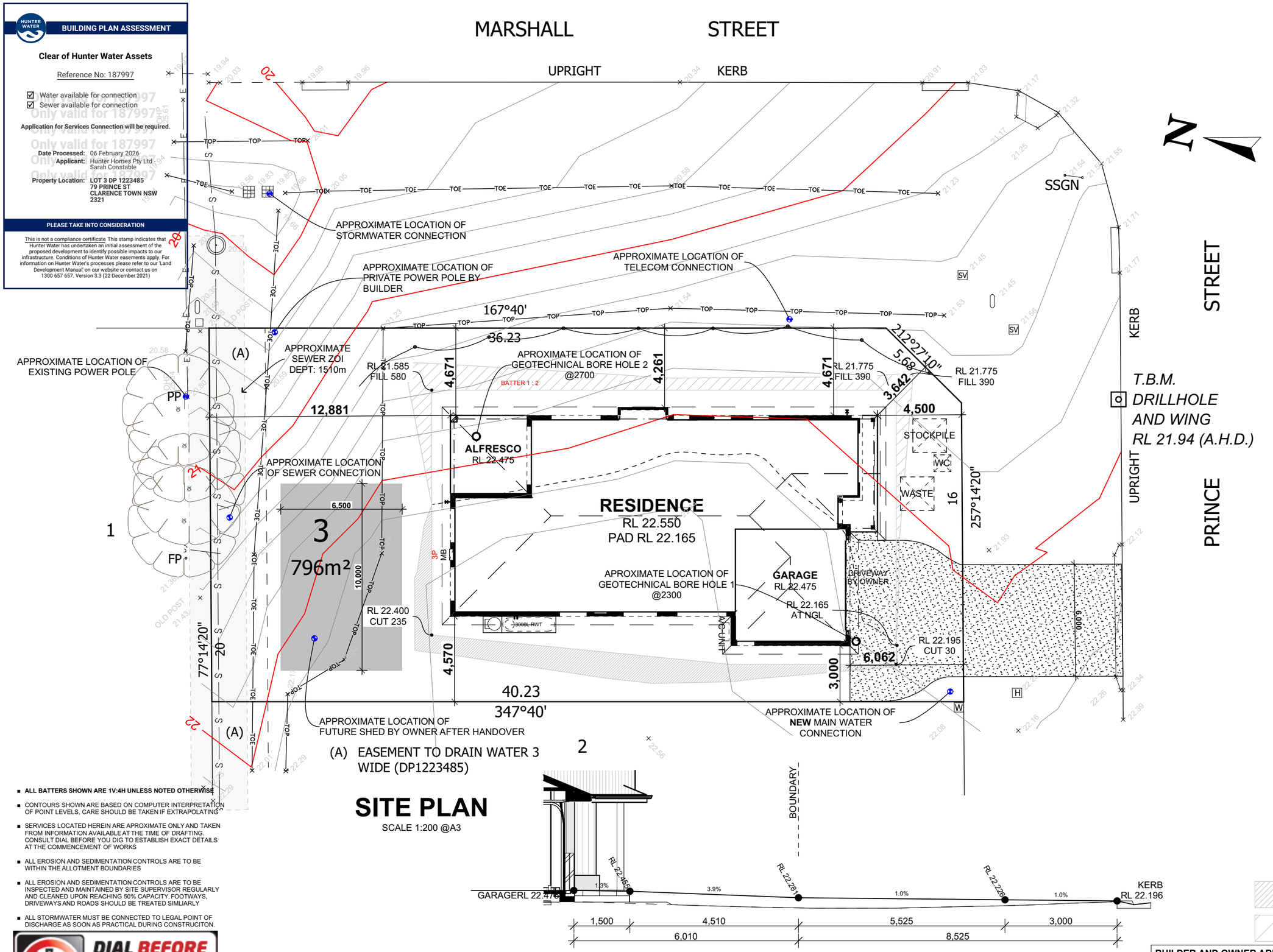
☑ Water available for connection
☑ Sewer available for connection

Application for Services Connection will be required.

Date Processed: 06 February 2026
Applicant: Hunter Homes Pty Ltd - Sarah Constable
Property Location: LOT 3 DP 1223485 79 PRINCE ST CLARENCE TOWN NSW 2321

PLEASE TAKE INTO CONSIDERATION

This is not a compliance certificate. This stamp indicates that Hunter Water has undertaken an initial assessment of the proposed development to identify possible impacts to our infrastructure. Conditions of Hunter Water easements apply. For information on Hunter Water's processes please refer to our 'Land Development Manual' on our website or contact us on 1300 657 657. Version 3.3 (22 December 2021)



SITE PLAN

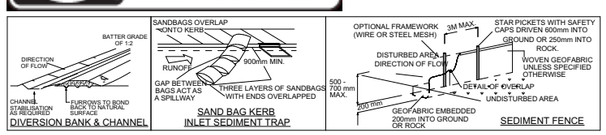
SCALE 1:200 @A3

DRIVEWAY GRADIENT

SCALE 1:100 @A3

- **ALL BATTERS SHOWN ARE 1V:4H UNLESS NOTED OTHERWISE**
- CONTOURS SHOWN ARE BASED ON COMPUTER INTERPRETATION OF POINT LEVELS, CARE SHOULD BE TAKEN IF EXTRAPOLATING
- SERVICES LOCATED HEREIN ARE APROXIMATE ONLY AND TAKEN FROM INFORMATION AVAILABLE AT THE TIME OF DRAFTING. CONSULT DIAL BEFORE YOU DIG TO ESTABLISH EXACT DETAILS AT THE COMMENCEMENT OF WORKS
- ALL EROSION AND SEDIMENTATION CONTROLS ARE TO BE WITHIN THE ALLOTMENT BOUNDARIES
- ALL EROSION AND SEDIMENTATION CONTROLS ARE TO BE INSPECTED AND MAINTAINED BY SITE SUPERVISOR REGULARLY AND CLEANED UPON REACHING 50% CAPACITY. FOOTWAYS, DRIVEWAYS AND ROADS SHOULD BE TREATED SIMLIARLY
- ALL STORMWATER MUST BE CONNECTED TO LEGAL POINT OF DISCHARGE AS SOON AS PRACTICAL DURING CONSTRUCITON.

DIAL BEFORE YOU DIG www.1100.com.au



Driveway Requirements For Dungog Council

Concrete		Design	
Strength	30Mpa @ 28 Days	**Max Grade**	20% (5% Crossfall)
Thickness	150mm	**Max Kerb Width**	3m Min-6m Max
Reinforcement	SL72	**Max Boundary Width**	3m Min-6m Max
Cover	40mm Bottom Cover	**Footpath Removal**	
Base Course Thickness	Compacted Natural ground	**Footpath Colour**	
Tool Joints		**Kerb Type**	Upright Kerb

WD03 of 17

SITE SETOUT PLAN

For Job:

25036

On:

22/01/2026

CONTRACT PLANS

For the design of a:
CHELSEA 235 BRICK VENEER RESIDENCE AND CLAD ATTACHED GARAGE WITH SUMMERHILL V2 FACADE

For:
Lauren and Gavin Prummel

At:
3 / - / 1223485
79 PRINCE STREET,
CLARENCE TOWN,
NSW, 2321

	CUT	FILL	SPLIT
Cubic Meters	45.05	30.55	14.50
Tonne	99.12	67.19	31.90

SITE COVERAGE

RESIDENCE	
ALFRESCO	17.06
GARAGE	38.63
PORCH	6.64
RESIDENCE	187.88
	250.21 m²
SITE	**796.65**

BUILDER IS TO PROVIDE A RUBBLE CROSSOVER (KERB TO BOUNDARY) ONLY.

WHERE THE SUPERVISOR DEEMS SITE CONDITIONS REQUIRE, AN ALL WEATHER ACCESS IS TO BE CONSTRUCTED BY THE OWNER BETWEEN THE BOUNDARY AND THE GARAGE OF THE PROPOSED DWELLING.

Wind Classification:	Soil Classification:
N2	**H1**
Mine Subsidence:	Acid Sulphate Soil:
NO	**NO**
Acoustic Requirements:	Mains Power:
NO	**OHNS**
Mains Water Available:	Mains Gas Available:
YES	**LPG**
Mains Sewer Available:	Stormwater Drainage:
YES	**PIT**
<1km to Breaking Surf:	<100m to Salt Water:
NO	**NO**
Rock:	Flood Min RL:
YES @2.3m	**22.550m AHD**

Bushfire Requirements:
BAL 12.5

- CUT BATTER (1:4 UNLESS NOTED OTHERWISE)
- FILL BATTER (1:4 UNLESS NOTED OTHERWISE)

BUILDER AND OWNER ARE REQUIRED TO COMPLY WITH CSIRO BTF18 IN REGARDS TO REACTIVE SOILS FOR THE LIFE OF THE BUILDING

No.	DETAIL	DATE
1.TD	CONTRACT PLANS	25/11/2025
2.TD	DRAFTING MARKUPS	27/11/2025
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7. HP	CT AMENDMENT	09/12/2025
8. DT	PLAN AMENDMENTS, COUNCIL DOCS	14/01/2026
9. DT	ADDTIONAL AMENDMENTS FROM CLIENT MARKUPS	22/01/2026

HUNTER HOMES BUILDING LEGACY.

Hunter Homes Pty Ltd Builders Lic. 216162C
11 Hank Street, Heatherbrae, NSW, 2324
Website: www.hunterhomesnsw.com
Email: info@hunterhomesnsw.com
Phone: (02) 4987 4909 ABN: 76 133 887 064

HUNTER WATER CORPORATION

A.B.N. 46 228 513 446

Developer Plan

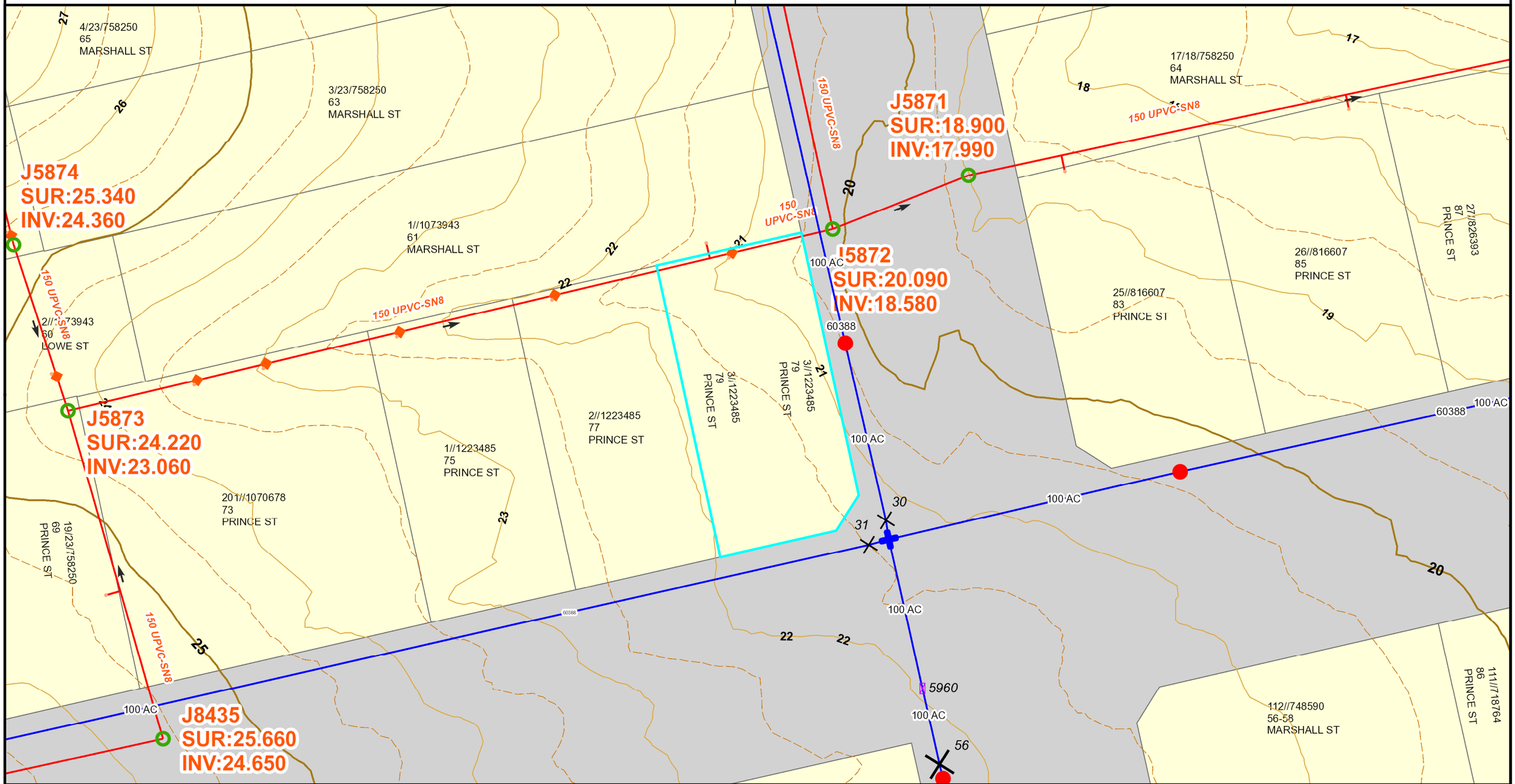
Enquiries: 1300 657 657

N
W E
S

RATEABLE PREMISE NO.: 5971393891

LOT/SECTION/DP: Lot 3 DP 1223485

PROPERTY ADDRESS: 79 PRINCE ST, CLARENCE TOWN NSW 2321



Date: 2/02/2026 Scale: at A3 1:500	CADASTRAL DATA © Department Finance, Services & Innovation [Nov 2017]. Modified [02/02/2026] AERIAL DATA © NearMap CONTOUR DATA © AAMHatch © Department of Planning	SEWER/WATER/RECYCLED WATER/ELECTRICAL UTILITY DATA © HUNTER WATER CORPORATION	HUNTER WATER ASSETS POSITION ARE APPROXIMATE ONLY. SUBJECT PROPERTY BOLDED. ALL MEASUREMENTS ARE METRIC.	IMPORTANT: ANY INFORMATION ON THIS PLAN MAY NOT BE UP TO DATE AND THE CORPORATION ACCEPTS NO RESPONSIBILITY FOR ITS ACCURACY.

BASIX™ Certificate

Building Sustainability Index
www.planningportal.nsw.gov.au/development-and-assessment/basix

Single Dwelling

Certificate number: 1828928S

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 10/09/2020 published by the Department. This document is available at www.planningportal.nsw.gov.au/definitions

Secretary
Date of issue: Wednesday, 14 January 2026
To be valid, this certificate must be submitted with a development application or lodged with a complying development certificate application within 3 months of the date of issue.

When submitting this BASIX certificate with a development application or complying development certificate application, it must be accompanied by NatHERS certificate HR-1EZWX8-01.

Project summary	
Project name	25036 - Prummel
Street address	79 PRINCE Street CLARENCE TOWN 2321
Local Government Area	Dungog Shire Council
Plan type and plan number	Deposited Plan DP1223485
Lot no.	3
Section no.	-
Project type	dwelling house (detached)
No. of bedrooms	4

Project score		
Water	✔ 49	Target 40
Thermal Performance	✔ Pass	Target Pass
Energy	✔ 70	Target 70
Materials	✔ -100	Target n/a

Certificate Prepared by
Name / Company Name: HUNTER HOMES PTY LTD
ABN (if applicable): 76133887064

Description of project

Project address	
Project name	25036 - Prummel
Street address	79 PRINCE Street CLARENCE TOWN 2321
Local Government Area	Dungog Shire Council
Plan type and plan number	Deposited Plan DP1223485
Lot no.	3
Section no.	-

Project type	
Project type	dwelling house (detached)
No. of bedrooms	4

Site details	
Site area (m²)	797
Roof area (m²)	283
Conditioned floor area (m²)	167.36
Unconditioned floor area (m²)	13.44
Total area of garden and lawn (m²)	150
Roof area of the existing dwelling (m²)	0

Assessor details and thermal loads	
NatHERS assessor number	DMN/24/2214
NatHERS certificate number	HR-1EZWX8-01
Climate zone	28
Area adjusted cooling load (MJ/m².year)	18
Area adjusted heating load (MJ/m².year)	37

Project score			
Water	✔	49	Target 40
Thermal Performance	✔	Pass	Target Pass
Energy	✔	70	Target 70
Materials	✔	-100	Target n/a

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

Water Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Fixtures			
The applicant must install showerheads with a minimum rating of 4 star (> 6 but <= 7.5 L/min plus spray force and/or coverage tests) in all showers in the development.		✔	✔
The applicant must install a toilet flushing system with a minimum rating of 5 star in each toilet in the development.		✔	✔
The applicant must install taps with a minimum rating of 5 star in the kitchen in the development.		✔	
The applicant must install basin taps with a minimum rating of 5 star in each bathroom in the development.		✔	
Alternative water			
Rainwater tank			
The applicant must install a rainwater tank of at least 3000 litres on the site. This rainwater tank must meet, and be installed in accordance with, the requirements of all applicable regulatory authorities.	✔	✔	✔
The applicant must configure the rainwater tank to collect rain runoff from at least 191.21 square metres of the roof area of the development (excluding the area of the roof which drains to any stormwater tank or private dam).		✔	✔
The applicant must connect the rainwater tank to:			
• all toilets in the development		✔	✔
• the cold water tap that supplies each clothes washer in the development		✔	✔
• at least one outdoor tap in the development (Note: NSW Health does not recommend that rainwater be used for human consumption in areas with potable water supply.)		✔	✔

Thermal Performance and Materials commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Simulation Method			
Assessor details and thermal loads			
The applicant must attach the certificate referred to under "Assessor Details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for an occupation certificate for the proposed development.			
The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX certificate, including the Cooling and Heating loads shown on the front page of this certificate and the "Construction" and "Glazing" tables below.			
The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Assessor Certificate requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor to certify that this is the case. The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.	✔	✔	✔
The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✔	✔
The applicant must show on the plans accompanying the development application for the proposed development, the locations of ceiling fans set out in the Assessor Certificate. The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), the locations of ceiling fans set out in the Assessor Certificate.	✔	✔	✔

Thermal Performance and Materials commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Construction			
The applicant must construct the floors, walls, roofs, ceilings and glazing of the dwelling in accordance with the specifications listed in the tables below.	✔	✔	✔
The applicant must show through receipts that the materials purchased for construction are consistent with the specifications listed in the tables below.			✔

Construction	Area - m²	Insulation
floor - concrete slab on ground, waffle pod slab.	250.21	not specified
garage floor - concrete slab on ground, waffle pod slab.	38.63	not specified
external wall: brick veneer; frame: timber - H2 treated softwood.	124.22	fibreglass batts or roll+ foil/sarking
external wall: framed (fibre cement sheet or boards); frame: timber - H2 treated softwood.	19.31	fibreglass batts or roll+ foil/sarking
external garage wall: brick veneer; frame: timber - H2 treated softwood.	25.69	fibreglass batts or roll+ foil/sarking
internal wall: plasterboard; frame: timber - H2 treated softwood.	225.95	not specified
ceiling and roof - flat ceiling / pitched roof, framed - metal roof, timber - H2 treated softwood.	283.38	ceiling: fibreglass batts or roll; roof: foil backed blanket.

Thermal Performance and Materials commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Glazing			
The applicant must install windows, glazed doors and skylights as described in the table below, in accordance with the specifications listed in the table.	✔	✔	✔

Frames	Maximum area - m2
aluminium	32.2
timber	6.34
uPVC	0
steel	0
composite	0

Glazing	Maximum area - m2
single	38.54
double	0
triple	0

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Hot water			
The applicant must install the following hot water system in the development, or a system with a higher energy rating: electric heat pump with a performance of 15 to 20 STCs or better.	✔	✔	✔
Cooling system			
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 living area: 1-phase airconditioning - ducted; Energy rating: EER 3.0 - 3.5		✔	✔
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 bedroom: 1-phase airconditioning - ducted; Energy rating: EER 3.0 - 3.5		✔	✔
Heating system			
The applicant must install the following heating system, or a system with a higher energy rating, in at least 1 living area: 1-phase airconditioning - ducted; Energy rating: EER 3.5 - 4.0		✔	✔
The applicant must install the following heating system, or a system with a higher energy rating, in at least 1 bedroom: 1-phase airconditioning - ducted; Energy rating: EER 3.5 - 4.0		✔	✔
Ventilation			
The applicant must install the following exhaust systems in the development:			
At least 1 Bathroom: individual fan, ducted to façade or roof; Operation control: manual switch on/off		✔	✔
Kitchen: individual fan, open to façade; Operation control: manual switch on/off		✔	✔
Laundry: natural ventilation only, or no laundry; Operation control: n/a		✔	✔
Artificial lighting			
The applicant must ensure that a minimum of 80% of light fixtures are fitted with fluorescent, compact fluorescent, or light-emitting-diode (LED) lamps.		✔	✔
Natural lighting			
The applicant must install a window and/or skylight in 2 bathroom(s)/toilet(s) in the development for natural lighting.	✔	✔	✔

Legend
In these commitments, "applicant" means the person carrying out the development.
Commitments identified with a ✔ in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
Commitments identified with a ✔ in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
Commitments identified with a ✔ in the "Certifier check" column must be certified by a certifying authority as having been fulfilled, before a final occupation certificate (either interim or final) for the development may be issued.

BushFire Consultant Pty. Ltd.
FPA Bronze Corporate Member
34 Regent Street
New Lambton
NSW 2305
M. 0402 027 376
W. bushfireconsultant.com.au
E. baz@bushfireconsultant.com.au

BUSHFIRE THREAT ASSESSMENT REPORT

FOR

Lauren Prummel
79 Prince Street
Clarence Town
NSW 2321

Job #1414 V1.0 30 Sep 2025

BPAD Bushfire Planning & Design Accredited Practitioner Level 2
BPAD 19741

BFC

Disclaimer

The report is prepared in accordance with current accepted practice as described in Australian Standard AS 3959 - 2018 and amendments thereto "Construction of Buildings in Bushfire Prone Areas" and N.S.W. Rural Fire Services guide "Planning for Bushfire Protection 2019" and amendments thereto and other relevant regulations.

I certify the proposed development can conform to the specifications and requirements of Planning for Bushfire Protection 2019 in accordance with Section 4.14(1)(b) of the Environmental Planning and Assessment Act 1979.

Due to the unpredictable nature of bushfires and of weather conditions at the time of a bushfire this report cannot be taken as a guarantee that the recommended bushfire mitigation measures will protect the property and life from damage in every possible bushfire condition or circumstance. Ultimately the responsibility is on the owner to accept the risks associated with development in or near a bushfire prone area.

This report is for the use only of Lauren Prummel and Hunter Homes Pty Ltd for whom it was prepared and their financial or business associates with whom they may share the report in its entirety and for no other purpose.

No responsibility is accepted for any third party who may use or rely on the whole or any part of the content of this report.

Limitation of Liability. Except for Bushfire Consultant Pty Ltd confidentiality and indemnity obligations, respectively, and except for actions or claims arising from gross negligence or intentional or willful misconduct, Bushfire Consultant Pty Ltd's total liability shall not exceed the value of the contract.

Neither the whole nor any part of this report nor any reference thereto maybe included in part or full in any way without my written approval for the form and context in which it may appear.

Barry Cleary AFSM 30/9/2025

BPAD 19741

Post Grad Dip. Design for Bushfire Prone Areas. UWS

Certificate IV Public Safety - Firefighting Supervision

BushFire Consultant Pty. Ltd.

FPA Bronze Corporate Member

34 Regent Street

New Lambton

NSW 2305

M. 0402 027 376

W. bushfireconsultant.com.au

E. bushfireconsultant@gmail.com

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

BPAD 19741

Document History		
Version	Date	Comment
V1.0	30/9/2025	Initial issue

SUMMARY OF CONTENTS

LIST OF ABBREVIATIONS

DSC	**DUNGOG SHIRE COUNCIL**
APZ	**ASSET PROTECTION ZONE**
AS 3959:2018	**CONSTRUCTION OF BUILDINGS IN BUSHFIRE PRONE AREAS**
BAL	**BUSHFIRE ATTACK LEVEL (MEASURED AS kW/m²)**
BCA	**BUILDING CODE OF AUSTRALIA**
BFRMP	**BUSHFIRE RISK MANAGEMENT PLAN**
BFSA	**BUSHFIRE SAFETY AUTHORITY**
DA	**DEVELOPMENT APPLICATION**
DCP	**DEVELOPMENT CONTROL PLAN**
GFDI	**GRASSLAND FIRE DANGER INDEX**
EP&A ACT	**ENVIRONMENTAL PLANNING & ASSESSMENT ACT**
ESD	**ECOLOGICALLY SUSTAINABLE DEVELOPMENT**
FFDI	**FOREST FIRE DANGER INDEX** (ALSO FDI)
FRL	**FIRE RESISTANCE LEVEL**
IPA	**INNER PROTECTION AREA**
kW/m²	**KILOWATTS PER SQR. METRE (being a measure of radiant heat)**
LEP	**LOCAL ENVIRONMENT PLAN**
NASH	**NATIONAL ASSOCIATION OF STEEL HOUSING**
NCC	**NATIONAL CONSTRUCTION CODE**
OPA	**OUTER PROTECTION AREA**
PBP 2019	**PLANNING FOR BUSHFIRE PROTECTION 2019**
POM	**PLAN OF MANAGEMENT**
RFS	**RURAL FIRE SERVICE**
F+RNSW	**FIRE & RESCUE NEW SOUTH WALES**
RHF	**RADIANT HEAT FLUX**
ROS	**RATE OF SPREAD**
SEPP	**STATE ENVIRONMENTAL PLANNING POLICY**
SWS	**STATIC WATER SUPPLY**
=	**EQUAL TO**
<	**LESS THAN**
>	**GREATER THAN**
≤	**LESS THAN OR EQUAL TO**
≥	**GREATER THAN OR EQUAL TO**

EXECUTIVE SUMMARY

In New South Wales local councils are bound by the Environmental Planning and Assessment Act Sect 4.14 to ensure that all habitable developments in bushfire prone areas conform to 'Planning for Bushfire Protection' (NSW RFS, 2019). To determine the required levels of construction, this assessment adheres to the methodology and procedures outlined in Appendix 1 'Site Assessment Methodology' in Planning for Bushfire Protection (RFS, 2019) (now referred to in this report as PBP 2019).

Accordingly this report has been compiled by Mr. Barry Cleary AFSM, BPAD 19741. It will employ the empirical method of assessment for the development and its relationship with the bushland to the Northwest using the methodology of PBP 2019 Appendix 1 and assess the development and its fabric in the context of the requirements of PBP 2019 and AS 3959:2018.

The assessment, carried out using the methodology, as outlined in Appendix 1 PBP 2019, concludes BAL-12.5 is the expected maximum attack level. The proposal is to construct a new Class 1A dwelling, at the address known as 79 Prince Street, Clarence Town NSW 2321. The calculated attack level for the Northwest exposure is BAL-12.5. Accordingly, the choice of materials and construction methods for all elevations shall be compliant with AS 3959:2018 Section-5, BAL-12.5. This is in accordance with AS 3959:2018 clause 3.5 of the standard, 'Reduction in Construction Requirements Due To Shielding'.

Bushfire protection measures, used in combination, will minimise the risk of bushfire attack and provide protection for emergency services personnel, residents and others assisting with firefighting activities. Accordingly recommendations have been put forward to mitigate the threat posed by possible mechanisms of attack that can be expected in the event of a fire in this bushland with certain wind conditions.

Section 6 of this report contains a detailed list of these bushfire protection measures, as well as recommendations and the reasons for them.

"Although this Standard is designed to improve the performance of buildings when subjected to bushfire attack in designated bushfire-prone areas there can be no guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions".

Extract from AS 3959 2018 Construction of buildings in bushfire-prone areas P.6

1.0 INTRODUCTION

Table 1.1 Site Cadastre

SITE CADASTRE	
Determined BAL	BAL-12.5
Water supply	Reticulated
FFDI	100 @ 1:50 year event
Address	79 Prince Street, Clarence Town NSW 2321
Lot Number	3
Deposited Plan	DP1223485
Area of Parcel	796 m^2 Approx.
LGA	Dungog Shire Council (DSC)
Zoning	R1 General Residential
LEP & Mapping	NSW Planning Portal
10/50 Code Area	Yes
BPL Mapping	NSW Planning Portal
Vegetation type	Forest
Canopy Height	15 - 20 Metres
Separation Distance	90 Metres
Effective Slope	0^o to upslope
Elevation	Approx. 27 m AHD
Sited Visited	23/9/2025

"In NSW all development on Bushfire Prone land must satisfy the aims and objectives of PBP 2019. The aim of PBP 2019 is to provide for the protection of human life and minimise the impacts on property from the threat of bushfire, while having due regard to development potential, site characteristics and protection of the environment." *(PBP 2019 P.10)*

Being mindful of the above statement, the following report has been drafted to construct a new Class 1A dwelling at 79 Prince Street, Clarence Town NSW 2321.

The proposed development is classed as 'Infill' and as such it is to be assessed under Sect. 4.14 of the EP&A Act. This requires compliance with Planning for Bushfire Protection 2019 (PBP 2019) and AS 3959 - 2018 Section 3 and Section 5 or the National Association of Steel Framed Housing (2014) Steel Framed Construction in Bush Fire Areas (NASH Standard). Construction must also comply with the construction requirements in Section 7.5 of Planning for Bush Fire Protection 2019.

.

2.0 DESCRIPTION

Fig. 2.1 Over-view of the site (see Appendix 1)

2.1 General Description

The yellow shaded areas in the centre of the photo indicates the subject block and the proposed siting. It is an area of approximately 796 m^2. Situated on the corner of Prince and Marshall streets, the subject block is generally flat. The block is rectangular in shape being approximately 40 m deep by 20 m wide with driveway access to on the corner of Prince and Marshall streets. All the surrounding blocks are developed and occupied.

2.2 Topographic Description (locality)

Undulating low hills to occasionally rolling low hills. Slope gradients are 5–15%. Elevation is 40–80 m, local relief is 30–70 m. Crests are moderately broad (100–250 m). Sideslopes are moderately long, convex, increasing in slope toward drainage lines. Drainage lines are narrow and incised in the upper reaches, becoming broader (to 5 m) in the lower reaches. Cobbles may be common on the surface. Occasional rock outcrop occurs (*Henderson, LE. 2000*).

2.3 Vegetation Description (locality)

Partially cleared tall open-forest, with some openforest, comprising Eucalyptus paniculata (grey ironbark), E. maculata (spotted gum), E. tereticornis (forest red gum), E. fibrosa (broad-leaved ironbark), E. siderophloia (red ironbark), E. moluccana (grey box). Understorey may include Bursaria spinosa (blackthorn) and Lepidosperma laterale (variable sword-sedge) (*Henderson, LE. 2000*).

3.0 BUSHFIRE PRONE LAND MAP

Fig. 3.1 Extract of DSC's Bushfire Prone Land Map
Note: the highlighted area denotes the approximate block location.

3.1 Category 0

Category 0 vegetation appears as the yellow layer on the map and the buffer zone which extends out away from the vegetation. Buffer distances vary in width according to the vegetation category.

3.2 Category 1

Category 1 vegetation appears as red on the map and represents forests, woodlands, heathlands, pine plantations and wetlands. Land within 100 metres of this category (indicated by the yellow layer on the map) is also captured by the Bushfire Prone Land Map due to the likelihood of bushfire attack.

3.3 Category 2

Category 2 vegetation appears as light orange on the map and represents rainforests and lower risk parcels of bushfire prone vegetation. Land within 30 metres of this category

(indicated by the yellow layer on the map) is also captured by the Bushfire Prone Land Map due to the likelihood of bushfire attack.

3.4 Category 3

Category 3 vegetation appears as orange on the map and represents medium risk vegetation such as grasslands, freshwater wetlands and arid shrublands. Land within 30 metres of this category (indicated by the yellow layer on the map) is also captured by the Bushfire Prone Land Map due to the likelihood of bushfire attack.

3.5 Context of the map

The map is in accordance with the structure of the vegetation communities found at this location.

4.0 PHOTOGRAPHIC REVIEW OF THE LOCALITY

Fig. 4.1 View to the North

Fig. 4.2 View to the South

Fig. 4.3 View to the East

Fig. 4.4 View to the West

5.0 METHODOLOGY

Determination of Bushfire Attack Level (BAL) shall follow the Site Assessment Methodology found in PBP 2019 Appendix 1 which sets out the following:

1. Determine all vegetation formations within 140m of the development
2. Determine the effective slope from the building to a distance of 100 m
3. Determine the FFDI for the local council area
4. Determine the separation distance from the building to the vegetation
5. Match the relevant FFDI, vegetation group, separation distance and the effective slope using the relevant tables found in PBP 2019 Appendix 1..

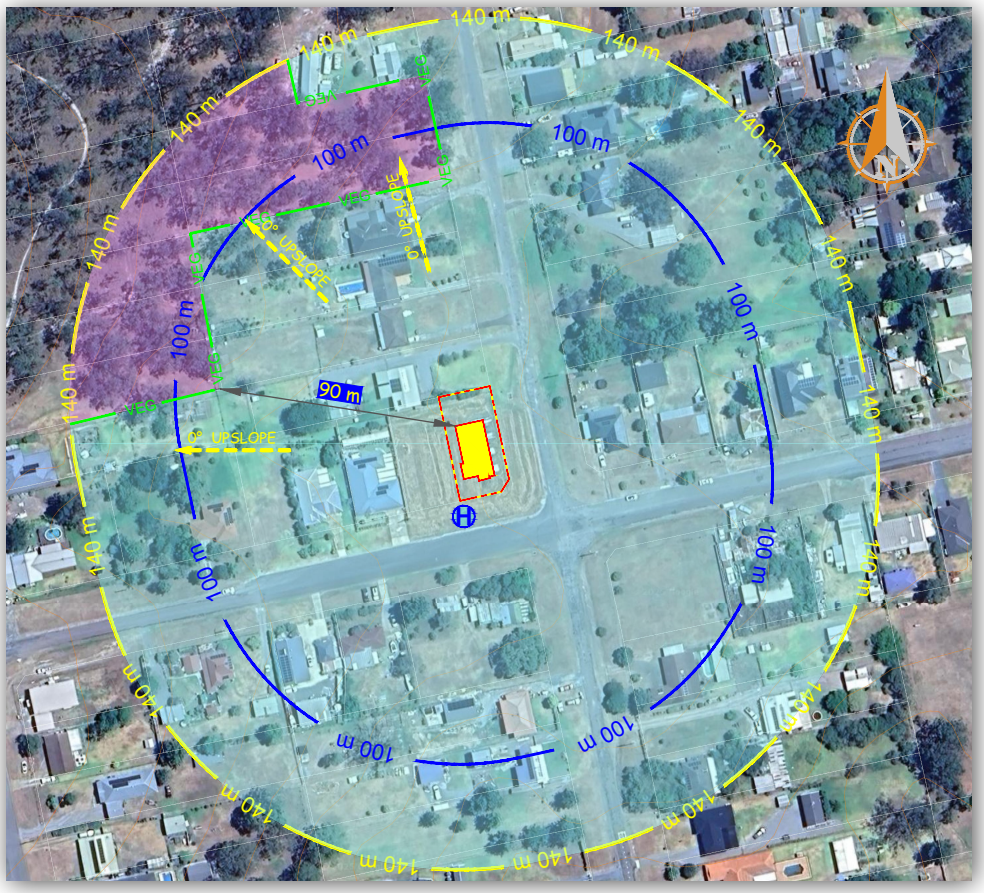


Fig 5.1 Vegetation formations within 140 m (See Appendix 1)

5.1 Vegetation assessment

The predominant bushfire prone vegetation is the forest community to the Northwest. This is situated on land which runs upslope to the Northwest.

5.2 Threat Assessment Northwest

Table 5.1 Summary of Threat Assessment Northwest

Summary Threat Assessment Data Northwest		
1	Determine all vegetation formations within 140m of the development	**Forest -** Trees over 10-20 m high; 30–70% foliage cover (may include understorey ranging from rainforest and tree ferns to low trees and tall shrubs). Typically dominated by eucalypts. (AS 3959:2018 Table 2.3)
2	Determine the effective slope from the building to a distance of 100 m	Typically 0º to upslope
3	Determine the FFDI for the local council area	FFDI = 100 (PBP 2019)
4	Determine the separation distance from the building to the vegetation	90 metres
5	Match the relevant FDI, vegetation group, separation distance and the effective slope using the relevant tables found in PBP 2019 A1	**BAL-12.5**

Table 5.2 Extract from PBP 2019 Table A1.12.5

Determination of Bushfire attack level (BAL) -FDI 100 (1090K)					
PBP 2019 Table A1.12.5					
Vegetation Formation (Keith)	BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
	Distance (m) of asset to the predominant vegetation class				
	All upslopes and flat land (0 degrees)				
Rainforest	<8	8 -<11	11 -<16	16 -<23	23 -<100
Forest (wet and dry sclerophyll) including Coastal Swamp Forest, Pine plantations and Sub-Alpine Woodland	<18	18 -<24	24 -<33	33 -<45	45 -<100
Grassy and Semi-Arid Woodland including Mallee	<9	9 -<12	12 -<18	18 -<26	26 -<100
Forested Wetland (excluding Coastal Swamp Forest)	<7	7 -<10	10 -<14	14 -<21	21 -<100
Tall Heath	<12	12 -<16	16 -<23	23 -<32	32 -<100
Short Heath	<7	7 -<9	9 -<14	14 -<20	20 -<100
Arid-Shrublands (Acacia and chenopod)	<5	5 -<6	6 -<9	9 -<14	14 -<100
Freshwater wetlands	<4	4 -<5	5 -<7	7 -<11	11 -<100
Grassland	<8	8-<10	10-<15	15-<22	22 -<50

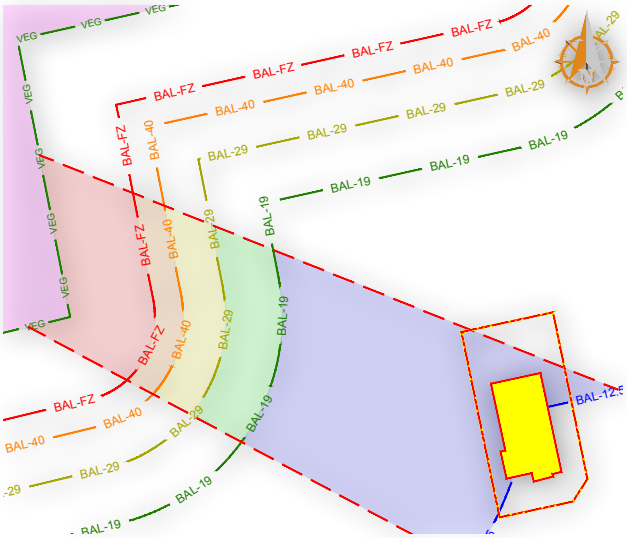


Fig 5.3 Threat assessment output demonstrated as a BAL-Map (see Appendix 1).

Fig. 5.3 above shows the output of the threat assessment. It clearly shows the proposed structure (red border/yellow fill) is in the BAL-12.5 zone. This diagram also illustrates the importance of maintaining the current separation distances. Since all exposed elevations are to be constructed to BAL-12.5 it is critical that the APZ be maintained. If the APZ is allowed to diminish due to poor maintenance, the BAL graduations will effectively move toward the dwelling with the Northwest elevation possibly being subjected to a radiant heat flux beyond its design capacity.

5.3 Fire History

An inspection of the adjacent bushland revealed no indication of wild fire in this bushland in the past 25 years. Small low intensity fires may have occurred in the area occasionally. This will have had an indirect effect of hazard reduction in the existing bushland.

6.0 BUSHFIRE PROTECTION MEASURES & RECOMMENDATIONS

The overall intention of bushfire protection measures is to improve property protection and community resilience to bushfire attack *(PBP 2019 P.10).*

For all residential developments there are five bushfire protection measures that can be used to reduce the attack mechanisms of a bushfire. They are:

- Asset Protection Zones.
- Access.
- Water and utility services.
- Construction standards and design.
- Landscaping.

Each of these mechanisms work in combination to achieve a resilient development. The following section describes how the proposal will address each of these measures.

6.1 Asset Protection Zones (APZ)

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION
In relation to APZ's	APZ is provided in accordance with PBP 2019 Appendix 1
The intent may be achieved where**:**	APZs are managed in accordance PBP 2019 Appendix 4
A defendable space is provided on site.	APZ is wholly contained within the site
An APZ is provided and maintained for the life of the development	
Performance Criteria met?	**Yes**

"An APZ is a buffer zone between a bushfire hazard and buildings. The APZ is managed progressively to minimise fuel loads and reduce potential radiant heat levels, flame, smoke and ember attack. The appropriate APZ distance is based on vegetation type, slope and the nature of the development" (*PBP 2019 P26*).

The proposal is effectively situated 90 metres from the bushfire threat. It will have separation from the threat via a mowed and managed grassed areas as well as other residential development.

The entire block shall be maintained as an Inner Protection Area for the life of the development.

6.2 Access Requirements

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION
In relation to Access Requirements	
The intent may be achieved where**:**	Compliance with PBP 2019 Table 7.4a Access
Fire appliances are provided with safe operational all weather access to the structure and hazard vegetation	
There is appropriate access to a water supply	
Performance Criteria met?	**Yes**

It is the aim of this requirement to provide safe operational access for emergency services personnel in suppressing a bushfire, while residents are accessing or egressing an area.

Vehicular access to the property will be available to light vehicles only. There will be good access around the periphery of the dwelling for emergency personnel to lay out hoses and other firefighting equipment. The property will offer safe refuge for firefighters and occupants in and around the dwelling depending on the direction of the attack.

There is good access to a reticulated water supply.

Prince and Marshall streets are part of the urban road network of Clarence Town.

This address is in Clarence Town RFS operational area. This station is an RFS Fire Station. It is 0.5 km from the subject block. It is 1 min drive time and about 10-15 min response time depending on staff availability. This is a Volunteer Station i.e. they have a combined staff of approx. 20 Firefighters who only attend the station for calls and drills. At other times the station is unmanned. It has a Cat 1 and a Cat 7 appliance.

6.3 Water and Utilities

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION
In relation to Water and utilities	Compliance with PBP 2019 Table 7.4a Water Supplies Electricity Services Gas Services
The intent may be achieved where**:**	
Adequate water supplies and electricity services are provided for firefighting operations Gas & electricity services are located so as to not contribute to the risk of fire to a building	
Performance Criteria met?	**Yes**

It is the aim of this measure to provide adequate water services for the protection of buildings during and after the passage of a bushfire, to locate gas and electricity so as not to contribute to the risk of fire to buildings.

Water supply is via the town mains reticulated system. Hydrants are located at regular intervals (approx. 110m apart) along on the corner of Prince and Marshall streets.

Electricity supply is aerial and will not hinder bushfire fighting operations.

Any proposed gas service, either natural gas or bottled LPG, shall be provided in accordance with the following recommendations:

- Reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities. Metal piping is to be used.
- All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation.
- If gas cylinders need to be kept close to the building, the release valves are directed away from the building and away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are to be metal.
- Polymer sheathed flexible gas supply lines to gas meters, adjacent to buildings, are not to be used.

6.4 Construction Standards

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION
In relation to Construction Standards	Compliance with PBP 2019 Table 7.4a Construction Standards
The intent may be achieved where**:**	
It is demonstrated that the proposed building can withstand bushfire attack in the form of embers, radiant heat and flame contact.	
Proposed fences and gates are designed to minimise the spread of bushfire	
Proposed Class 10a buildings are designed to minimise the spread of bushfire	
Performance Criteria met?	**Yes**

Since the proposal is to construct a new Class 1A dwelling, it must conform to the performance criteria of PBP 2019 Appendix 1. Accordingly, the proposed new works shall comply with AS 3959:2018 Section 5, BAL-12.5 for all elevations of the structure. This provision is in accordance with AS 3959:2018 Section 3.5 'Reduction in Construction Requirements Due to Shielding'.

The owner/builder should consult the actual standard before commencing construction. As stated previously in this report, construction of exposed facades to AS 3959:2018 Section 5, BAL-12.5 will increase the structure's survivability in the event of a bushfire attack. Construction must also comply with the construction requirements in Section 7.5 of Planning for Bush Fire Protection 2019.

Generally the structure shall be constructed from a selection of materials which comply with the prescribed requirements of AS 3959 2018. Appendix 3 of this report is an abridged version of AS 3959:2018 BAL-12.5 requirements. It is a guide only and a full reading of the

Elevation / Exposure	Minimum Construction Standard
North	BAL-12.5
South	BAL-12.5
East	BAL-12.5
West	BAL-12.5

Table 6.1 Construction standard for each elevation

standard should be undertaken by the builder before commencement of construction.

6.5 Landscaping

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION
In relation to Landscaping	
The intent may be achieved where**:**	Compliance with PBP 2019 Table 7.4a Landscaping
It is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions.	
Performance Criteria met?	**Yes**

The principles of landscaping for bush fire protection aim to:

- Prevent flame impingement on the dwelling.
- Provide a defendable space for property protection.
- Reduce fire spread.
- Deflect and filter embers.
- Provide shelter from radiant heat.
- Reduce wind speed.

The NSW RFS ‘Asset Protection Zone Standards” is attached to this report as Appendix 2. This provides detailed maintenance and planting strategies for bushfire prone areas.

A clear area of low cut lawn or pavement is maintained adjacent to the house

Fencing and retaining walls are constructed in accordance with PBP 2019 s7.8

Trees and shrubs are planted such that:

- Branches will not overhang the roof.
- The tree canopy is not continuous.
- If proposed a windbreak is located on the elevation from which fires are likely to approach.

6.6 Requirements and Recommendations

List of requirements	
North elevation	Compliance with requirements of AS 3959 2018 Section 5 BAL-12.5
South elevation	Compliance with requirements of AS 3959 2018 Section 5 BAL-12.5
East elevation	Compliance with requirements of AS 3959 2018 Section 5 BAL-12.5
West elevation	Compliance with requirements of AS 3959 2018 Section 5 BAL-12.5
List of recommendations	
Proposed gardens to be maintained and kept free of litter.	
Provide functioning garden hoses long enough to cross over each other, to diagonal corners of the structure i.e. 2 hoses with nozzles.	
Develop an appropriate emergency bushfire action plan. Additional information can also be found on either http://www.fire.nsw.gov.au/page.php?id=883 or http://www.rfs.nsw.gov.au/dsp_content.cfm?cat_id=4074	

Table 6.2 Requirements and Recommendations

7.0 CONCLUSION

The proposed development is classed as 'Infill' and as such it is to be assessed under Sect. 4.14 of the EP&A Act. Because of the subject property's location in relationship to the bushfire threat and its position on the DSC's "Bushfire Prone Land Map", the proposal must conform to PBP 2019 and AS 3959 2018.

The analysis of the development indicates BAL-12.5 for the Northwest exposure. Accordingly, the entire structure shall be constructed to BAL-12.5. This is as per AS 3959:2018 Clause 3.5. 'Reduction in Construction Requirements Due to Shielding'.

The implementation of Bushfire Protection Measures, as set-out in PBP 2019 and detailed within this report, must improve the outcome for the occupants, firefighters and the structure itself.

The recommendations in Section 6.7 of this report will enhance the chances of occupant and building survival as well as outcomes for adjacent neighbours. It does not increase the fire management and maintenance responsibility of its neighbours.

It is the aim of this report to provide for the protection of human life (including firefighters) and to minimise impacts on the proposal from the threat of bushfire, while having due regard to development potential, on-site amenity and protection of the environment. *(PBP 2019 P.1)*

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https://six.nsw.gov.au/wps/portal/

All measurements and slopes determined on site using Nikon Forestry Pro Range finding Hypsometer.

APPENDIX 1

0 10 30 50 100 150
5 20 40 METRES

140 m 140 METRE OFFSET

BOUNDARY **

SITE OVERVIEW 140m

SOURCE:- GOOGLE MAPS AND ON SITE PHOTOGRAMMETRY COLLECTED 23/9/2025

Note; This drawing is indicative only. It does not purport to be a surveyed work nor does it constitute a surveyed work. **Boundaries on this plan are approximate only and have been complied using existing records. Alignment of boundaries with the imagery may not be accurate. Reference to mapping by a registered surveyor should be used to establish actual boundaries. Bushfire Consultant Pty Ltd assumes no responsibility for any reliance on this as a surveyed work.

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Site Overview to 140 m

Date;	Version	Sheet
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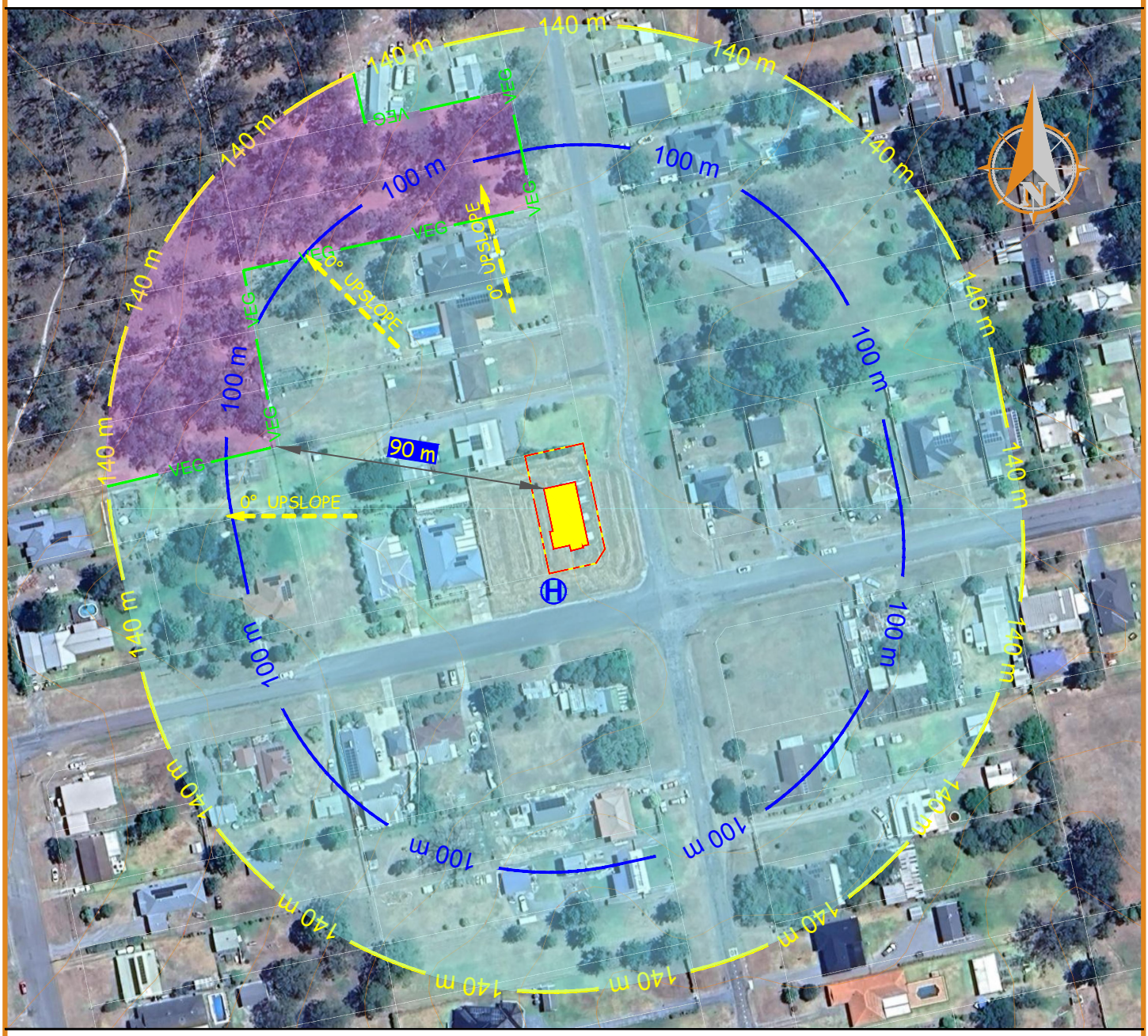
APPENDIX 1



0 10 30 50 100 150
5 20 40 METRES

140 m	140 METRE OFFSET
100 m	100 METRE OFFSET
VEG	VEGETATION
	BOUNDARY **
H	HYDRANT ≥100 mm MAIN
	FOREST
	MANAGED VEGETATION

VEGETATION & SLOPE ANALYSIS TO 140m

CONTOURS = 2 METRES
VEGETATION ASSESSED USING AS 3959-2019 WITHIN 140M OF THE SITE
ALL SLOPES RELATIONAL TO THE SUBJECT SITE.
PREDOMINANT VEGETATION ASSESSED AS
FOREST 0° TO UPSLOPE
CANOPY = 15 - 20m HIGH
SOME INDIVIDUALS ≥ 25 m
DOMINANT SPECIES = EUCALYPTS
UNDERSTOREY = ACACIA AND OTHER SPECIES
GROUND COVER = MIXTURE OF NATIVE
SPECIES AND GRASSES

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Vegetation & Topographical Analisys

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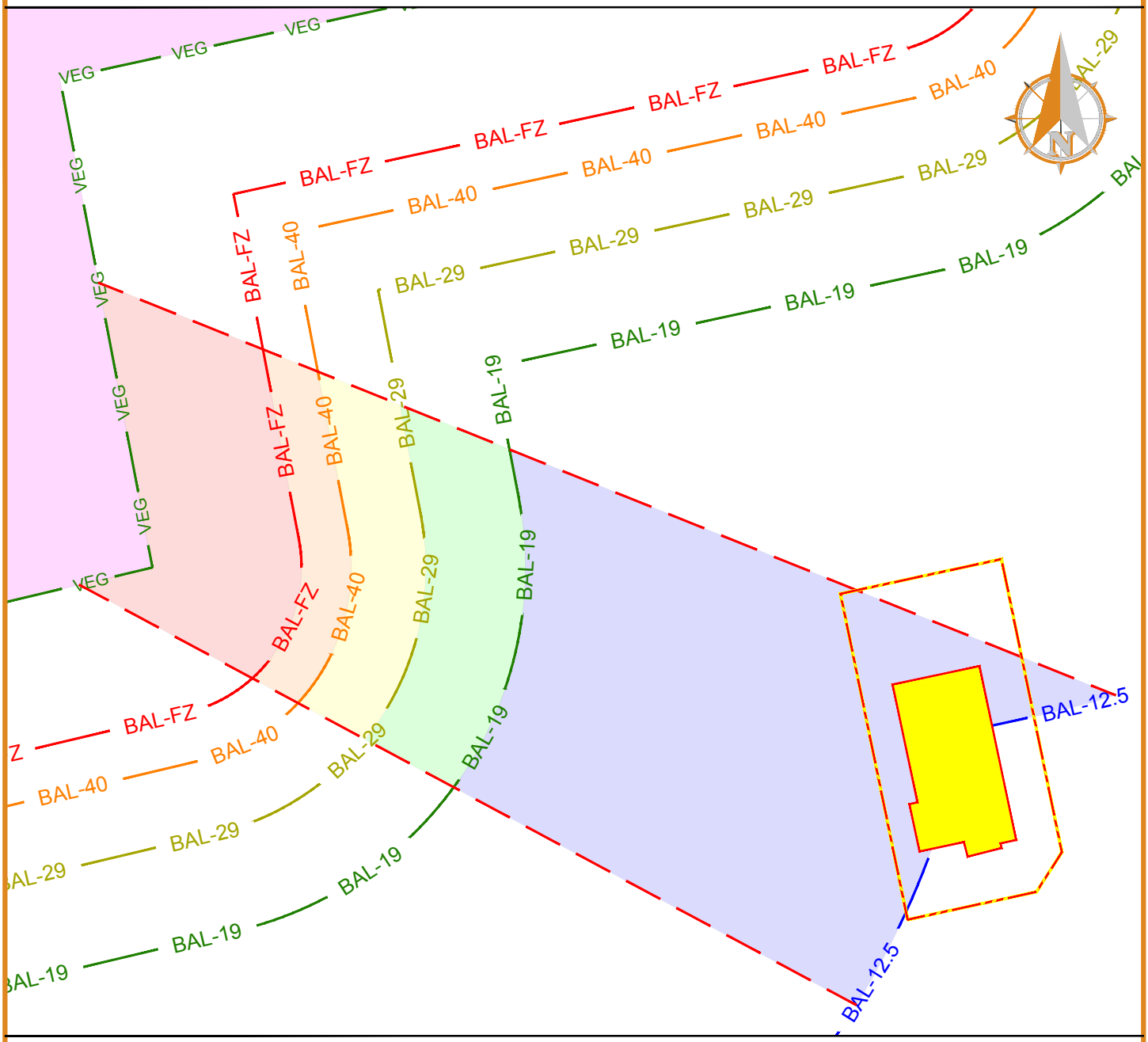
APPENDIX 1



0 10 30 50 100

5 20 40 METRES 75

BAL ANALYSIS

PREDOMINANT VEGETATION CLASSIFICATION - FOREST 0° TO UPSLOPE

DEPICTION OF THE BUSHFIRE ATTACK LEVELS THAT MAY BE EXPERIENCED BY THE SUBJECT BLOCK IN THE EVENT OF A BUSHFIRE

BOUNDARY **

NOTE; THE EFFECTIVE WIDTH OF BAL's IS A FUNCTION OF VEGETATION CLASSIFICATION AND THE SLOPE UNDER THE VEGETATION IN RELATION TO THE PROPOSAL. FOR THIS REASON THE WIDTH OF BAL's MAY VARY AROUND A PROPOSAL DUE TO CHANGES IN THE TOPOGRAPHY OF THE SITE AND ITS SURROUNDING VEGETATION. MEASUREMENTS DISPLAYED ON THIS DIAGRAM ARE FOR THE PREDOMINANT VEGETATION GROUP(s).

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BUSHFIRE ATTACK LEVEL (BAL)

FOREST	BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
0° & UPSLOPE	<18 m	18-<24 m	24-<33 m	33-<45 m	45-<100 m

SOURCE: PBP 2019 TABLE A1.12.5 FDI 100

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Bushfire Attack Level (BAL) Analisys

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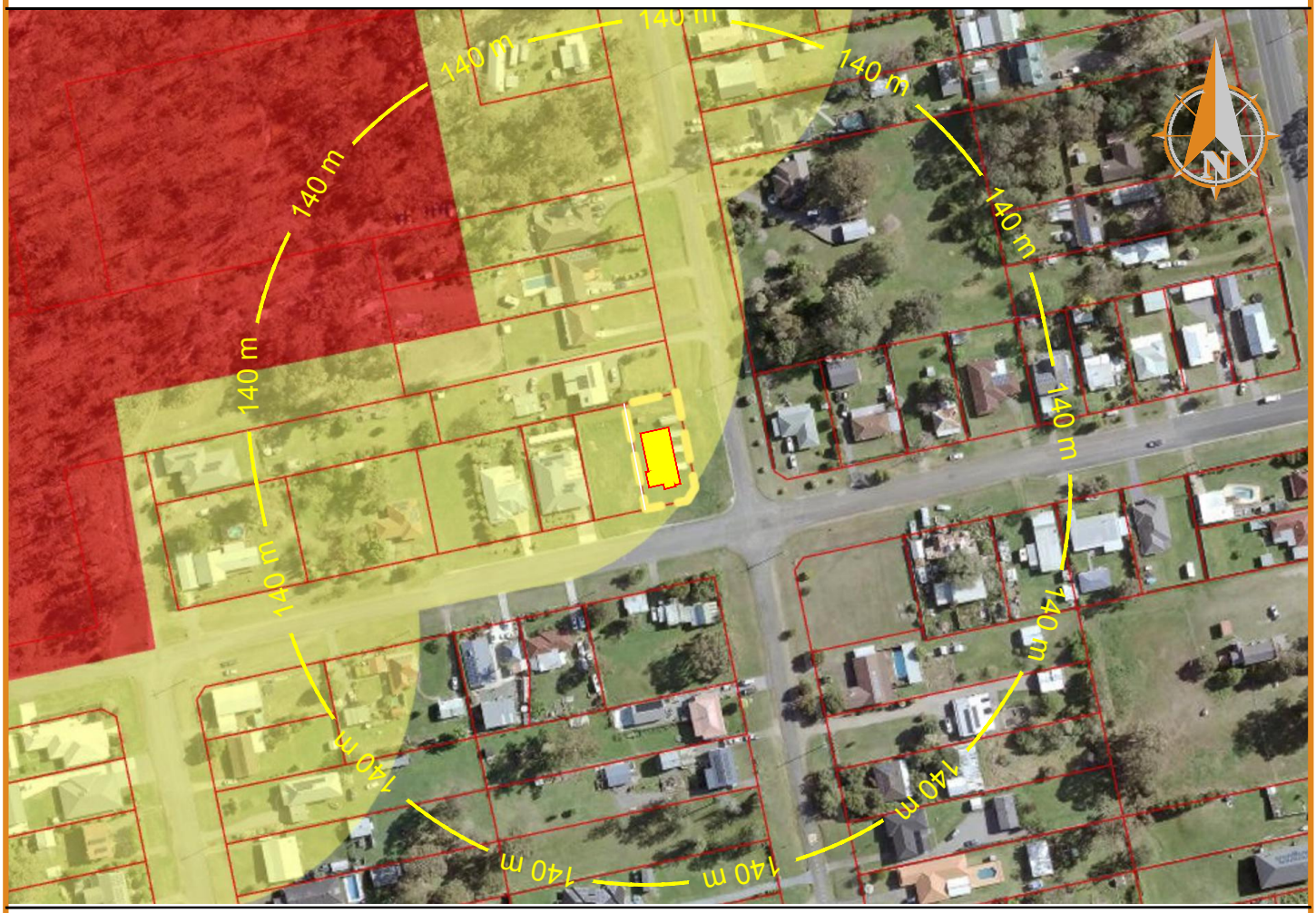
APPENDIX 1



0 20 60 100 200 300

10 40 80 METRES

BUSH FIRE PRONE LAND MAPPING

Source: ePlanning Spatial Viewer; https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address

Category 0 vegetation appears as the yellow layer on the map and the buffer zone which extends out away from the vegetation. Buffer distances vary in width according to the vegetation category

Category 1 vegetation appears as red on the map and represents forests, woodlands, heathlands, pine plantations and wetlands. Land within 100 metres of this category (indicated by the yellow layer on the map) is also captured by the Bushfire Prone Land Map due to the likelihood of bushfire attack.

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Category 3 vegetation appears as orange on the map and represents medium risk vegetation such as grasslands, freshwater wetlands and arid shrublands. Land within 30 metres of this category (indicated by the yellow layer on the map) is also captured by the Bushfire Prone Land Map due to the likelihood of bushfire attack.

EP&A ACT 1979 SECTIONS 4.14 & 10.3

EP&A Act Sect. 10.3: Councils prepare maps which record the bushfire prone vegetation within their LGA. These maps are certified by the RFS Commissioner.

EP&A Act Sect. 4.14: (Implicit) If a proposed structure, its access roads, APZ's or water supplies are captured by this mapping, then it must provide evidence that the proposal conforms to the specifications and requirements of Planning for Bush Fire Protection 2019.

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Bushfire Prone Land Mapping

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standards

for asset protection zones

protection

NSW RURAL FIRE SERVICE

STANDARDS FOR ASSET PROTECTION ZONES

INTRODUCTION

For thousands of years bush fires have been a natural part of the Australian landscape. They are inevitable and essential, as many Australian plants and animals have adapted to fire as part of their life cycle.

In recent years developments in bushland areas have increased the risk of bush fires harming people and their homes and property. But landowners can significantly reduce the impact of bush fires on their property by identifying and minimising bush fire hazards. There are a number of ways to reduce the level of hazard to your property, but one of the most important is the creation and maintenance of an Asset Protection Zone (APZ).

A well located and maintained APZ should be used in conjunction with other preparations such as good property maintenance, appropriate building materials and developing a family action plan.

WHAT IS AN ASSET PROTECTION ZONE?

An Asset Protection Zone (APZ) is a fuel reduced area surrounding a built asset or structure. This can include any residential building or major building such as farm and machinery sheds, or industrial, commercial or heritage buildings.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset;
- an area of reduced bush fire fuel that allows suppression of fire;
- an area from which backburning may be conducted; and
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Potential bush fire fuels should be minimised within an APZ. This is so that the vegetation within the planned zone does not provide a path for the transfer of fire to the asset either from the ground level or through the tree canopy.

WHAT WILL THE APZ DO?

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

- direct flame contact on the asset;
- damage to the built asset from intense radiant heat; and
- ember attack on the asset.

WHERE SHOULD I PUT AN APZ?

An APZ is located between an asset and a bush fire hazard.

The APZ should be located wholly within your land. You cannot undertake any clearing of vegetation on a neighbour's property, including National Park estate, Crown land or land under the management of your local council, unless you have written approval.

If you believe that the land adjacent to your property is a bush fire hazard and should be part of an APZ, you can have the matter investigated by contacting the NSW Rural Fire Service (RFS).

There are six steps to creating and maintaining an APZ. These are:

1. Determine if an APZ is required;
2. Determine what approvals are required for constructing your APZ;
3. Determine the APZ width required;
4. Determine what hazard reduction method is required to reduce bush fire fuel in your APZ;
5. Take measures to prevent soil erosion in your APZ; and
6. Landscape and regularly monitor in your APZ for fuel regrowth.

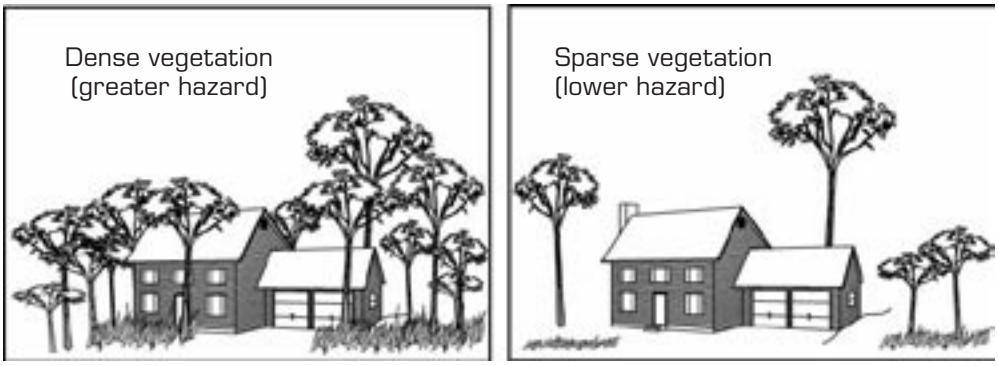
STEP 1. DETERMINE IF AN APZ IS REQUIRED

Recognising that a bush fire hazard exists is the first step in developing an APZ for your property.

If you have vegetation close to your asset and you live in a bush fire prone or high risk area, you should consider creating and maintaining an APZ.

Generally, the more flammable and dense the vegetation, the greater the hazard will be. However, the hazard potential is also influenced by factors such as slope.

- A large area of continuous vegetation on sloping land may increase the potential bush fire hazard.
- The amount of vegetation around a house will influence the intensity and severity of a bush fire.
- The higher the available fuel the more intense a fire will be.



Isolated areas of vegetation are generally not a bush fire hazard, as they are not large enough to produce fire of an intensity that will threaten dwellings.

This includes:

- bushland areas of less than one hectare that are isolated from large bushland areas; and
- narrow strips of vegetation along road and river corridors.

If you are not sure if there is a bush fire hazard in or around your property, contact your local NSW Rural Fire Service Fire Control Centre or your local council for advice.

STEP 2. DETERMINE WHAT APPROVALS ARE REQUIRED FOR CONSTRUCTING YOUR APZ

If you intend to undertake bush fire hazard reduction works to create or maintain an APZ you must gain the written consent of the landowner.

Subdivided land or construction of a new dwelling
If you are constructing an APZ for a new dwelling you will need to comply with the requirements in *Planning for Bushfire Protection*. Any approvals required will have to be obtained as part of the Development Application process.

Existing asset
If you wish to create or maintain an APZ for an existing structure you may need to obtain an environmental approval. The RFS offers a free environmental assessment and certificate issuing service for essential hazard reduction works. For more information see the RFS document *Application Instructions for a Bush Fire Hazard Reduction Certificate* or contact your local RFS Fire Control Centre to determine if you can use this approval process.

Bear in mind that all work undertaken must be consistent with any existing land management agreements (e.g. a conservation agreement, or property vegetation plan) entered into by the property owner.

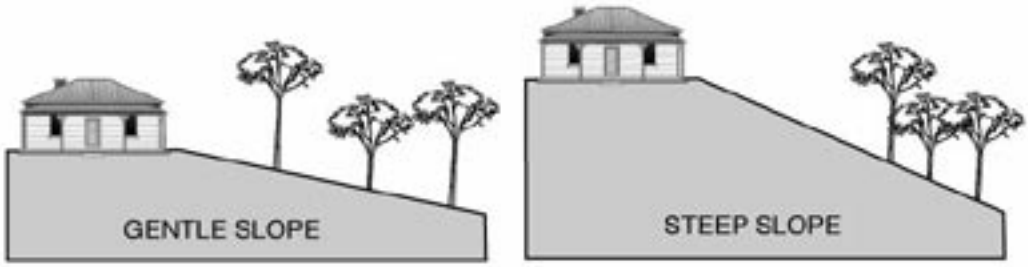
If your current development consent provides for an APZ, you do not need further approvals for works that are consistent with this consent.

If you intend to burn off to reduce fuel levels on your property you may also need to obtain a Fire Permit through the RFS or NSW Fire Brigades. See the RFS document *Before You Light That Fire* for an explanation of when a permit is required.

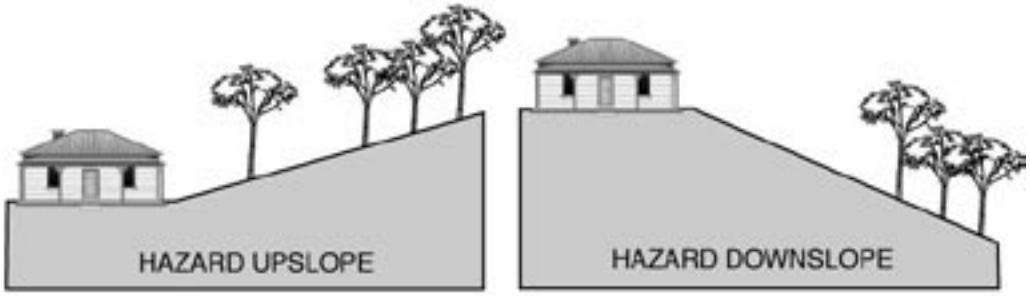
STEP 3. DETERMINE THE APZ WIDTH

The size of the APZ required around your asset depends on the nature of the asset, the slope of the area, the type and structure of nearby vegetation and whether the vegetation is managed.

Fires burn faster uphill than downhill, so the APZ will need to be larger if the hazard is downslope of the asset.



Gentle slopes require a smaller APZ distance than steep slopes



A hazard downslope will require a greater APZ distance then a hazard upslope of the asset

Different types of vegetation (for example, forests, rainforests, woodlands, grasslands) behave differently during a bush fire. For example, a forest with shrubby understorey is likely to result in a higher intensity fire than a woodland with a grassy understorey and would therefore require a greater APZ width.

A key benefit of an APZ is that it reduces radiant heat and the potential for direct flame contact on homes and other buildings. Residential dwellings require a wider APZ than sheds or stockyards because the dwelling is more likely to be used as a refuge during bush fire.

Subdivided land or construction of a new dwelling
If you are constructing a new asset, the principles of *Planning for Bushfire Protection* should be applied. Your Development Application approval will detail the exact APZ distance required.

Existing asset
If you wish to create an APZ around an existing asset and you require environmental approval, the Bush Fire Environmental Assessment Code provides a streamlined assessment process. Your Bush Fire Hazard Reduction Certificate (or alternate environmental approval) will specify the maximum APZ width allowed.

For further information on APZ widths see *Planning for Bushfire Protection* or the *Bush Fire Environmental Assessment Code* (available on the RFS website), or contact your local RFS Fire Control Centre.

STEP 4. DETERMINE WHAT HAZARD REDUCTION METHOD IS REQUIRED TO REDUCE BUSH FIRE FUEL IN YOUR APZ

The intensity of bush fires can be greatly reduced where there is little to no available fuel for burning. In order to control bush fire fuels you can reduce, remove or change the state of the fuel through several means.

Reduction of fuel does not require removal of all vegetation, which would cause environmental damage. Also, trees and plants can provide you with some bush fire protection from strong winds, intense heat and flying embers (by filtering embers) and changing wind patterns. Some ground cover is also needed to prevent soil erosion.

Fuels can be controlled by:

1. raking or manual removal of fine fuels
Ground fuels such as fallen leaves, twigs (less than 6 mm in diameter) and bark should be removed on a regular basis. This is fuel that burns quickly and increases the intensity of a fire.

Fine fuels can be removed by hand or with tools such as rakes, hoes and shovels.

2. mowing or grazing of grass
Grass needs to be kept short and, where possible, green.

3. removal or pruning of trees, shrubs and understorey
The control of existing vegetation involves both selective fuel reduction (removal, thinning and pruning) and the retention of vegetation.

Prune or remove trees so that you do not have a continuous tree canopy leading from the hazard to the asset. Separate tree crowns by two to five metres. A canopy should not overhang within two to five metres of a dwelling.

Native trees and shrubs should be retained as clumps or islands and should maintain a covering of no more than 20% of the area.

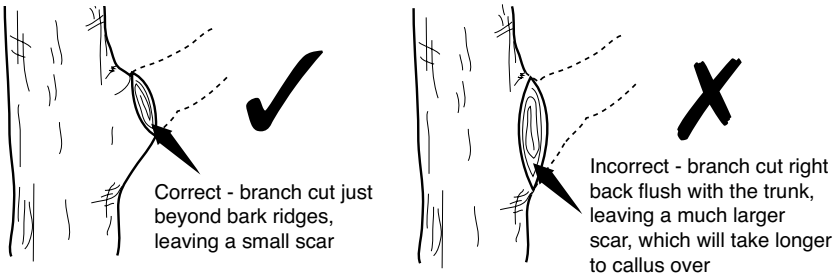
When choosing plants for removal, the following basic rules should be followed:

1. Remove noxious and environmental weeds first. Your local council can provide you with a list of environmental weeds or 'undesirable species'. Alternatively, a list of noxious weeds can be obtained at **www.agric.nsw.gov.au/noxweed/;**
2. Remove more flammable species such as those with rough, flaky or stringy bark; and
3 Remove or thin understorey plants, trees and shrubs less than three metres in height

The removal of significant native species should be avoided.

Prune in acordance with the following standards:

- Use sharp tools. These will enable clean cuts and will minimise damage to the tree.
- Decide which branches are to be removed before commencing work. Ensure that you maintain a balanced, natural distribution of foliage and branches.
- Remove only what is necessary.
- Cut branches just beyond bark ridges, leaving a small scar.
- Remove smaller branches and deadwood first.



There are three primary methods of pruning trees in APZs:

1. Crown lifting (skirting)
Remove the lowest branches (up to two metres from the ground). Crown lifting may inhibit the transfer of fire between the ground fuel and the tree canopy.

2. Thinning
Remove smaller secondary branches whilst retaining the main structural branches of the tree. Thinning may minimise the intensity of a fire.

3. Selective pruning
Remove branches that are specifically identified as creating a bush fire hazard (such as those overhanging assets or those which create a continuous tree canopy). Selective pruning can be used to prevent direct flame contact between trees and assets.

Your Bush Fire Hazard Reduction Certificate or local council may restrict the amount or method of pruning allowed in your APZ.

See the *Australian Standard 4373 (Pruning of Amenity Trees*) for more information on tree pruning.

4. Slashing and trittering
Slashing and trittering are economical methods of fuel reduction for large APZs that have good access. However, these methods may leave large amounts of slashed fuels (grass clippings etc) which, when dry, may become a fire hazard. For slashing or trittering to be effective, the cut material must be removed or allowed to decompose well before summer starts.

If clippings are removed, dispose of them in a green waste bin if available or compost on site (dumping clippings in the bush is illegal and it increases the bush fire hazard on your or your neighbour's property).

Although slashing and trittering are effective in inhibiting the growth of weeds, it is preferable that weeds are completely removed.

Care must be taken not to leave sharp stakes and stumps that may be a safety hazard.

5. Ploughing and grading
Ploughing and grading can produce effective firebreaks. However, in areas where this method is applied, frequent maintenance may be required to minimise the potential for erosion. Loose soil from ploughed or graded ground may erode in steep areas, particularly where there is high rainfall and strong winds.

6. Burning (hazard reduction burning)
Hazard reduction burning is a method of removing ground litter and fine fuels by fire. Hazard reduction burning of vegetation is often used by land management agencies for broad area bush fire control, or to provide a fuel reduced buffer around urban areas.

Any hazard reduction burning, including pile burns, must be planned carefully and carried out with extreme caution under correct weather conditions. Otherwise there is a real danger that the fire will become out of control. More bush fires result from escaped burning off work than from any other single cause.

It is YOUR responsibility to contain any fire lit on your property. If the fire escapes your property boundaries you may be liable for the damage it causes.

Hazard reduction burns must therefore be carefully planned to ensure that they are safe, controlled, effective and environmentally sound. There are many factors that need to be considered in a burn plan. These include smoke control, scorch height, frequency of burning and cut off points (or control lines) for the fire. For further information see the RFS document *Standards for Low Intensity Bush Fire Hazard Reduction Burning,* or contact your local RFS for advice.

7. Burning (pile burning)
In some cases, where fuel removal is impractical due to the terrain, or where material cannot be disposed of by the normal garbage collection or composted on site, you may use pile burning to dispose of material that has been removed in creating or maintaining an APZ.

For further information on pile burning, see the RFS document *Standards for Pile Burning.*

In areas where smoke regulations control burning in the open, you will need to obtain a Bush Fire Hazard Reduction Certificate or written approval from Council for burning. During the bush fire danger period a Fire Permit will also be required. See the RFS document *Before You Light that Fire* for further details.

STEP 5. TAKE MEASURES TO PREVENT SOIL EROSION

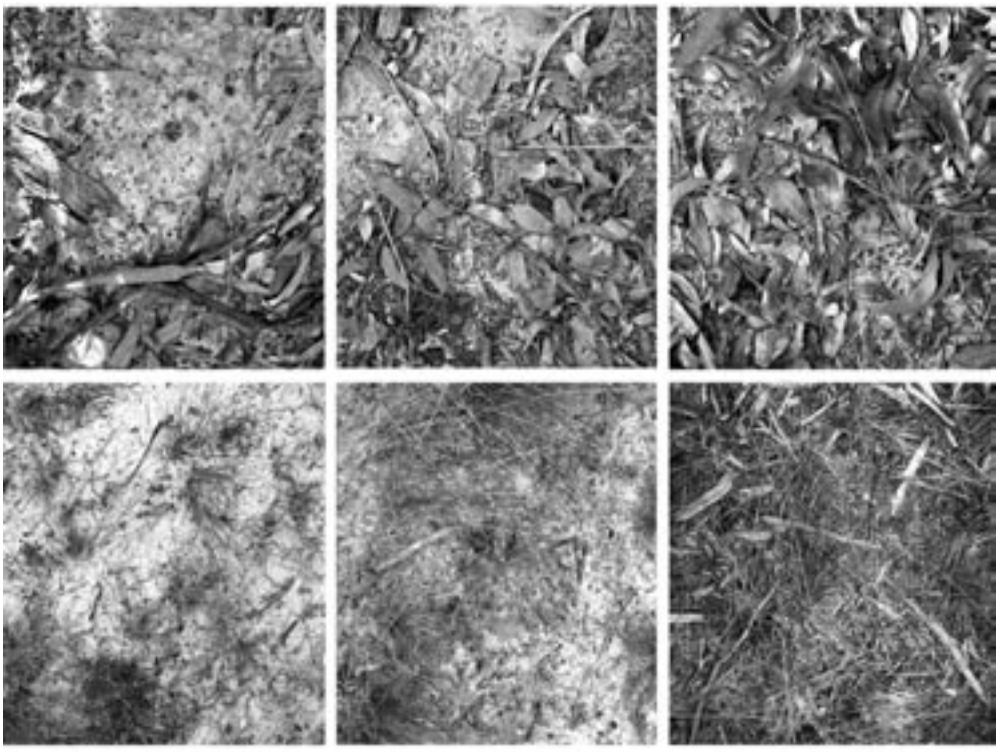
While the removal of fuel is necessary to reduce a bush fire hazard, you also need to consider soil stability, particularly on sloping areas.

Soil erosion can greatly reduce the quality of your land through:

- loss of top soil, nutrients, vegetation and seeds
- reduced soil structure, stability and quality
- blocking and polluting water courses and drainage lines

A small amount of ground cover can greatly improve soil stability and does not constitute a significant bush fire hazard. Ground cover includes any material which directly covers the soil surface such as vegetation, twigs, leaf litter, clippings or rocks. A permanent ground cover should be established (for example, short grass). This will provide an area that is easy to maintain and prevent soil erosion.

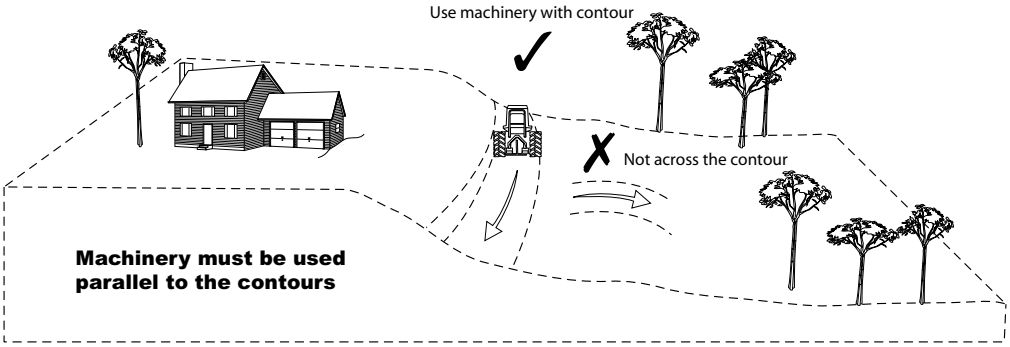
When using mechanical hazard reduction methods, you should retain a ground cover of at least 75% to prevent soil erosion. However, if your area is particularly susceptible to soil erosion, your Hazard Reduction Certificate may require that 90% ground cover be retained.



50% **75%** **100%**

Ground Cover

To reduce the incidence of soil erosion caused by the use of heavy machinery such as ploughs, dozers and graders, machinery must be used parallel to the contours. Vegetation should be allowed to regenerate, but be managed to maintain a low fuel load.

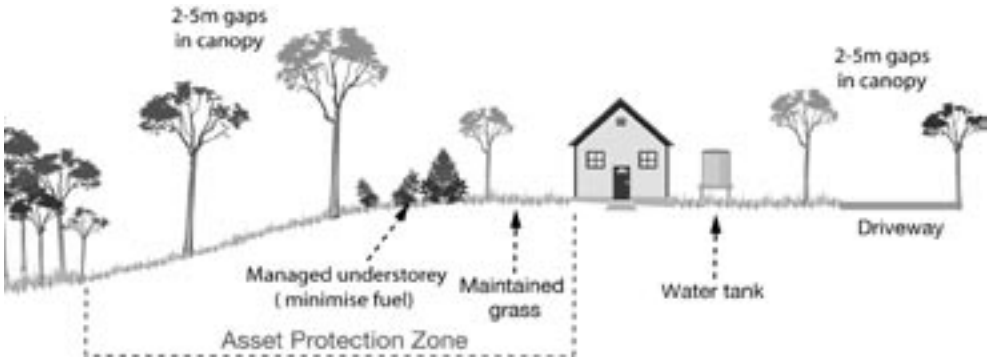


STEP 6. ONGOING MANAGEMENT AND LANDSCAPING

Your home and garden can blend with the natural environment and be landscaped to minimise the impact of fire at the same time. To provide an effective APZ, you need to plan the layout of your garden to include features such as fire resistant plants, radiant heat barriers and windbreaks.

Layout of gardens in an APZ
When creating and maintaining a garden that is part of an APZ you should:

- ensure that vegetation does not provide a continuous path to the house;
- remove all noxious and environmental weeds;
- plant or clear vegetation into clumps rather than continuous rows;
- prune low branches two metres from the ground to prevent a ground fire from spreading into trees;
- locate vegetation far enough away from the asset so that plants will not ignite the asset by direct flame contact or radiant heat emission;
- plant and maintain short green grass around the house as this will slow the fire and reduce fire intensity. Alternatively, provide non-flammable pathways directly around the dwelling;
- ensure that shrubs and other plants do not directly abut the dwelling. Where this does occur, gardens should contain low-flammability plants and non flammable ground cover such as pebbles and crush tile; and
- avoid erecting brush type fencing and planting "pencil pine" type trees next to buildings, as these are highly flammable.



Removal of other materials
Woodpiles, wooden sheds, combustible material, storage areas, large quantities of garden mulch, stacked flammable building materials etc. should be located away from the house. These items should preferably be located in a designated cleared location with no direct contact with bush fire hazard vegetation.

Other protective features
You can also take advantage of existing or proposed protective features such as fire trails, gravel paths, rows of trees, dams, creeks, swimming pools, tennis courts and vegetable gardens as part of the property's APZ.

PLANTS FOR BUSH FIRE PRONE GARDENS

When designing your garden it is important to consider the type of plant species and their flammability as well as their placement and arrangement.

Given the right conditions, all plants will burn. However, some plants are less flammable than others.

Trees with loose, fibrous or stringy bark should be avoided. These trees can easily ignite and encourage the ground fire to spread up to, and then through, the crown of the trees.

Plants that are less flammable, have the following features:

- high moisture content
- high levels of salt
- low volatile oil content of leaves
- smooth barks without "ribbons" hanging from branches or trunks; and
- dense crown and elevated branches.

When choosing less flammable plants, be sure not to introduce noxious or environmental weed species into your garden that can cause greater long-term environmental damage.

For further information on appropriate plant species for your locality, contact your local council, plant nurseries or plant society.

If you require information on how to care for fire damaged trees, refer to the Firewise brochure *Trees and Fire Resistance; Regeneration and care of fire damaged trees.*

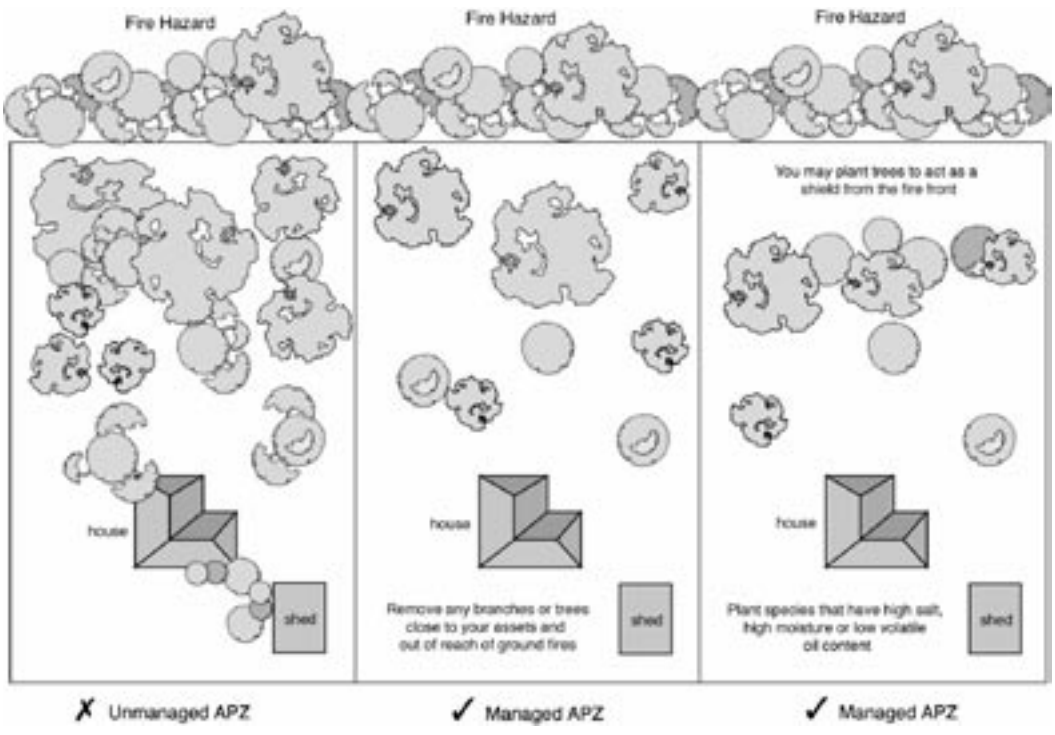
WIND BREAKS

Rows of trees can provide a wind break to trap embers and flying debris that could otherwise reach the house or asset.

You need to be aware of local wind conditions associated with bush fires and position the wind break accordingly. Your local RFS Fire Control Centre can provide you with further advice.

When choosing trees and shrubs, make sure you seek advice as to their maximum height. Their height may vary depending on location of planting and local conditions. As a general rule, plant trees at the same distance away from the asset as their maximum height.

When creating a wind break, remember that the object is to slow the wind and to catch embers rather than trying to block the wind. In trying to block the wind, turbulence is created on both sides of the wind break making fire behaviour erratic.



HOW CAN I FIND OUT MORE?

The following documents are available from your local Fire Control Centre and from the NSW RFS website at **www.rfs.nsw.gov.au.**

- Before You Light That Fire
- Standards for Low Intensity Bush Fire Hazard Reduction Burning
- Standards for Pile Burning
- Application Instructions for a Bush Fire Hazard Reduction Certificate

If you require any further information please contact:

- your local NSW Rural Fire Service Fire Control Centre. Location details are available on the RFS website or
- call the NSW RFS Enquiry Line 1800 679 737 (Monday to Friday, 9am to 5pm), or
- the NSW RFS website at **www.rfs.nsw.gov.au.**

Produced by the NSW Rural Fire Service, Locked Mail Bag 17, GRANVILLE, NSW 2142. Ph. 1800 679 737
www.rfs.nsw.gov.au

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APPENDIX 3

BAL-12.5

AS 3959-2018 Section 5 BAL-12.5

AS 3959-2018 specifies the requirements for the construction of buildings in bushfire prone areas in order to improve their resistance and resilience to the mechanisms of bushfire attack. These mechanisms are;

- Burning embers
- Radiant heat
- Flame contact
- Wind
- Any combination of the above forms of attack

BAL-12.5 is primarily concerned with protection from ember attack and radiant heat up to and including 12.5 kW/m^2 where the site is less than 100m from the source of bushfire attack.
The following is a summarised version of AS 3959-2018 Section 5 BAL-12.5 It is to be used as a guide only to the likely requirements of the standard. Bushfire Consultant Pty Ltd assumes no responsibility for any reliance upon the material contained in this document. A full reading of the actual standard should be carried out, in conjunction with PBP 2019. This reading should be undertaken before design and construction is commenced.

Key Criteria for BAL-12.5	
Gaps >2 mm	Screened with 2 mm corrosion resistant metal screen Corrosion resistant steel, bronze or aluminium
Glass	Grade A safety glass 4mm thick
Walls <400mm from a surface	Non combustible/bushfire resistant timber
Un-enclosed floor spaces <400 AGL*	Non combustible/bushfire resistant timber
Windows and doors construction	Non combustible/bushfire resistant timber
Doors	Tight fitting with draught excluders
Windows openable portions	Screened
Screens	2 mm corrosion resistant steel, bronze or aluminium
Roofs	Non combustible materials Fully sarked All gaps and penos screened
Decking (trafficable areas)	Non combustible/bushfire resistant timber or equal
Deck framing (bearers, joists etc)	Non combustible/bushfire resistant timber or equal **Note: Treated Pine is NOT PERMISSIBLE externally unenclosed**

Statement of Environmental Effects

Project Details

Client:	Mrs. Lauren Prummel and Mr. Gavin Prummel
Lot / Section / Deposited Plan:	3 / / 1223485
Street Address:	79 Prince Street, Clarence Town, 2321
Local Government Area:	DUNGOG SHIRE COUNCIL
Zoning:	R1

Overview

Site

The site is a vacant greenfield site in the Locality of Clarence Town. It has a frontage to the South Direction of 16m to Prince Street, a length of 40.23m and an area of 796m² with a gentle slope of approximately 2m.

The site is affected by the following conditions:

Flood:	Flood (RL22.55)
Bushfire:	BAL 12.5
Acid Sulphate:	N
Heritage:	No
Coastal:	No

Proposal

The proposed development consists of a single-story residence with attached double garage. The dwelling is of typical modern scale and construction.

Ancillary Development

No Ancillary Development is proposed.

Proposal density

Neither Council DCP/LEP outline a FSR/Site coverage for the site. The proposed dwelling has a total area of 250.21m² across a site area of 796.65m². This equates to an effective FSR/Site coverage of 31.4%. This is considered typical for modern residential development and therefore does not present significant issue with respect to density

Height of Buildings

Neither The Council DCP/LEP stipulates a maximum build height of for the site. The proposal has a maximum building height of 5.647m as shown on the elevations of the associated plan set.

Streetscape

The dwelling has been designed to address the primary and secondary street frontages, while providing ample off-street parking and passive surveillance of the public domain. It maintains a bulk and scale consistent with the surrounding area and a complimentary material palette of Brick veneer, Lightweight Cladding and a Metal Sheet roof. The proposed dwelling maintains a front primary setback of 4.5m and secondary setback of 3m to the dwelling and 6.602m to the garage.

Side & Rear Setbacks

The dwelling maintains a side setback of 3m & 4.617m respectively and a rear setback of 12.881m. The setback as shown on the site plan of the associated plan set is compliant with the council controls.

Landscaped Area

The proposed development is comprised of the following breakdown

- 250.21m² of building footprint
- 0m² of ancillary structures
- 0m² of hardstand area

The remainder of the site is available for landscape with sufficient area for deep soil planting.

Private Open Space

The proposed dwelling is oriented with main and outdoor living areas to the North direction. the 4m x 4m principal private space is provided directly off the alfresco and the proposal has 25m² of total private open space.

Privacy

The proposed dwelling is a Single Story structure, ground floor windows will be screened by dividing fences. The private open space and outdoor living areas have been oriented to the rear of the block to enhance the privacy of the occupants.

Solar Access

The proposed dwelling is a Single Story structure and has been sited so there is minimal impact of building shadows on neighbouring sites. The main living, outdoor living & private open space have been oriented to the North direction to ensure access to sun during mid-winter.

View Sharing

The Dwelling is located on a greenfield site, the proposal is of a similar bulk and scale to those expected in the area. As the location, bulk and scale of the development is typical for the area there is no detriment to view sharing expected.

Earthworks

The proposed site has a gentle slope, as such the expected cut and fill maintains a maximum of 235mm of cut and 580mm of fill with no import / export required

Retaining walls

Retaining walls are not required.

Car Parking & Vehicular Access

Off street parking is provided via the attached double garage, with additional parking within the property boundary on the driveway. The driveway has been designed to AS2890 and councils' standard details. Due to the scale of the development, it is expected that no additional traffic movements will be generated.

Conclusion

As shown through the above the proposed development is appropriate regarding its impact on the street, its neighbours and context. This is shown through adherence to the relevant planning legislation and instruments.

Waste Minimisation and Management Plan

Project Details

Client:	Mrs. Lauren Prummel and Mr. Gavin Prummel
Lot / Section / Deposited Plan:	3 / / 1223485
Street Address:	79 Prince Street, Clarence Town, NSW, 2321
Local Government Area:	DUNGOG SHIRE COUNCIL

Type of Works:	Erection of a New Dwelling	
Expected Waste:	Construction and Habitation	
Waste Management Provider:	**Construction:**	Nominated Waste management Sub-Contractor
	Habitation:	Council
Waste Receptacle Location:	**Construction:**	Contractor supplied waste receptacle as shown on site plans.
	Habitation:	Council provided wheeled bins (location nominated by occupant behind building line)
Temporary Toilet Facilities:	Front of Dwelling as shown on site plan	
Site Fencing:	Offset from Dwelling 10m or To perimeter of Boundary. *	

* Site Fencing not required where it adjoins existing and secure dividing fences

+ Quantities listed are per dwelling.

Hunter Homes Pty Ltd.
1300 289 466 | hunterhomesnsw.com
11 Hank Street, Heatherbrae NSW 2324
ABN 76 133 887 064 | Builder License 216162C

BUILDING LEGACY.

Construction Waste

Construction waste is to primarily be managed by a nominated waste management provider through the provision of a standard skip bin. Further detail on end process and provider can be provided on request after commencement of construction.

Material	Qty	Disposal	Disposal Details
Excavated Material	Nil	Reuse	Additional excavated material to be reused onsite as clean fill under construction or topsoil onsite.
Timber	<0.5m³	Reuse / Disposal	Reuse as formwork and bracing were possible and as required. Disposal through nominated waste management provider
Concrete	<0.5m³	Recycle	Recycle as masonry products through nominated waste management provider.
Steel Reinforcing	<0.1m³	Reused / Recycle	Reuse on site in other concrete applications, recycle as scrap metal through nominated waste management provider
Bricks / AAC / Pavers	<0.75m³	Recycle	Recycle as masonry products through nominated waste management provider.
Tile	<0.25m³	Recycle	Recycle as masonry products through nominated waste management provider.
Metal	<0.1m³	Recycle	Recycle as scrap metal through nominated waste management provider
Glass	Nil	Disposal	Disposal through nominated waste management provider
Packaging	<0.25m³	Disposal / Reuse	Single use packaging is to be disposed of, pallets and reusable packaging is to be reused through nominated waste management provider
Plasterboard	<0.25m³	Disposal	Disposal by nominated waste management provider

* Site Fencing not required where it adjoins existing and secure dividing fences
⁺ Quantities listed are per dwelling.

Habitation Waste

Habitation waste is managed by the occupant and council, each dwelling is provided with standard 270L wheeled bins and has access to a nominated waste transfer facility through kerb side collection or waste transfer vouchers.

Material	Qty[+]	Frequency	Disposal Details
General Waste ("Red Bin")	<270L	Weekly	Disposal through council operated waste transfer structures and collection routes
Recycling ("Yellow Bin")	<270L	Fortnightly	Disposal through council operated waste transfer structures and collection routes
Green Waste ("Green Bin")	<270L	Fortnightly	Disposal through council operated waste transfer structures and collection routes
Special Waste	<0.75m³	Infrequently	Disposal through council operated waste transfer either via nominated "Kerb Side Collection" or "Waste Voucher" as nominated by council.

* Site Fencing not required where it adjoins existing and secure dividing fences

[+] Quantities listed are per dwelling.

Site Classification Investigation

AGILITY ENGINEERING

Client:	Hunter Homes	**Agility Job No:**	2025584
Designer:	-	**Designer Job No:**	-
Site Address:	Lot 3 No.79 Prince Street, Clarence Town		
Fieldwork Date:	23/09/2025	**Fieldwork By:**	JH
Reported By:	JH	**Reviewed By:**	MS

Site Details

Slope Direction:	See site survey	Existing Fill:	>1m
Slope Grade:	See site survey	Exist Site Development:	None
Vegetation:	Grass		

Borehole BH1 Location: See site plan

Depth	Material	Density	Moisture
0.0 - 1.3	FILL: Generally Silty CLAY, mp-hp, grey mottled brown, trace f-c sand, trace f-c angular gravel	-	M
1.3 - 1.6	FILL?: Silty Sandy GRAVEL, f-c, angular, grey, f-c sand	-	W
1.6 - 2.3	Silty CLAY, mp, grey, trace f-c sand, trace f-m subrounded gravel (residual soil)		
2.3 - 2.6	XW-HW SANDSTONE, brown	H-VLow?	D
2.6	Borehole terminated (slow progress)		

XW Rock Depth: 2.3m

Equipment: Trailer mounted drill-rig with 115mm ø solid flight auger

Borehole BH2 Location: See site plan

Depth	Material	Density	Moisture
0.0 - 0.3	FILL: Sandy SILT, lp, dark grey, f-c sand, with f-c angular gravel	-	SM/M
0.3 - 1.6	FILL: Generally Silty CLAY, mp-hp, grey mottled brown, trace f-c sand, trace f-c angular gravel	-	M
1.6 - 2.0	Gravelly SILT, lp, pale grey, f-c subrounded gravel, with f-c sand (alluvial soil)	-	W
2.0 - 2.7	CLAY, mp-hp, red-brown, with f-m subrounded gravel, with f-c sand (residual soil)	H	SM/M
2.7 - 2.8	XW-HW SANDSTONE, grey	H-VLow?	D
2.8	Borehole terminated (slow progress)		

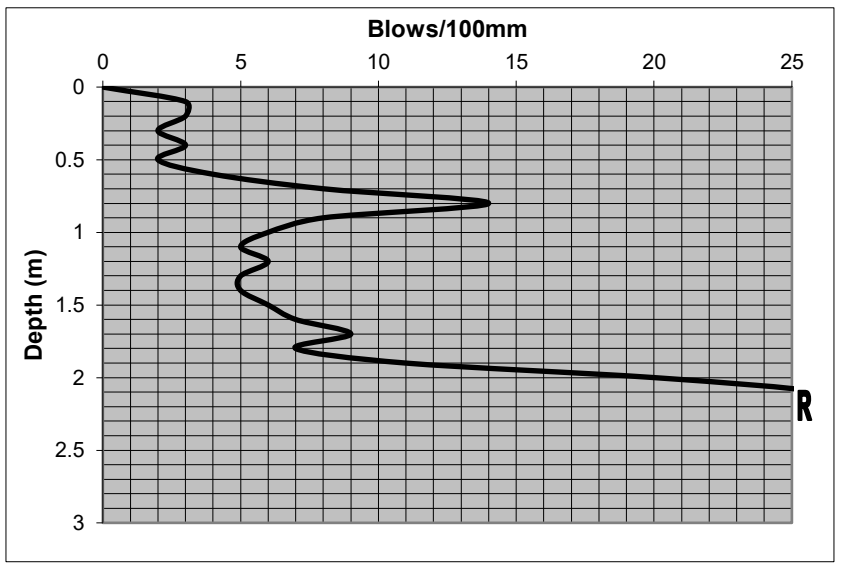
XW Rock Depth: 2.7m

Equipment: Trailer mounted drill-rig with 115mm ø solid flight auger

Borehole Key

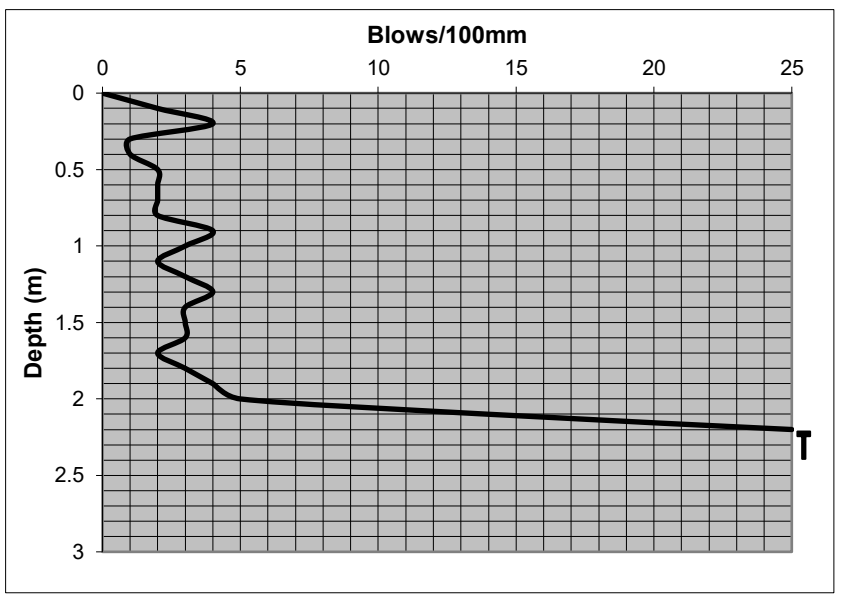
Grain Size	f=fine grained, m=medium grained, c=course grained
Plasticity	lp=Low Plasticity, mp=Medium Plasticity, hp=High Plasticity
Consistancy	VS=Very Soft, S=Soft, F=Firm, ST=Stiff, VST=Very Stiff, H=Hard
Density	VL=Very Loose, L=Loose, MD= Med Dense, D=Dense, VD=Very Dense
Rock Strength	V.Low=Very Low, Low=Low, Med=Medium, High=High, V.High=Very High
Moisture	D=Dry, SM=Some Moisture, M=Moist, W=Wet
Rock	NE=Not Encountered, XW=Extremely Weathered, HW=Highly Weathered

Dynamic Cone Penetrometer DCP1



Location: BH1

Dynamic Cone Penetrometer DCP2



Location: BH2

R = REFUSED **T = TERMINATED**

Wind Classification (AS4055 - 2021)

Region	Region A
Terrain Category	TC3
Topographic Class	T1
Shielding Classification	PS
Calculated Wind Classification	N2

Recommended Wind Classification **N2**

Note: Wind Classification shown herein is based on estimates of the future terrain category and shielding for this site in five (5) years time

Tree Score Effect

Tree Characteristics	Canopy	Medium
	Height	<8m
	Stage of Growth	Growing
	Drought Resistant	Resistant
Ground and Site Conditions	Depth of Fill	≥1m
	Adverse Conditions	No
	Soil Profile Reactivity	Moderate

Tree Score Effect Moderate

Site Classification

Depth Suction, Hs	1.8
Shrink Swell Index, Iss	Unable to Test
Characteristic Surface Movement, Ys	Unable to Test
Foundation Design to*	Class H1

* - based on estimated characteristic surface movement Ys value for existing site conditions only

Site Classification **Class P**

Class P Classification due to Contains uncontrolled fill >0.4m

General Notes

A copy of Agility Engineering's General Notes and CSIRO BFT18 - Foundation Maintenance and Footing Performance can be seen attached.

Comments

Fill material understood to be uncontrolled. Groundwater was encountered at depths of 1.3m and 1.6m below existing ground level in boreholes BH1 and BH2 at the time of investigation. All footings should be uniformly founded on material of similar stiffness, below all topsoil, slopewash and uncontrolled fill. Agility Engineering recommends footings founded on or piered to XW sandstone should be proportioned for a maximum allowable bearing capacity of 400kPa (expected to be encountered from approximately 2 to 3m below ground level). Alternatively, screw piles or timber driven mini-piles should be designed and proportioned by an experienced professional. Not in a mine subsidence area.

Geotechnical General Notes

Introduction
These notes have been provided in order to explain your geotechnical report. Not all elements are necessarily relevant to all reports.

Geotechnical Report
This geotechnical report is based on information gained from personal local experience, understanding of local geology, limited site investigation, subsurface sampling and/or laboratory testing. This report is tailored to provide information relevant to the scope of the project. Agility have performed the geotechnical investigation in general accordance with current professional and industry standards.

The extent of testing was limited to discrete test locations and variations that cannot be inferred or predicted may occur in ground conditions between test locations. To the best of our knowledge, information presented in this report represents a reasonable interpretation of the general condition of the site. Under no circumstances, however, do these findings represent the actual state of the site at all points. For this reason, this report must be regarded as interpretive rather than as a factual document as the report is limited by the scope of information on which interpretations are based upon. Site access constraints such as existing dwellings, steep sloping sites, dense vegetation and underground services may limit the understanding of the sub-surface profile across the site.

This geotechnical engineering report is based on conditions which existed at the time of subsurface exploration. Without approval from Agility Engineering, this report should not be used if there are any changes to the scope of the project or changes to the site conditions. Construction operations at or adjacent to the site and natural events such as floods, earthquakes or groundwater fluctuations may also affect subsurface conditions and thus, the reliability of this geotechnical report. Without consultation, Agility Engineering will not accept responsibility for problems that occur due to project modifications and/or site modifications. The programme of field sampling, laboratory testing and interpretations presented within this report are limited in nature and Agility Engineering does not assume liability for site conditions not accessible during the time of the investigation.

Agility Engineering should be contacted immediately should subsurface conditions be found to differ from those described in this report.

Engineering Logs
The engineering logs (borehole, test pit logs presented in this report are a geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling and the possibility of other than 'straight line' variations between the test locations.

Groundwater
Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils, groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an inaccurate indication of the true water table;
- Water table levels will vary from time to time with seasons, weather and/or tidal events. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable groundwater observations may be made by installing piezometer standpipes which may be monitored over variable extended timeframes.

Tree Effects
Due to complex tree root geometry, variable moisture extraction by trees and the difficulty in predicting future tree growth, a precise design for the effects of trees is outside current knowledge. The owner must be aware that although precautions have been taken for the effects of trees in our design, some distortion must be accepted. Engineers are not experts in tree growth and cannot be expected to know the anticipated growth and mature height of trees.

Site Inspection
Agility Engineering will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

Copyright

Soil & Rock Classification

AGILITY ENGINEERING

Description and Classification Methods

The description and classification of soils and rocks used within this report are based on descriptions and classifications detailed in Australian Standard AS 1726:2017.

Soil Types

AS 1726:2017 defines soil as particulate materials that occur in the ground and can be disaggregated or remoulded by hand in air or water without prior soaking. The dominant soil component is given capital letters and secondary and minor soil components are given lower case letters. FILL and TOPSOIL are also given block letters and are indicated at the beginning of the soil description.

Particle Size of Soil Components

Type		Particle size (mm)
	BOULDERS	>200
	COBBLES	63 - 200
Coarse grained soil	GRAVEL Course	19 - 63
	GRAVEL Medium	6.7 - 19
	GRAVEL Fine	2.36 – 6.7
	SAND Course	0.6 – 2.36
	SAND Medium	0.21 – 0.6
	SAND Fine	0.075 – 0.21
Fine grained soil*	SILT	0.002 - 0.075
	CLAY	<0.002

* Fine grained soils to be described from engineering behaviour by visual tactile techniques

Fine Grained Soil Plasticity

Soil plasticity is characterised from the liquid limit of silts and clays. When laboratory tests are not available, plasticity is estimated using field visual and tactile methods.

Plasticity	Liquid limit for silt	Liquid limit for clay
Non-plastic	Not applicable	Not applicable
Low plasticity	≤50	≤35
Medium plasticity	Not applicable	>35, ≤50
High plasticity	>50	>50

Course Grained Soil Particle Characteristics

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - one or more intermediate sizes poorly represented
- Gap graded – one or more intermediate sizes absent
- Uniform - an excess of a particular particle size

Where significant, particle shape can be defined as being rounded, sub-rounded, sub-angular, angular, flaky, platy or elongated.

Moisture Condition

Soil Type	Moisture Condition	Description
Course grained soil	Dry (D)	Non-cohesive and free running
	Moist (M)	Soil cool, darkened and sticks together
	Wet (W)	Soil cool dark, free water forms when handling
Fine grained soil	*w*<PL	Soil dryer than plastic limit, hard and friable or powdery
	w ~PL	Soil near plastic limit, can be moulded
	w >PL	Soil wetter than plastic limit, soil usually weakened, free water forms when handling

Cohesive Soil Consistency

Cohesive soils include fine grained soils and coarse grained soils with sufficient fine grained components to induce cohesive behaviour. Consistency describes the ease with which a soil can be remoulded measured by the indicative undrained shear strength of the soil or assessed by field tests.

Consistency	Abbreviation	Undrained shear strength (kPa)
Very Soft	VS	<12
Soft	S	12 - 25
Firm	F	25 - 50
Stiff	St	50 - 100
Very Stiff	VSt	100 - 200
Hard	H	>200
Friable	Fr	-

Relative Density of Non-Cohesive, Coarse Grained Soils

Non-cohesive soils are classified on the basis of relative density, generally assessed from penetration test procedures and well-established correlations.

Relative Density	Abbreviation	Density Index %
Very loose	VL	<15
Loose	L	15 - 35
Medium Dense	MD	35 - 65
Dense	D	65 - 85
Very Dense	VD	>85

Rock Classification

The rock type is given in capital letters followed by the grain size, colour, fabric and texture of the rock. The degree of weathering and the rock material strength classification are provided. Where no point load strength index or laboratory testing was undertaken, rock strength will be estimated using field assessment techniques in accordance with AS 1726:2017 or estimated from drilling resistance.

FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE

Understanding and preventing soil-related building movement

This Building Technology Resource is designed to identify causes of soil-related building movement, and to suggest methods of prevention of resultant cracking.

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the home owner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement.

SOIL TYPES

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

Classifications for a given area can generally be obtained by application to the local authority, but these are sometimes unreliable and if there is doubt, a geotechnical report should be commissioned. As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. Table 1 below is a reproduction of Table 2.1 from Australian Standard AS 2870-2011, Residential slabs and footings.

CAUSES OF MOVEMENT

SETTLEMENT DUE TO CONSTRUCTION

There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction but has been known to take many years in exceptional cases.

These problems may be the province of the builder and should be taken into consideration as part of the preparation of the site for construction.

EROSION

All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

SATURATION

This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume, particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

SEASONAL SWELLING AND SHRINKAGE OF SOIL

All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below, from AS 2870). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

SHEAR FAILURE

This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.

In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

TREE ROOT GROWTH

Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.

TABLE 1. GENERAL DEFINITIONS OF SITE CLASSES.

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes
H1	Highly reactive clay sites, which may experience high ground movement from moisture changes
H2	Highly reactive clay sites, which may experience very high ground movement from moisture changes
E	Extremely reactive sites, which may experience extreme ground movement from moisture changes

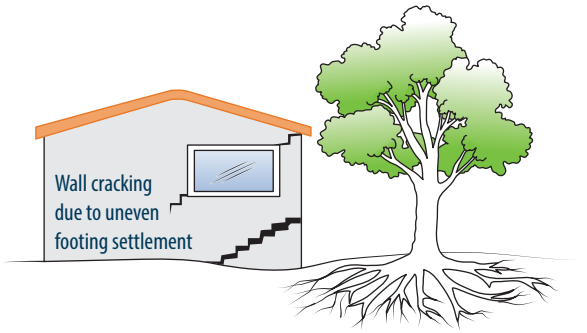


FIGURE 1 Trees can cause shrinkage and damage.

- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

UNEVENNESS OF MOVEMENT

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior through absorption. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Shrinkage usually begins on the side of the building where the sun's heat is greatest.

EFFECTS OF UNEVEN SOIL MOVEMENT ON STRUCTURES

EROSION AND SATURATION

Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpends).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

SEASONAL SWELLING/SHRINKAGE IN CLAY

Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.

As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated, and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry, and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

MOVEMENT CAUSED BY TREE ROOTS

In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

COMPLICATIONS CAUSED BY THE STRUCTURE ITSELF

Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

EFFECTS ON FULL MASONRY STRUCTURES

Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also

exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

EFFECTS ON FRAMED STRUCTURES

Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation causes a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

EFFECTS ON BRICK VENEER STRUCTURES

Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

WATER SERVICE AND DRAINAGE

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem. Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.
- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

SERIOUSNESS OF CRACKING

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. Table 2 below is a reproduction of Table C1 of AS 2870-2011.

AS 2870-2011 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

PREVENTION AND CURE

PLUMBING

Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

GROUND DRAINAGE

In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject may be regarded as an area for an expert consultant.

PROTECTION OF THE BUILDING PERIMETER

It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving should extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill.

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

CONDENSATION

In buildings with a subfloor void, such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

TABLE 2. CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS.

Description of typical damage and required repair	Approximate crack width limit	Damage category
Hairline cracks	<0.1 mm	0 – Negligible
Fine cracks which do not need repair	<1 mm	1 – Very Slight
Cracks noticeable but easily filled. Doors and windows stick slightly.	<5 mm	2 – Slight
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired.	5–15 mm (or a number of cracks 3 mm or more in one group)	3 – Moderate
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted.	15–25 mm but also depends on number of cracks	4 – Severe

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Warning: Although this Building Technology Resource deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders, and mould.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

THE GARDEN

The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

EXISTING TREES

Where a tree is causing a problem of soil drying or there is the existence or threat of upheaval of footings, if the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. If it is not possible to remove the relevant roots without damage to the tree, an application to remove the tree should be made to the local authority. A prudent plan is to transplant likely offenders before they become a problem.

INFORMATION ON TREES, PLANTS AND SHRUBS

State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information.

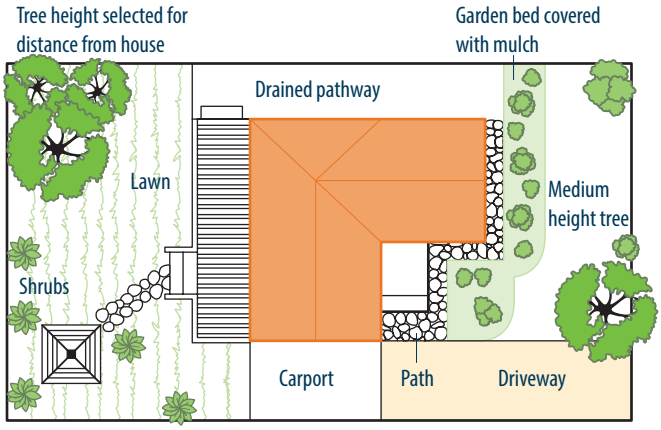

FIGURE 2 Gardens for a reactive site.

EXCAVATION

Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

REMEDIATION

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the home owner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

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Nationwide House Energy Rating Scheme® NatHERS® Certificate No. #HR-1EZWX8-01

Generated on 14 Jan 2026 using Hero 4.1 (Chenath v3.23)

Property

Address	79 Prince Street , Clarence Town, NSW, 2321
Lot/DP	3/1223485
NCC Class*	1a
Floor/all Floors	1 of 1 floors
Type	New

Plans

Main Plan	For Job 25036 14/01/2026 8.
Prepared by	Hunter Homes (BSA21749)

Construction and environment

Assessed floor area (m²)*		**Exposure Type**	
Conditioned*	157.5	Suburban	
Unconditioned*	10.9	**NatHERS climate zone**	
Total	203.8	28 - Richmond	
Garage	35.3		

Accredited assessor

Name	Krzysztof Kwiatkowski
Business name	Building Sustainability Assessments
Email	enquiries@buildingsustainability.net.au
Phone	+61 249623439
Accreditation No.	DMN/24/2214
Assessor Accrediting Organisation	DMN
Declaration of interest	No Conflict of Interest

NCC Requirements

BCA provisions	Volume 2
State/Territory variation	Yes

National Construction Code (NCC) requirements

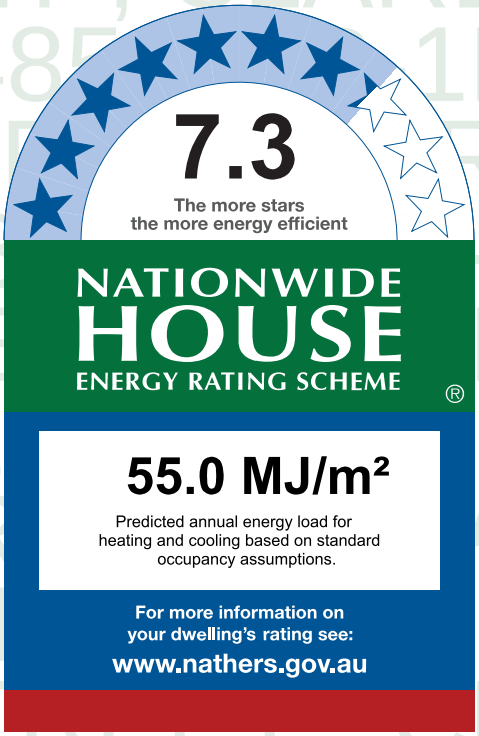
The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J2D2(2)(a) and (3) of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

Thermal performance star rating



Thermal performance (MJ/m²)

Limits taken from ABCB Standard 2022

	Heating	Cooling
Modelled	36.8	18.2
Load limits	56	38

Features determining load limits

Floor type (lowest conditioned area)	CSOG
NCC climate zone 1 or 2	N
Outdoor living area	N
Outdoor living area ceiling fan	N

Whole of Home performance rating

No Whole of Home performance rating generated for this certificate.

Verification

To verify this certificate, scan the QR code or visit http://www.hero-software.com.au/pdf/HR-1EZWX8-01. When using either link, ensure you are visiting http://www.hero-software.com.au

* Refer to glossary.

About the ratings

Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

Heating and Cooling Load Limits

Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the *ABCB Standard: NatHERS heating and cooling load limits* for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

Setting options:

Floor type:

- CSOG - Concrete Slab on Ground
- SF - Suspended Floor (or a mixture of CSOG and SF)
- NA - Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA - Not Applicable

Outdoor living area:

- Yes
- No
- NA - Not Applicable

Outdoor living area ceiling fan:

- Yes
- No
- NA - Not Applicable

Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar.

Energy use:

No Whole of Home performance assessment conducted for this certificate.

Greenhouse gas emissions:

No Whole of Home performance assessment conducted for this certificate.

Cost:

No Whole of Home performance assessment conducted for this certificate.

* Refer to glossary.

Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Genuine certificate check					
Does this Certificate match the one available at the web address or QR code verification link on the front page?		☐	☐	☐	☐
Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate?		☐	☐	☐	☐
Thermal performance check					
Windows and glazed doors					
Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate?	☐	☐	☐	☐	☐
Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate?			☐	☐	☐
External walls					
Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'External wall type table'* on this Certificate?	☐	☐	☐	☐	☐
Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate?	☐	☐	☐	☐	☐
Floor					
Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate?	☐	☐	☐	☐	☐
Ceiling penetrations*					
Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate?	☐	☐	☐	☐	☐
Ceiling					
Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certifi cate?	☐	☐	☐	☐	☐
Roof					
Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate?	☐	☐	☐	☐	☐
Apartment entrance doors (NCC Class 2 assessments only)					
Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.	☐	☐		☐	☐
Exposure*					
Has the appropriate exposure type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".	☐	☐		☐	☐
Heating and cooling load limits*					
Do the load limits settings (shown on page 1) match what is shown on the NatHERS-stamped plans?	☐	☐	☐	☐	☐

* Refer to glossary.

Certificate check

Continued

	Approval stage		Construction stage		
	Assessor checked	Consent authority/ surveyor checked	Builder checked	Consent authority/ surveyor checked	Occupancy/other
Additional NCC requirements for thermal performance (not included in the NatHERS assessment)					
Thermal bridging					
Does the dwelling meet the NCC requirement for thermal bridging?		☐	☐	☐	☐
Insulation installation method					
Has the insulation been installed according to the NCC requirements?			☐	☐	☐
Building sealing					
Does the dwelling meet the NCC requirements for Building Sealing?		☐	☐	☐	☐
Whole of Home performance check (not applicable if a Whole of Home assessment is not conducted)					
Appliances					
Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate?	☐	☐	☐	☐	☐
Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate?	☐	☐	☐	☐	☐
Additional NCC Requirements for Services (not included in the NatHERS assessment)					
Does the lighting meet the artificial lighting requirements specified in the NCC?		☐	☐	☐	☐
Does the hot water system meet the additional requirements specified in the NCC?		☐	☐	☐	☐
Provisional values* check					
Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below?	☐	☐			

Other NCC requirements

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

* Refer to glossary.

Additional Notes

- The information below is provided by Building Sustainability Assessments.
- Assessments are conducted in accordance with the BASIX Thermal Comfort Protocol and the NatHERS Technical Note.
- If this assessment is based on Development Application (DA) documentation then it is recommended that the assessment be reviewed when Construction Certificate (CC) documents are available. Assessments based on the minimum plan requirements suitable only for a DA should not be relied upon for a CC application. A re-assessment at CC stage may be necessary to include details not available at DA stage.
- Where information is not shown on the plans for details of ceiling penetrations, floor coverings, wall and roof colours, waffle pod thickness, window operability & neighbouring buildings the values required by the NatHERS Technical note have been applied. Be aware that these provisional values are often worse case and may adversely affect the assessment.

Room *schedule*

Room	Zone Type	Area (m²)
GARAGE	Garage	35.34
MEDIA	Living	11.80
BED 2	Bedroom	10.04
BATH	Unconditioned	7.23
BED 3	Bedroom	11.81
BED 4	Bedroom	12.82
ENS	Night Time	7.15
MASTER	Bedroom	18.87
LDRY	Unconditioned	3.71
KITCHEN/LIVING	Kitchen/Living	84.99

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
LBS-002-005	3 Panel Sliding Door	6.5	0.73	0.70	0.77
TND-001-001	Trend Synergy Residential Aluminium Sliding Window	6.5	0.73	0.70	0.77

* Refer to glossary.

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
TND-002-001	Trend Synergy Residential Aluminium Awning Window	6.5	0.66	0.63	0.69

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orient-ation	Shading device*
BATH	TND-001-001	W07	1370	1450	Sliding	45	WSW	None
BED 2	TND-001-001	W08	1200	1800	Sliding	45	WSW	None
BED 3	TND-001-001	W06	1200	1800	Sliding	45	NNW	None
BED 4	TND-001-001	W05	1200	1800	Sliding	45	NNW	None
ENS	TND-002-001	W02	2100	850	Awning	90	ENE	None
KITCHEN/LIVING	LBS-002-005	D03	2340	3129	Sliding Door	60	NNW	None
KITCHEN/LIVING	TND-002-001	W04	2100	2650	Awning	60	ENE	None
KITCHEN/LIVING	TND-002-001	W03	2100	850	Awning	90	ENE	None
MASTER	TND-002-001	W01	1800	2650	Awning	60	SSE	None
MEDIA	TND-001-001	W09	860	2650	Sliding	45	WSW	None

Roof window *type and performance value*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	SHGC substitution tolerance ranges	
				lower limit	upper limit
None					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orient-ation	Outdoor shade	Indoor shade
None								

* Refer to glossary.

Skylight *type and performance*

Skylight ID	Skylight description
None	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orient-ation	Outdoor shade	Diffuser	Shaft Reflectance
None								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
GARAGE	2375	4800	90	SSE
GARAGE	2040	820	90	WSW
KITCHEN/LIVING	2340	1020	90	SSE
LDRY	2040	820	90	ENE

External wall *type*

Wall ID	Wall Type	Solar absorptance	Wall Colour	Bulk insulation (R-value)	Reflective wall wrap*
BV-SEMIREFL-CAV-A	Brick Veneer Stud Wall with Semi-Reflective Sarking	0.50	Medium	0.00	Yes
BV-SEMIREFL-CAV-B	Brick Veneer Stud Wall with Semi-Reflective Sarking	0.50	Medium	2.50	Yes
CONC-150-EXP	Precast 150mm Concrete - Exposed	0.50	Medium	0.00	No
DBL-BRICK-230-EXP	Double 230mm Brick Wall - Exposed	0.50	Medium	0.00	No
FC-SEMIREFL-CAV	Fibre-Cement Clad Battened (Semi-Refl Cavity) Stud Wall	0.50	Medium	2.50	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
BATH	BV-SEMIREFL-CAV-B	2590	2890	WSW	601	Yes
BED 2	BV-SEMIREFL-CAV-B	2590	2892	WSW	601	Yes
BED 3	BV-SEMIREFL-CAV-B	2590	3947	WSW	601	Yes
BED 3	BV-SEMIREFL-CAV-B	2590	2991	NNW	600	Yes
BED 4	BV-SEMIREFL-CAV-B	2590	4068	ENE	4777	Yes
BED 4	BV-SEMIREFL-CAV-B	2590	3000	NNW	602	Yes

* Refer to glossary.

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orient-ation	Horizontal shading feature* projection (mm)	Vertical shading feature
ENS	BV-SEMIREFL-CAV-B	2590	2974	ENE	603	Yes
GARAGE	DBL-BRICK-230-EXP	2665	5978	SSE	2038	Yes
GARAGE	BV-SEMIREFL-CAV-A	2665	5912	WSW	600	Yes
GARAGE	BV-SEMIREFL-CAV-A	2665	1570	NNW	600	Yes
GARAGE	CONC-150-EXP	75	5420	ENE		No
GARAGE	CONC-150-EXP	75	4280	NNW		No
GARAGE	BV-SEMIREFL-CAV-A	2665	439	ENE		Yes
KITCHEN/LIVING	BV-SEMIREFL-CAV-B	2590	1338	WSW	601	Yes
KITCHEN/LIVING	BV-SEMIREFL-CAV-B	2590	4059	NNW	4670	Yes
KITCHEN/LIVING	BV-SEMIREFL-CAV-B	2590	4741	ENE	603	Yes
KITCHEN/LIVING	FC-SEMIREFL-CAV	2590	552	NNW	9535	No
KITCHEN/LIVING	FC-SEMIREFL-CAV	2590	2412	ENE	175	Yes
KITCHEN/LIVING	FC-SEMIREFL-CAV	2590	552	SSE	11797	No
KITCHEN/LIVING	BV-SEMIREFL-CAV-B	2590	1725	ENE	603	Yes
KITCHEN/LIVING	BV-SEMIREFL-CAV-B	2590	1583	SSE	2437	Yes
LDRY	BV-SEMIREFL-CAV-B	2590	1846	ENE	603	Yes
MASTER	BV-SEMIREFL-CAV-B	2590	3117	ENE	603	Yes
MASTER	FC-SEMIREFL-CAV	2590	4059	SSE	1494	Yes
MASTER	FC-SEMIREFL-CAV	2590	1067	WSW	2373	Yes
MASTER	FC-SEMIREFL-CAV	2590	359	ENE	727	Yes
MEDIA	BV-SEMIREFL-CAV-B	2590	3398	WSW	601	Yes

Internal wall *type*

Wall ID	Wall Type	Area (m^2)	Bulk insulation
INT-PB	Internal Plasterboard Stud Wall	23.2	2.50
INT-PB	Internal Plasterboard Stud Wall	110.5	0.00

* Refer to glossary.

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
BATH	WAFFLE-85: Concrete Waffle Pod Slab on Ground (85mm)	7.2	N/A	0.59	Tile (8mm)
BED 2	WAFFLE-85: Concrete Waffle Pod Slab on Ground (85mm)	10.0	N/A	0.59	Carpet
BED 3	WAFFLE-85: Concrete Waffle Pod Slab on Ground (85mm)	11.8	N/A	0.59	Carpet
BED 4	WAFFLE-85: Concrete Waffle Pod Slab on Ground (85mm)	12.8	N/A	0.59	Carpet
ENS	WAFFLE-85: Concrete Waffle Pod Slab on Ground (85mm)	7.1	N/A	0.59	Tile (8mm)
GARAGE	WAFFLE-85: Concrete Waffle Pod Slab on Ground (85mm)	35.3	N/A	0.56	Exposed
KITCHEN/LIVING	WAFFLE-85: Concrete Waffle Pod Slab on Ground (85mm)	85.0	N/A	0.59	Tile (8mm)
LDRY	WAFFLE-85: Concrete Waffle Pod Slab on Ground (85mm)	3.7	N/A	0.59	Tile (8mm)
MASTER	WAFFLE-85: Concrete Waffle Pod Slab on Ground (85mm)	18.9	N/A	0.59	Carpet
MEDIA	WAFFLE-85: Concrete Waffle Pod Slab on Ground (85mm)	11.8	N/A	0.59	Carpet

Ceiling *type*

Location	Construction	Bulk insulation (R-value)	Reflective wrap*
BATH	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes
BED 2	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes
BED 3	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes
BED 4	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes
ENS	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes
GARAGE	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	0.00	Yes
KITCHEN/LIVING	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes
LDRY	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes
MASTER	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes
MEDIA	ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	4.00	Yes

* Refer to glossary.

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed /unsealed
BATH	1	Downlight	200	Sealed
BATH	1	Exhaust Fan	350	Sealed
BED 2	1	Downlight	200	Sealed
BED 3	1	Downlight	200	Sealed
BED 4	1	Downlight	200	Sealed
ENS	1	Downlight	200	Sealed
ENS	1	Exhaust Fan	350	Sealed
KITCHEN/LIVING	10	Downlight	200	Sealed
KITCHEN/LIVING	1	Exhaust Fan	350	Sealed
LDRY	1	Downlight	200	Sealed
MASTER	2	Downlight	200	Sealed
MEDIA	1	Downlight	200	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
None		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof Colour
ATTIC-METAL-01: Pitched / Attic Metal Roof (Roofspace) & Flat PB Ceiling	1.30	0.50	Medium

Thermal bridging *schedule for steel frame elements*

Building element	Steel section dimensions (height x width, mm)	Frame spacing (mm)	Steel thickness (BMT mm)	Thermal Break (R-value)
None				

Appliance *schedule*

(not applicable if a Whole of Home performance assessment is not conducted for this certificate)

* Refer to glossary.

Cooling system

Type	Location	Fuel Type	Minimum efficiency / performance	Recommended capacity
No Whole of Home Data				

Heating system

Type	Location	Fuel Type	Minimum efficiency / performance	Recommended capacity
No Whole of Home Data				

Hot water system

Type	Fuel type	Hot Water CER Zone	Minimum efficiency / STC	Assessed daily load [litres]
No Whole of Home Data				

Pool / spa equipment

Type	Fuel type	Minimum efficiency / performance	Recommended capacity
No Whole of Home Data			

Onsite Renewable Energy *schedule*

Type	Orientatation	Generation Capacity [kW]
No Whole of Home Data		

Battery *schedule*

Type	Storage Capacity [kWh]
No Whole of Home Data	

* Refer to glossary.

Explanatory Notes

About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary.

Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, behaviour, appliance performance, indoor air temperature and local climate.

Not all assumptions made by the assessor using the NatHERS accredited software tool are presented in this report and further details or data files may be obtained from the assessor.

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
AFRC	Australian Fenestration Rating Council
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
COP	Coefficient of performance
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
EER	Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input
Energy use	This is your homes rating without solar or batteries.
Energy value	The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard).
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure	see exposure categories below
Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Net zero home	a home that achieves a net zero energy value*.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Recommended capacity	this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person.
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
STCs	Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory
Thermal breaks	are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).
Window shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies)

* Refer to glossary.