



Proposed Residential Subdivision
312 Warringah Road
Frenchs Forest

ACOUSTIC REPORT



Client:

Qasabian Family Investment Pty Ltd
Attn: Nadia

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1. Introduction

This report is in response to a request by Qasabian Family Investment Pty Ltd for a road traffic noise assessment for a proposed residential subdivision to be located at 312 Warringah Road, Frenchs Forest. This traffic noise assessment was conducted in accordance with Warringah City Council and the NSW *Development Near Rail Corridors and Busy Roads – Interim Guideline*. To facilitate the assessment, unattended noise monitoring was conducted to determine the traffic impacts to the proposed residential dwelling. Based on the outcomes of the assessment, recommendations for acoustic treatments are specified.

2. Site Description

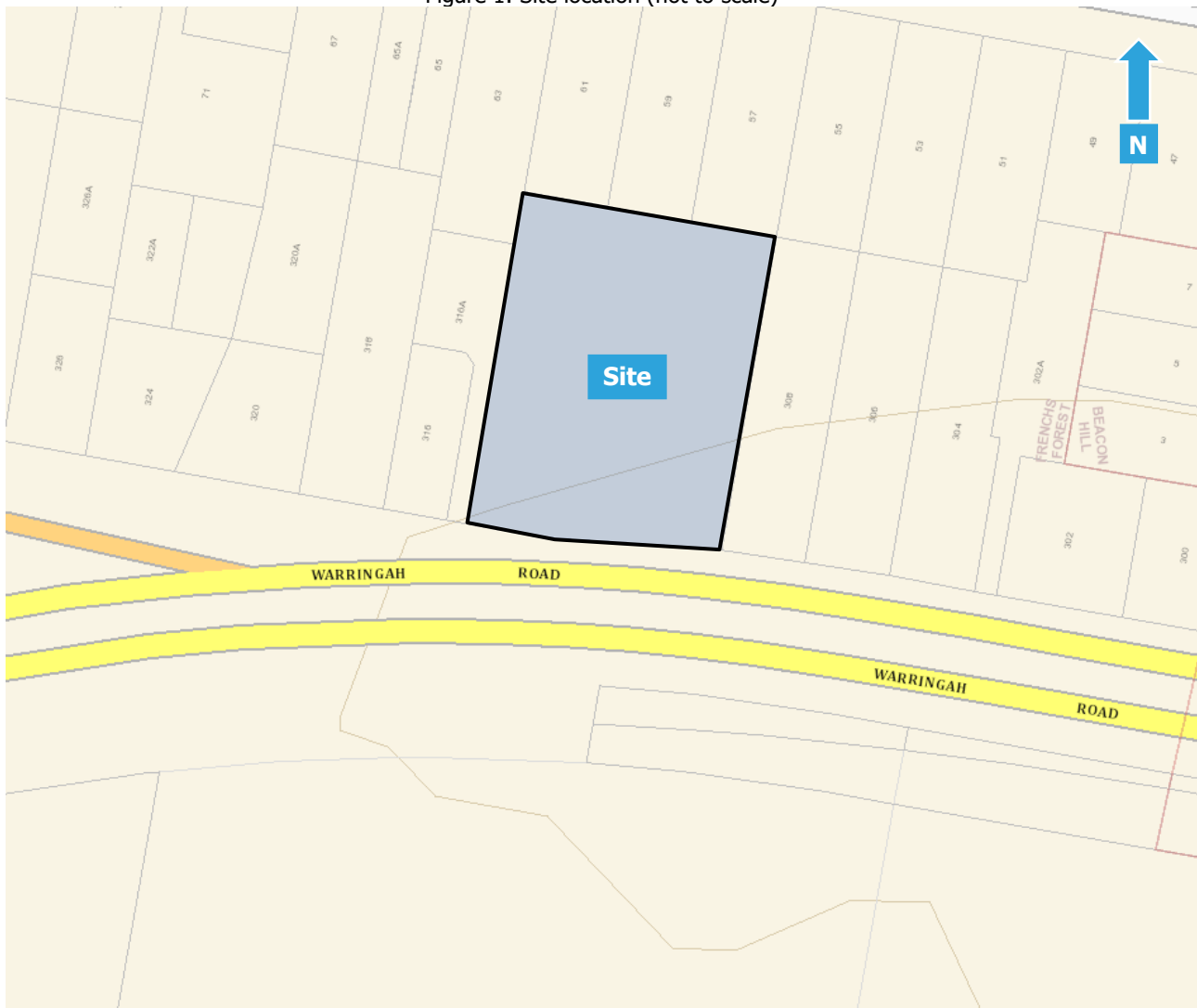
2.1 Site location

The site is described by the following:

312 Warringah Road, Frenchs Forest
Lot 100 on DP592389

Refer to Figure 1 for site location.

Figure 1: Site location (not to scale)



A comprehensive site survey was conducted on the 22nd July 2019 and identified the following:

- a) The proposed development will be constructed on the vacant lot that currently occupies the site.
- b) Residential dwellings are located adjacent to the western, eastern and northern site boundaries.
- c) Warringah Road bounds the site to the south.

2.2 Proposal

The proposal is to subdivide the existing lot into 5 residential lots comprised of the following:

- Site area of approximately 3218.2m².
- Lot 01: Ground floor living area, kitchen, pantry room, guest bedroom, bathroom, laundry, toilet, porch and garage. First floor rumpus room, two bedrooms, store, bathroom, master suite and ensuite.
- Lot 02: Ground floor living area, kitchen/dining room, pantry room, guest bedroom, bathroom, laundry/toilet, porch, outdoor dining area and garage. First floor rumpus room, two bedrooms, store, bathroom, master suite and ensuite.
- Lot 03: Ground floor living area, kitchen, pantry room, guest bedroom, library, bathroom, laundry/toilet, porch, outdoor dining area and garage. First floor rumpus room, two bedrooms, store, bathroom, master suite and ensuite.
- Lot 04: Ground floor living area, kitchen, pantry room, guest bedroom, bathroom, laundry, toilet, outdoor dining area, porch, workshop and garage. First floor rumpus room, two bedrooms, study area, store, bathroom, master suite and ensuite.
- Lot 05: Ground floor living area, kitchen, pantry room, guest bedroom, bathroom, laundry, toilet, outdoor dining area, porch, workshop and garage on the ground floor. First floor rumpus room, two bedrooms, store, bathroom, master suite and ensuite.
- Site access via Warringah Road.

Refer to the Appendices for development plans.

2.3 Acoustic environment

The surrounding area is primarily affected by road traffic noise from Warringah Road.

3. Equipment

The following equipment was used to record noise levels:

- Rion NL52 Environmental Noise Monitor (SN# 00175548)
- Pulsar Model 105 Ltd Sound Calibrator (SN # 57417)

The Environmental Noise Monitor holds current NATA Laboratory Certification and was field calibrated before and after the monitoring period, with no significant drift from the reference signal recorded.

4. Noise Monitoring Location

4.1 Unattended noise monitoring

A Rion NL52 environmental noise monitor was placed at 270 Warringah Road, Beacon Hill approximately 14.5m from the nearest lane of Warringah Road to measure road traffic noise levels. The monitor was located in a free field position with the microphone approximately 1.4 metres above ground surface level. The noise monitor was set to record noise levels between 22nd and 25th July 2019.

The environmental noise monitor was set to record noise levels in "A" weighting, Fast response with 15 minute statistical intervals. Road traffic noise was conducted in general accordance with Australian Standard *AS2702:1984 Acoustics – Methods for the measurement of road traffic noise*.

For the unattended noise monitoring location refer to Figure 2.

Figure 2: Noise monitoring location



5. Existing Ambient Noise Levels

The following tables present the measured ambient noise levels from the unattended noise survey. Any periods of inclement weather or extraneous noise are omitted from the measured data prior to determining the overall results.

5.1 Meteorological conditions

Meteorological observations during the unattended noise monitoring survey were obtained from the Bureau of Meteorology website (<http://www.bom.gov.au/climate/data>), shown in Table 1 below.

Table 1: Meteorological conditions – Terrey Hills

Day	Date	Rainfall (mm)	Wind			
			9am		3pm	
			Speed (km/h)	Direction	Speed (km/h)	Direction
Monday	22/07/2019	0	6	NNW	11	N
Tuesday	23/07/2019	0	9	NNW	9	NNW
Wednesday	24/07/2019	0	7	WNW	9	SW

5.2 Unattended road traffic noise levels

The measured road traffic noise levels at the monitoring location are as follows;

Table 2: Measured road traffic noise levels

Day	Date	LA10(18h)	LAeq(15h)	LAeq(9h)
		6am-12pm	7am-10pm	10pm-7am
Monday	22/07/2019	x	x	58.2
Tuesday	23/07/2019	65.3	63.0	58.4
Wednesday	24/07/2019	65.9	63.5	58.4
Average		66	63	58

Refer to the appendix for graphical representation.

6. Road Traffic Noise Criteria

To determine the appropriate noise criteria to be applied, a review of Northern Beaches planning policies and the NSW Development Near Rail Corridors and Busy Roads – Interim Guideline were conducted.

6.1 Northern Beaches Council

The proposed development is located within Northern Beaches local government area, therefore the following acoustic requirements are as follows:

"Development Application No: DA2019/0382 for Subdivision of land into five residential lots and construction of five dwellings at 312 Warringah Road FRENCHS FOREST.

These matters are as follows:

SEPP Infrastructure 2007 – Clause 102 Impact of Road Noise on Non-Road Development Clause 102 applies to development for the purpose of residential accommodation adjoining a road with an annual average daily traffic volume of more than 20,000 (in this case, Warringah Road). Development consent cannot be granted unless

(a) in any bedroom in the residential accommodation—35 dB(A) at any time between 10 pm and 7 am,

(b) anywhere else in the residential accommodation (other than a garage, kitchen, bathroom or hallway)—40 dB(A) at any time.

Detail has not been submitted demonstrating the development will meet the requirements of the SEPP. Council requests a further submission be provided, including an acoustic report demonstrating how the dwellings meet the internal noise criteria in accordance with Clause 102 the SEPP."

6.1.1 SEPP

The NSW Department of Planning document "State Environmental Planning Policy (Infrastructure) 2007" (SEPP) May 2019 includes noise criteria specific to road traffic. The relevant criteria are contained in Clause 102 Part (3) of the policy as follows;

Table 3: SEPP Clause 102 (3)

Location	Noise Level LAeq dBA
Any bedroom in the residential building (from 10pm to 7am)	≤35
Anywhere else in the residential building (other than a garage, kitchen, bathroom or hallway)	≤40

It should be noted that for any criteria based on Leq descriptor, a time duration for the Leq must be specified otherwise a variety of outcomes could be possible. The policy does not state the duration for the LAeq assessment, therefore guidance for the appropriate Leq duration is sought from other road traffic noise documents.

6.2 Development Near Rail and Corridors and Busy Roads – Interim Guideline

The NSW Department of Planning's Development Near Rail Corridors and Busy Roads –Interim Guideline 2008 specifies internal noise criterion for residential buildings as follows:

Table 4: Road traffic noise criteria - DNRCBR 2008

Location	Noise Level dBA	Applicable time period
Living Areas	≤ 40 (L_{eq9h}) & (L_{eq15h})	At any time
Sleeping Areas	≤ 35 (L_{eq9h})	Night (10 pm to 7 am)

7. Road Traffic Assessment

7.1 Traffic volumes

Traffic volumes from Warringah Road were obtained from Roads and Maritime Services (Traffic Volume Viewer <http://www.rms.nsw.gov.au>).

An approximated 1% annual traffic volume growth factor was applied for the 10-year planning horizon. Using this procedure, the relative increase in traffic noise levels over 10 years is calculated to be approximately 0.4dBA, which is taken into account for the future traffic noise predictions.

7.2 Predicted road traffic noise levels - 2029

Road traffic noise modelling for the proposed development was based on the following information:

- Proposed layout, floor plans and elevations provided by Alvaro Architects, Project 0234, Drawings 000, 100 to 101, 201-203, 301-303, 401-402, 501, SUB101, dated 19/07/2019.
- Warringah Road speed limit of 70km/h.
- Receiver heights 1.5m above finished floor level.

Table 5 presents the external predicted road traffic noise levels for the development.

Table 5: Predicted road traffic noise impacts

Lot	Floor	Room	L _{Aeq} (15hr) dB(A)	L _{Aeq} (9hr) dB(A)
1	Ground	Living Area	71	-
1	Ground	Guest Bedroom	-	66
1	First	Bedroom 01	-	67
1	First	Bedroom 02	-	67
1	First	Rumpus	72	-
1	First	Master Suite	-	67
2	Ground	Living Area	61	-
2	Ground	Guest Bedroom	-	56
2	First	Bedroom 01	-	56
2	First	Bedroom 02	-	56
2	First	Rumpus	61	-
2	First	Master Suite	-	56
3	Ground	Living Area	59	-
3	Ground	Guest Bedroom	-	54
3	Ground	Library	59	-
3	First	Bedroom 01	-	54
3	First	Bedroom 02	-	54
3	First	Rumpus	59	-
3	First	Master Suite	-	54
4	Ground	Living Area	59	-
4	Ground	Guest Bedroom	-	54
4	First	Bedroom 01	-	55
4	First	Bedroom 02	-	55

Lot	Floor	Room	LAeq(15hr) dB(A)	LAeq(9hr) dB(A)
4	First	Rumpus	59	-
4	First	Master Suite	-	55
5	Ground	Living Area	71	-
5	Ground	Guest Bedroom	-	66
5	First	Bedroom 01	-	67
5	First	Bedroom 02	-	67
5	First	Rumpus	72	-
5	First	Master Suite	-	67

Based on the predicted noise levels, additional façade treatments would be required. Refer to Section 8 for recommendations.

8. Recommendations

8.1 Road Traffic Noise

All building treatments for road traffic noise were calculated in accordance with Australian Standard *AS3671:1989 'Road Traffic Noise Intrusion – Building Siting and Construction'* and *"Development Near Rail Corridors and Busy Road Interim Guideline 2008"*.

8.1.1 Glazing

The minimum glazing treatments presented in Table 6 are required to comply with the following:

- The minimum glass thickness specified shall not be reduced regardless of the R_w performance of the glazing system.
- If compliance cannot be achieved with the minimum R_w ratings, the glazing system shall be upgraded until compliance is achieved.
- Glazing specified with acoustic seals requires a Q-lon seal or an equivalent product, mohair seals are not acceptable.
- The glazier shall provide NATA test reports on request to verify compliance with the minimum R_w ratings. Generic reports are not acceptable.

Table 6: Required façade acoustic ratings

Lot	Floor	Location	Rw Ratings						Glazing				Acoustic seals
			Wall	Roof	Southern Windows	Northern Windows	Eastern/Western Windows	Glazed Stacking Doors	Southern Windows	Northern Windows	Eastern/Western Windows	Glazed Stacking Doors	
1	Ground	Living Area	50		35	27		28	10.38 lam	4mm float		5mm tough	yes
1	Ground	Guest Bedroom	50		35				10.38 lam				yes
1	First	Bedroom 01	50	45	35				10.38 lam				yes
1	First	Bedroom 02	50	45		22				4mm float			no
1	First	Rumpus	50	45	37	27			11.38 lam or 10.5 VLam	4mm float			yes
1	First	Master Suite	50	45	38	27	27		12.5 VLam	4mm float	4mm float		yes
2	Ground	Living Area	45		22	22	22	23	4mm float	4mm float	4mm float	5mm tough	no
2	Ground	Guest Bedroom	45		22		22		4mm float		4mm float		no
2	First	Bedroom 01	45	45	27				4mm float				yes
2	First	Bedroom 02	45	45		22				4mm float			no
2	First	Rumpus	45	45	27		27		4mm float		4mm float		yes
2	First	Master Suite	45	45		22	22			4mm float	4mm float		no
3	Ground	Living Area	35		22	22		23	4mm float	4mm float		5mm tough	no
3	Ground	Guest Bedroom	35		22				4mm float				no
3	Ground	Library	35		22				4mm float				no
3	First	Bedroom 01	35	35	22				4mm float				no
3	First	Bedroom 02	35	35		22				4mm float			no
3	First	Rumpus	35	35	22	22			4mm float	4mm float			no
3	First	Master Suite	35	35		22				4mm float			no
4	Ground	Living Area	35			22	22	23		4mm float	4mm float	5mm tough	no

Lot	Floor	Location	Rw Ratings						Glazing				Acoustic seals
			Wall	Roof	Southern Windows	Northern Windows	Eastern/Western Windows	Glazed Stacking Doors	Southern Windows	Northern Windows	Eastern/Western Windows	Glazed Stacking Doors	
4	Ground	Guest Bedroom	35		22				4mm float				no
4	First	Bedroom 01	35	35		22				4mm float			no
4	First	Bedroom 02	35	35		22				4mm float			no
4	First	Rumpus	35	35			22				4mm float		no
4	First	Master Suite	35	35	22				4mm float				no
5	Ground	Living Area	50		35	22	27	28	10.38 lam	4mm float	4mm float	5mm tough	yes
5	Ground	Guest Bedroom	50		35				10.38 lam				yes
5	First	Bedroom 01	50	45		27				4mm float			yes
5	First	Bedroom 02	50	45	35		30		10.38 lam		6mm float		yes
5	First	Rumpus	50	45	37				11.38 lam or 10.5 VLam				yes
5	First	Master Suite	50	45		27				4mm float			yes

Any locations not identified in Table 6 would require 4mm float for windows (minimum R_w 22) and 4mm toughened for sliding doors (minimum R_w 22)

8.1.2 Wall construction

The minimum required acoustic rating of the external wall is R_w 50, a 110mm brick veneer systems will comply with an internal stud and 50mm thick 11kg/m³ insulation within the resulting cavity. For lightweight wall system the following construction would be required:

Table 7: Typical lightweight wall constructions

Description	Cavity insulation	Rw Rating
Minimum 6mm Fibre Cement sheeting direct fixed to 16mm fire-rated plasterboard external, 90mm timber studs, 2 layers of 13mm fire-rated plasterboard internal	90mm glasswool batts (14kg/m ³)	50
6mm fibre cement cladding fixed to 13mm fire rated plasterboard external, 90mm timber studs at maximum 600mm centres, 13mm fire rated plasterboard internal	90mm glasswool batts (14kg/m ³)	45
Minimum 6mm Fibre Cement sheeting external, 90mm timber studs, 10mm plasterboard internal	Minimum 75mm glasswool batts (11kg/m ³) or equivalent	35

Note that the construction systems listed in the table are not the only possible types of construction. Other similar systems achieving at least minimum R_w 50 would also be suitable.

8.1.3 Roofing construction

The required roof/ceiling acoustic rating is R_w 45. For tiled roof, the following typical construction would be required:

Table 8: Typical roof constructions

Description	Cavity insulation	R_w Rating
Tiled roof with 60mm Anticon, ceiling joists or trusses at maximum 450mm centres, 13mm thick fire-rated plasterboard ceiling.	Minimum 165mm glasswool batts (14kg/m^3) or equivalent	45
Tiled roof with 60mm Anticon, ceiling joists or trusses at maximum 600mm centres, 10mm plasterboard ceiling.	Minimum 165mm glasswool batts (14kg/m^3) or equivalent	35

Note that the construction system listed in the table is not the only possible type of construction. Other similar systems achieving at least minimum R_w 45 would also be suitable.

8.1.4 Alternative ventilation

To achieve the required internal noise levels for the dwelling, all bedrooms and living spaces would require the provision for an alternative ventilation system (in accordance with National Construction Code 2016 requirements) similar to air-conditioning or mechanical ventilation to allow doors and windows to be closed.

8.1.5 Entry doors

Lots 1 and 5 entry doors will require a 40mm solid core door or an aluminium door with a 10.38mm laminated glass infill and shall be fitted with Raven RP-120 seals or equivalent around the perimeter and Raven RP99SI drop seals at the base of the door.

9. Conclusion

A road traffic noise assessment was conducted for the proposed residential subdivision to be located at 312 Warringah Road, Frenchs Forest. Recommendations have been included in Section 8 to reduce traffic noise impacts for the development.

Should you have any queries please do not hesitate to contact us.

Yours faithfully,

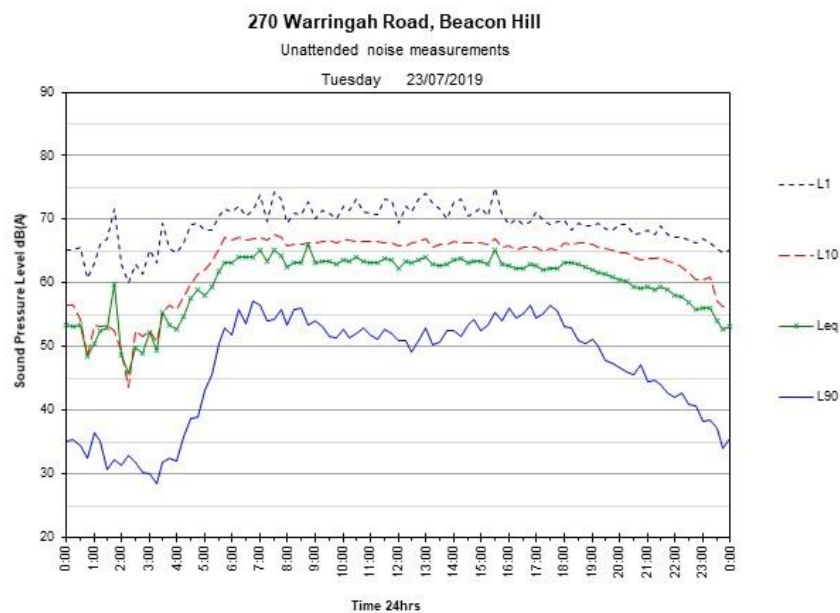
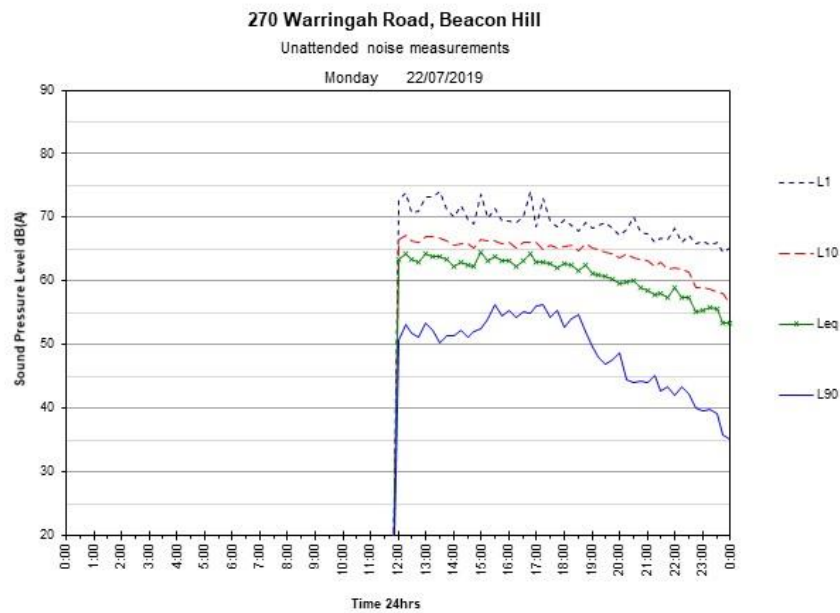


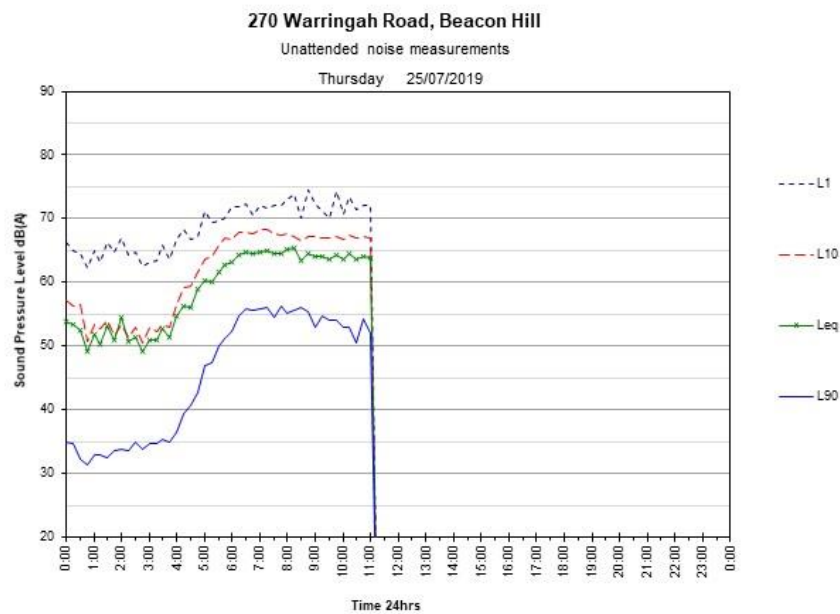
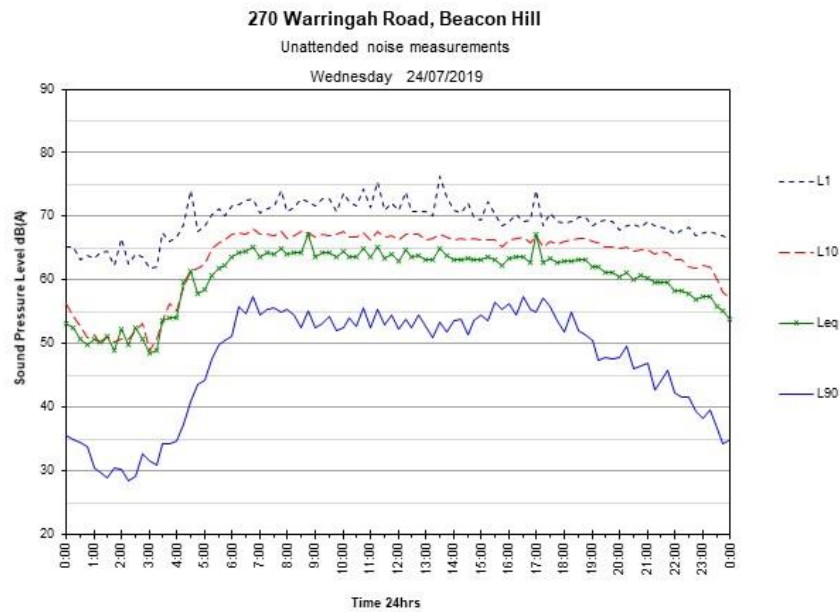
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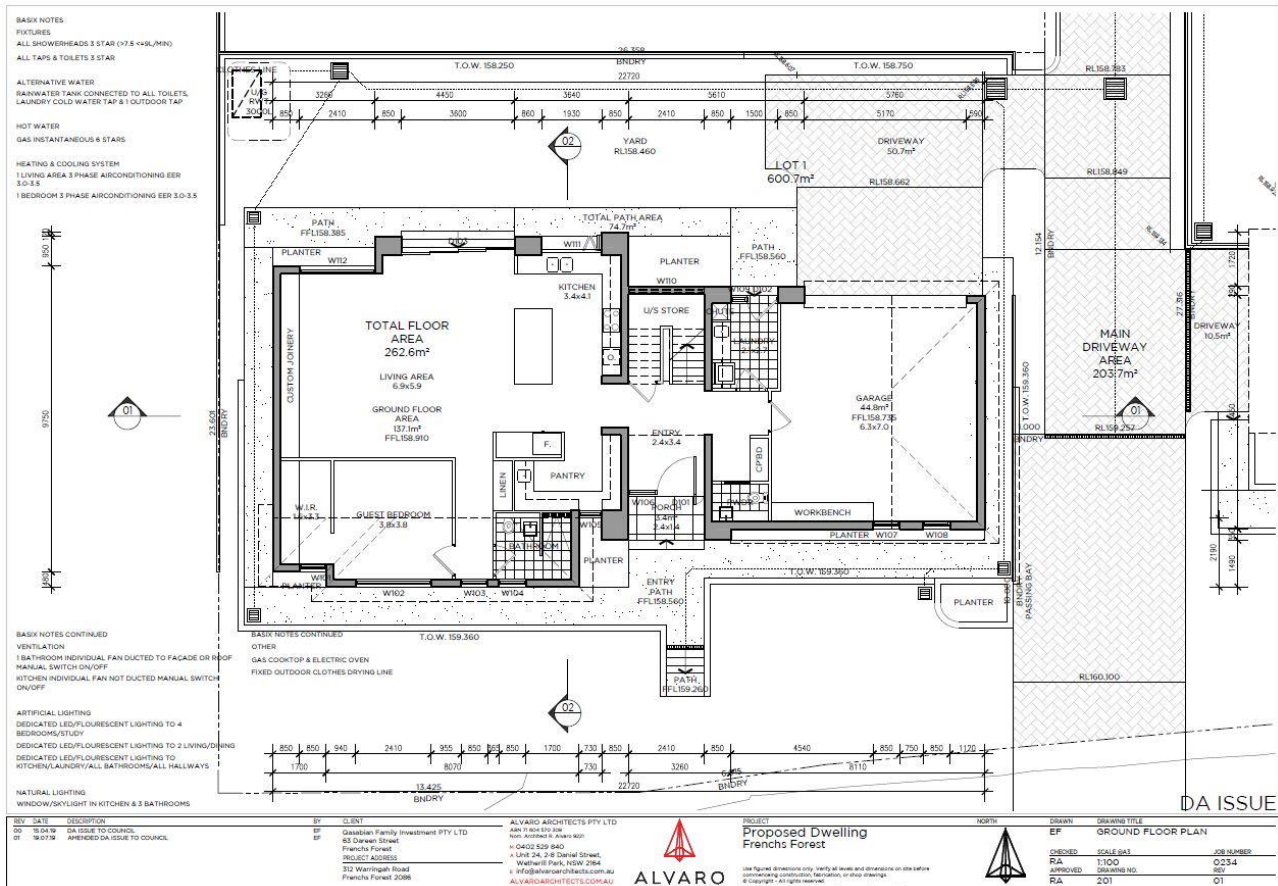
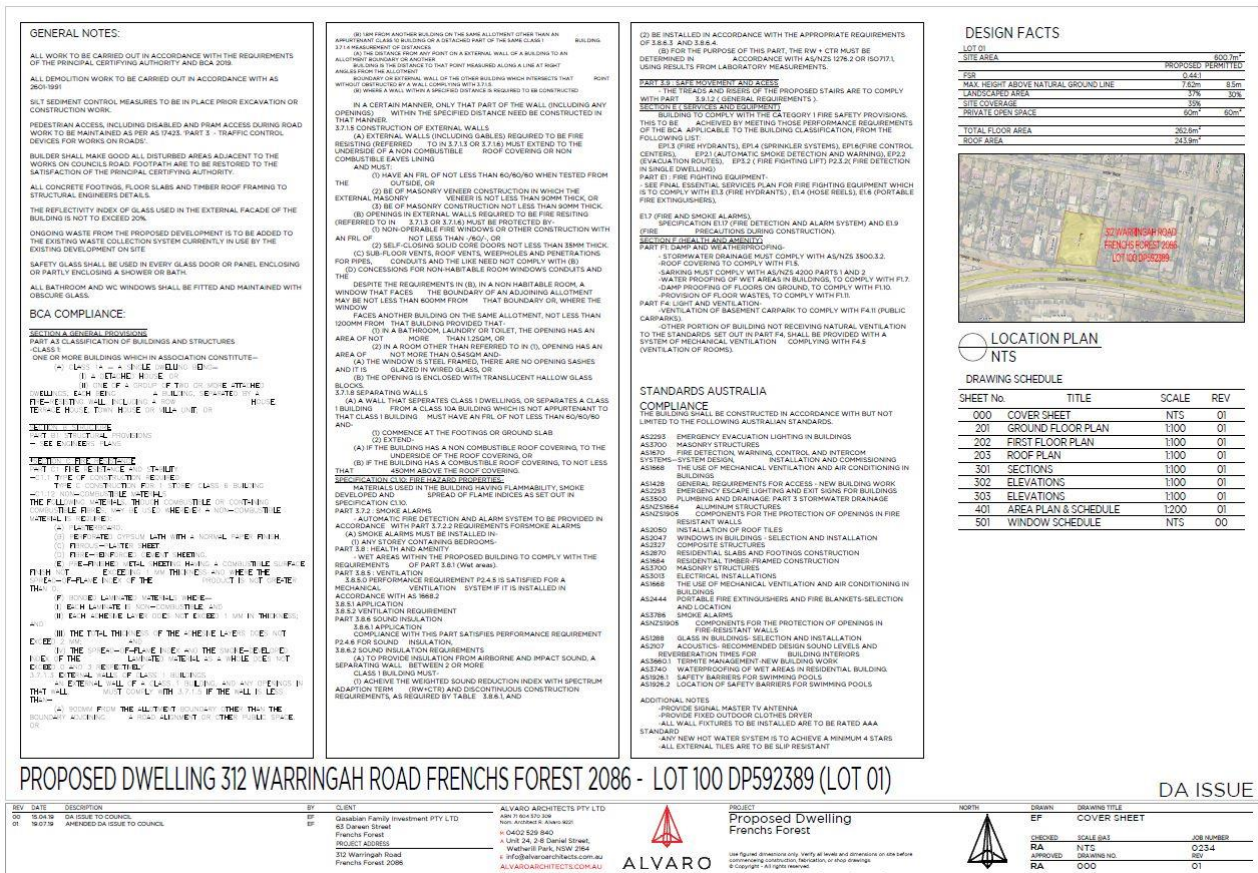
10. Appendices

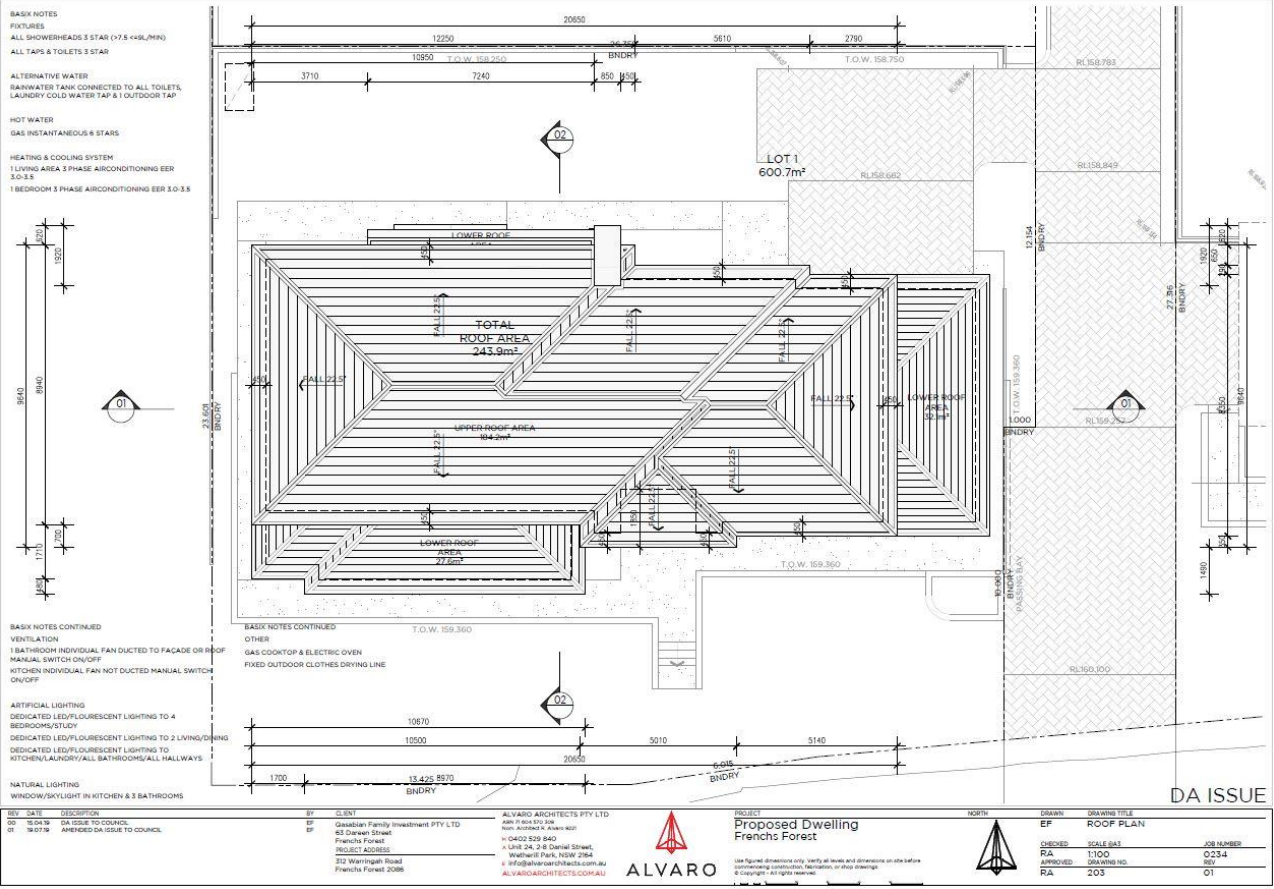
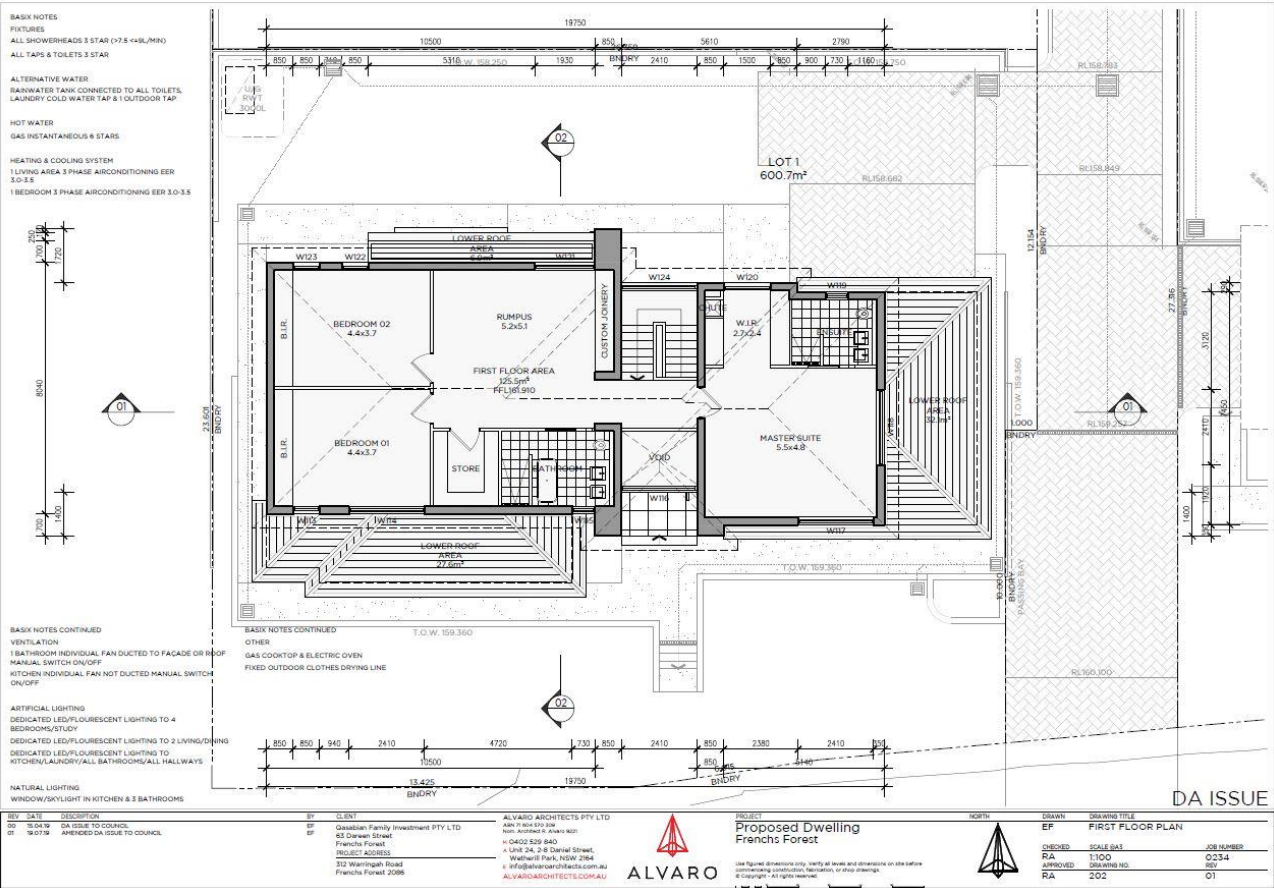
10.1 Noise Monitoring Charts

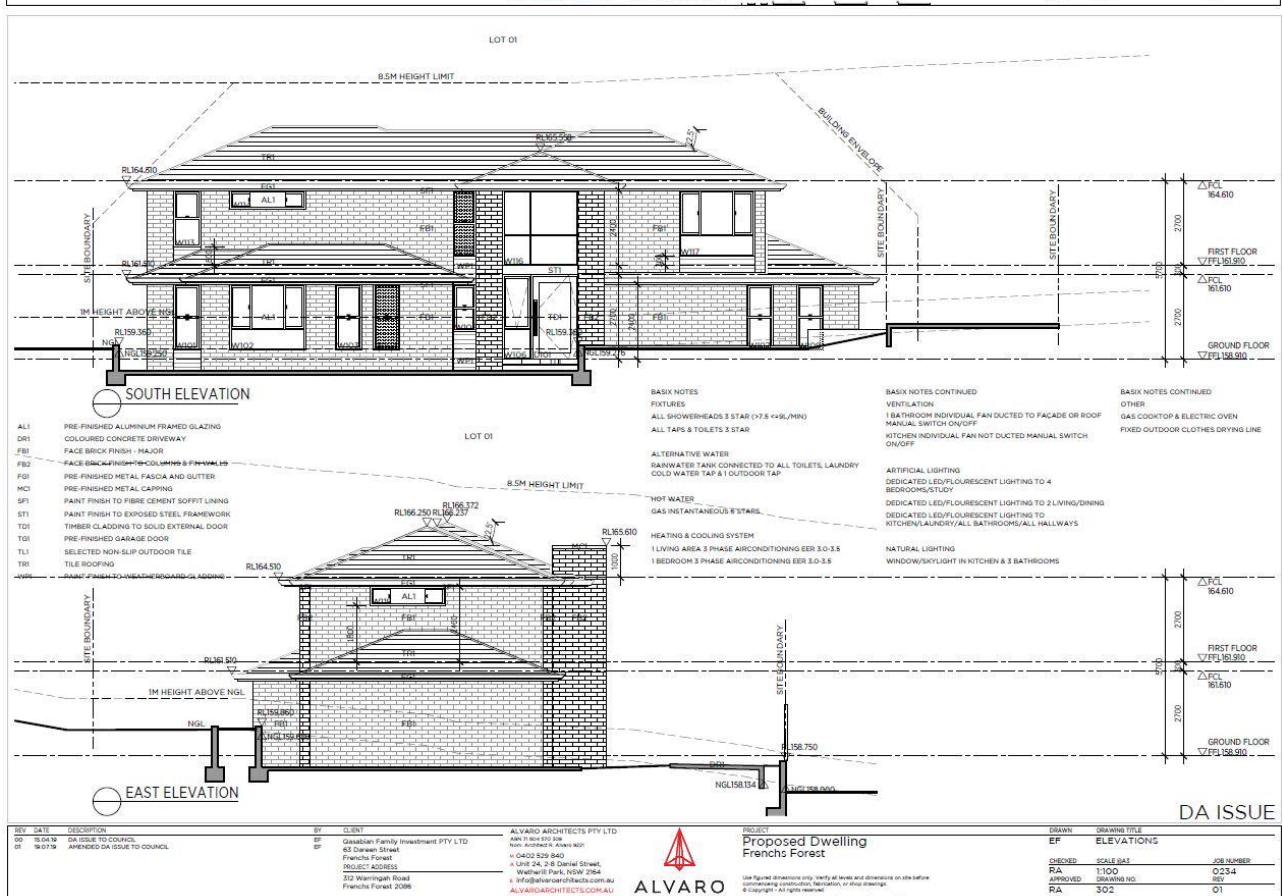
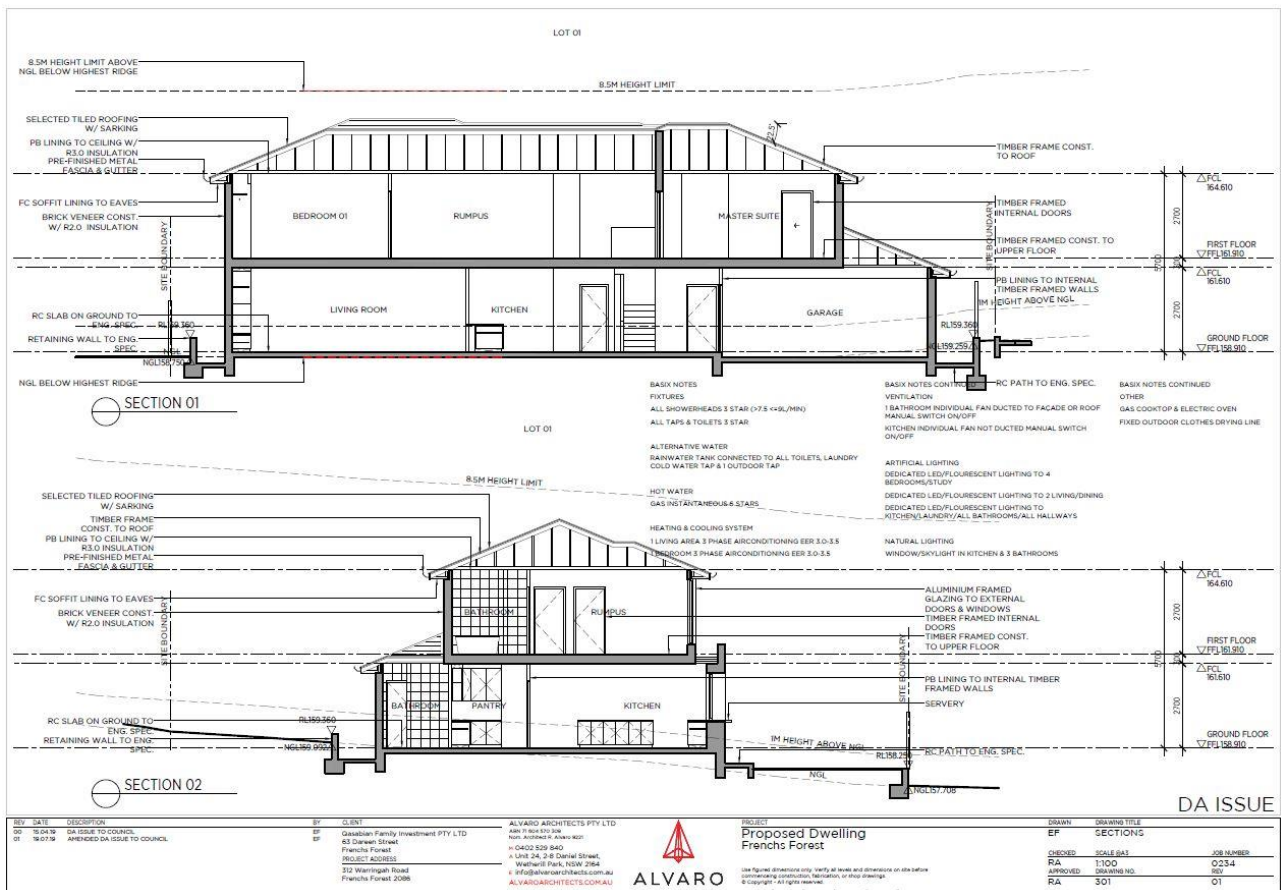


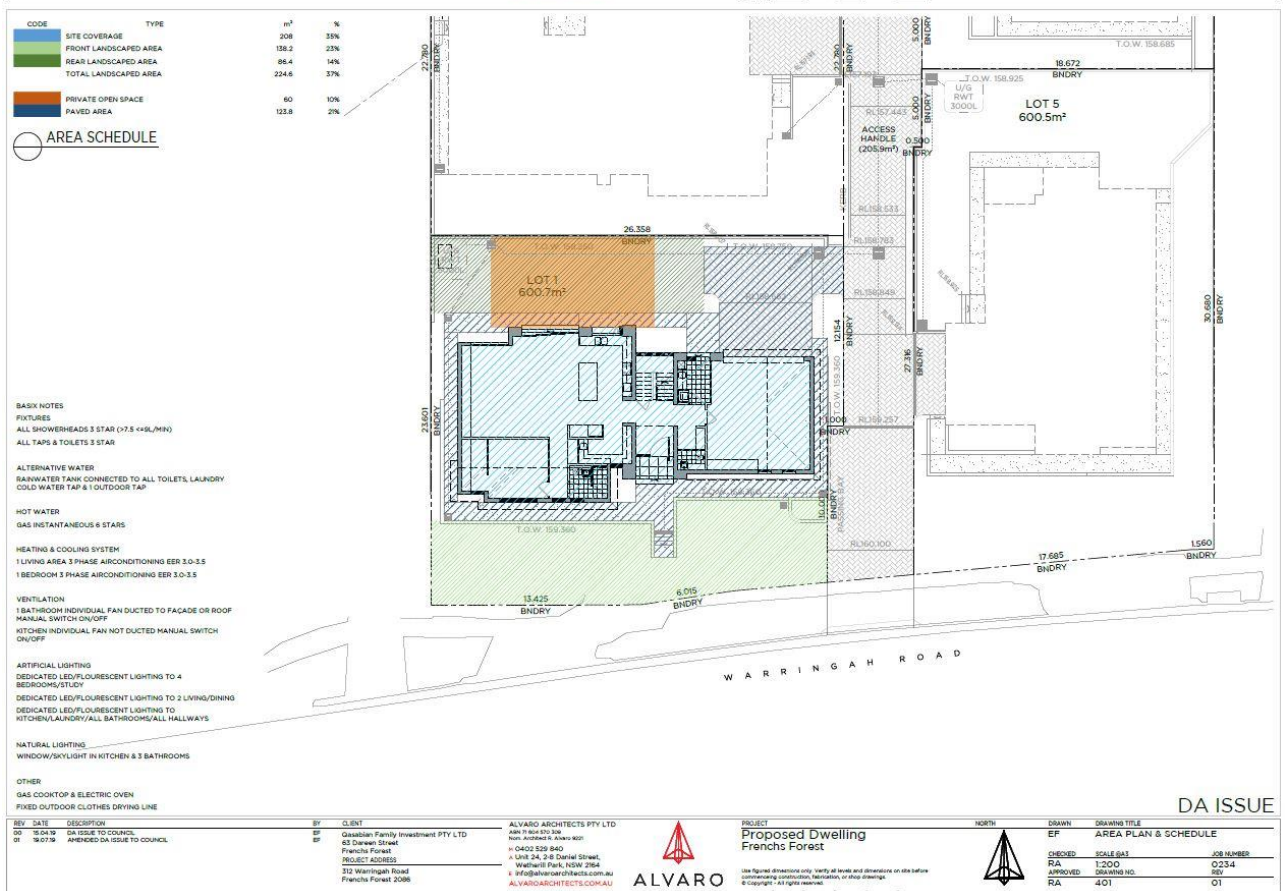
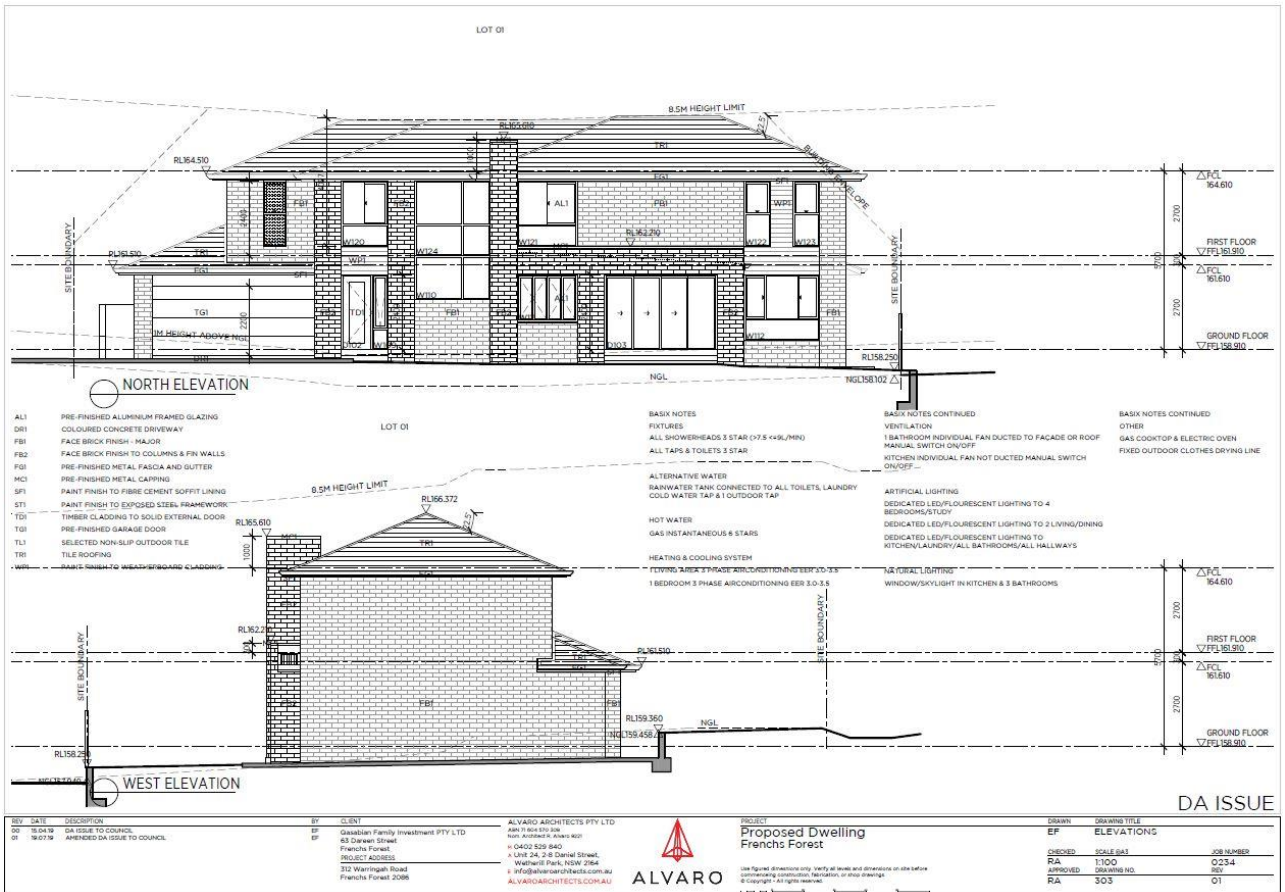


10.2 Development Plans









No.	STYLE	SIZE (mm)			REMARKS	CODE	ORIENTATION	EAVE (mm)			TOP OF WINDOW (mm)	BASIC NOTES
		WIDTH	HEIGHT	AREA(m ²)				WIDTH (INCL. GUTTER)	HEIGHT ABOVE WINDOW			
W101	DOUBLE HUNG WINDOW	880	2700	1.79	ALUMINUM B DG AIR FILL CLEAR (U4.8 SHGC+0.89)	DH2108	S	600	0	2400		FIXTURES
W102	SLIDING WINDOW	2410	2700	5.06	ALUMINUM B DG AIR FILL CLEAR (U4.8 SHGC+0.89)	SW2104T	S	600	0	2400		ALL SHOWERHEADS 3 STAR (7.5 L/ML/MIN)
W103	DOUBLE HUNG WINDOW	880	2700	1.79	ALUMINUM B DG AIR FILL CLEAR (U4.8 SHGC+0.89)	DH2108	S	600	0	2400		ALL TAPS & TOILETS 3 STAR
W104	OPAGUE DOUBLE HUNG WINDOW	880	2700	1.79	ALUMINUM B DG AIR FILL CLEAR (U4.8 SHGC+0.89)	DH2108	S	600	0	2400		ALTERNATIVE WATER
W105	DOUBLE HUNG WINDOW	730	1800	1.30	ALUMINUM B DG AIR FILL CLEAR (U4.8 SHGC+0.89)	DH2107	S	600	3000	2400		RAHWATER TANK CONNECTED TO ALL TOILETS, LAUNDRY COLD WATER TAP & 1 OUTDOOR TAP
W106	AWNING WINDOW	910	2700	2.46	ALUMINUM A DG AIR FILL CLEAR (U4.8 SHGC+0.81)	CUSTOM	S	2000	2700	2700		HOT WATER
W107	DOUBLE HUNG WINDOW	880	2700	1.79	ESS SG 3CLR (U4.3 SHGC+0.75)	DH2108	S	600	0	2400		GAS INSTANTANEOUS 6 STARS
W108	DOUBLE HUNG WINDOW	880	2700	1.79	ESS SG 3CLR (U4.3 SHGC+0.75)	DH2108	S	600	0	2400		HEATING & COOLING SYSTEM
W109	AWNING WINDOW	800	2400	1.20	ESS SG 4CLR (U4.5 SHGC+0.67)	CUSTOM	N	890	3000	2400		1 LIVING AREA 3 PHASE AIRCONDITIONING EER 3.0-3.5
W110	FIXED WINDOW	2410	1400	3.37	SG 4CLR (U4.0 SHGC+0.78)	CUSTOM	N	600	2400	2400		1 BEDROOM 3 PHASE AIRCONDITIONING EER 3.0-3.5
W111	BI-FOLD WINDOW	1930	1800	2.90	SG 4CLR (U4.1 SHGC+0.81)	CUSTOM	N	428	0	2400		VENTILATION
W112	SLIDING WINDOW	2410	2700	5.06	ESS SG 3CLR (U4.4 SHGC+0.76)	SW2104T	N	600	3000	2400		1 BATHROOM INDIVIDUAL FAN DUCTED TO FACADE OR ROOF
W113	SINGLE HUNG WINDOW	880	1800	1.53	ALUMINUM B DG AIR FILL CLEAR (U4.8 SHGC+0.89)	DH1808	S	600	0	2400		MANUAL SWITCH ON/OFF
W114	SLIDING WINDOW	2410	600	1.45	ALUMINUM B DG AIR FILL CLEAR (U4.8 SHGC+0.89)	SW0624	S	600	0	2400		KITCHEN INDIVIDUAL FAN NOT DUCTED MANUAL SWITCH ON/OFF
W115	OPAGUE SINGLE HUNG WINDOW	730	2700	1.93	ALUMINUM B DG AIR FILL CLEAR (U4.8 SHGC+0.89)	DH2107	S	600	0	2400		ARTIFICIAL LIGHTING
W116	FIXED WINDOW	2410	2400	5.78	ALUMINUM B DG AIR FILL CLEAR (U4.8 SHGC+0.89)	CUSTOM	S	2000	0	2400		DEDICATED LED/FLOURESCENT LIGHTING TO 4 BEDROOMS/STUDY
W117	SLIDING WINDOW	2410	2700	5.06	ALUMINUM B DG AIR FILL CLEAR (U4.8 SHGC+0.89)	SW2104T	S	600	0	2400		DEDICATED LED/FLOURESCENT LIGHTING TO 2 LIVING/DINING
W118	SLIDING WINDOW	2410	600	1.45	ESS SG 3CLR (U4.3 SHGC+0.75)	SW0624	E	600	0	2400		DEDICATED LED/FLOURESCENT LIGHTING TO KITCHEN/LAUNDRY/ALL BATHROOMS/ALL HALLWAYS
W119	OPAGUE SINGLE HUNG WINDOW	730	2700	1.93	ESS SG 3CLR (U4.3 SHGC+0.75)	DH2107	N	600	0	2400		NATURAL LIGHTING
W120	SLIDING WINDOW	1800	2700	3.15	ESS SG 3CLR (U4.4 SHGC+0.76)	CUSTOM	N	600	0	2400		WINDOW/SKYLIGHT IN KITCHEN & 3 BATHROOMS
W121	SLIDING WINDOW	2410	2700	5.06	ESS SG 3CLR (U4.4 SHGC+0.76)	SW2104T	N	600	0	2400		OTHER
W122	SINGLE HUNG WINDOW	880	2700	1.79	ESS SG 3CLR (U4.3 SHGC+0.75)	CUSTOM	N	600	0	2400		GAS COOKTOP & ELECTRIC OVEN
W123	SINGLE HUNG WINDOW	880	2700	1.79	ESS SG 3CLR (U4.3 SHGC+0.75)	DH2108	N	600	0	2400		FIXED OUTDOOR CLOTHES DRYING LINE
W124	FIXED WINDOW	2410	2400	5.78	SG 4CLR (U4.0 SHGC+0.78)	CUSTOM	N	600	0	2400		
D101	GLAZED INSERT ENTRY DOOR	1800	2700	4.08	TIMBER DG AIR FILL CLEAR (U4.3.0 SHGC+0.48)	CUSTOM	S	2000	2700	2700		
D102	GLAZED INSERT LAUNDRY DOOR	1000	2400	2.40	TIMBER SG CLEAR (U4.4 SHGC+0.86)	CUSTOM	N	890	3000	2400		
D103	GLAZED STACKING DOOR	3800	2400	8.64	ESS SG 4CLR (U4.2 SHGC+0.74)	CUSTOM	N	330	0	2400		

WINDOW SCHEDULE

DA ISSUE

REV	DATE	DESCRIPTION	BY	CLIENT	ALVARO ARCHITECTS PTY LTD	PROJECT	DRAWN	DRAWING TITLE
00	15.04.19	DA ISSUE TO COUNCIL	EF	Qasabian Family Investment PTY LTD	40th Fl Box 510 13th Floor, Archibald & Macao 6011	Proposed Dwelling Frenchs Forest	EF	WINDOW SCHEDULE
				63 Denney Street Frenchs Forest	Ph: 0420 529 840		CHECKED	SCALE 8:1
				PROJECT ADDRESS	11 Unit 24, 2-8 Denney Street, Wetherill Park, NSW 2154		RA	NTS
				312 Warringah Road Frenchs Forest 2088	info@alvaroarchitects.com.au		APPROVED	DATE 15.04.19
					ALVAROARCHITECTS.COM.AU		RA	501
								JOB NUMBER
								0254
								001
								00

ALVARO

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PROPOSED DWELLING 312 WARRINGAH ROAD FRENCHS FOREST 2086 - LOT 100 DP592389 (LOT 02)

DA ISSUE

REV **DATE** **DESCRIPTION**

00 10.04.19 DA ISSUE TO COUNCIL

01 19.07.19 AMENDED DA ISSUE TO COUNCIL

BY **CLIENT**

EF Gaussian Family Investment PTY LTD
63 Darwen Street
Frenchs Forest
PROJECT ADDRESS
312 Warringal Road
Frenchs Forest 2098

ALVARO ARCHITECTS PTY LTD
Attn: P. Box 519, 318
North, Andersons Road, 801
+ 0402 529 840
+ UNIT 24, 2-8 Darwen Street,
Warringal Park, NSW 2084
+ info@alvaroarchitects.com.au
ALVAROARCHITECTS.COM.AU

BASIC NOTES

FIXTURES

ALL SHOWERHEADS 3 STAR (>7.5 <450MM)

ALL TAPS & TOILETS 3 STAR

ALTERNATIVE WATER

RAINWATER TANK CONNECTED TO ALL TOILETS

COLD WATER TAP & 1 OUTDOOR TAP

HOT WATER

GAS INSTANTANEOUS 8 STARS

HEATING & COOLING SYSTEM

1 BATHROOM 3 PHASE AIRCONDITIONING EER 3.0

1 BEDROOM 3 PHASE AIRCONDITIONING EER 3.0

PROPOSED DWELLING
Frenchs Forest

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DA ISSUE

DA ISSUE

BASIC NOTES CONTINUED

VENTILATION

1 BATHROOM INDIVIDUAL FAN DUCTED TO FACED OR ROOF

MANUAL SWITCH ON/OFF

KITCHEN INDIVIDUAL FAN NOT DUCTED MANUAL SWITCH ON/OFF

ARTIFICIAL LIGHTING

DEDICATED LED/LUORESCENT LIGHTING TO 4 BEDROOMS/STUDY

DEDICATED LED/LUORESCENT LIGHTING TO 2 BATHROOMS

DEDICATED LED/LUORESCENT LIGHTING TO KITCHEN/LAUNDRY/ALL BATHROOMS/ALL HALLWAYS

NATURAL LIGHTING

WINDOW/SKYLIGHT IN KITCHEN & 3 BATHROOMS

BASIC NOTES CONTINUED

OTHER

GAS COOKTOP & ELECTRIC OVEN

FIXED OUTDOOR CLOTHES DRYING LINE

PROPOSED DWELLING
Frenchs Forest

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PROPOSED DWELLING
Frenchs Forest

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BASIC NOTES CONTINUED

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BASIC NOTES CONTINUED

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GAS COOKTOP & ELECTRIC OVEN

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1 BEDROOM 3 PHASE AIRCONDITIONING EER 3.0

PROPOSED DWELLING
Frenchs Forest

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DA ISSUE

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BASIC NOTES CONTINUED

VENTILATION

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DEDICATED LED/LUORESCENT LIGHTING TO KITCHEN/LAUNDRY/ALL BATHROOMS/ALL HALLWAYS

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WINDOW/SKYLIGHT IN KITCHEN & 3 BATHROOMS

BASIC NOTES CONTINUED

OTHER

GAS COOKTOP & ELECTRIC OVEN

FIXED OUTDOOR CLOTHES DRYING LINE

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Frenchs Forest

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PROPOSED DWELLING
Frenchs Forest

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DA ISSUE

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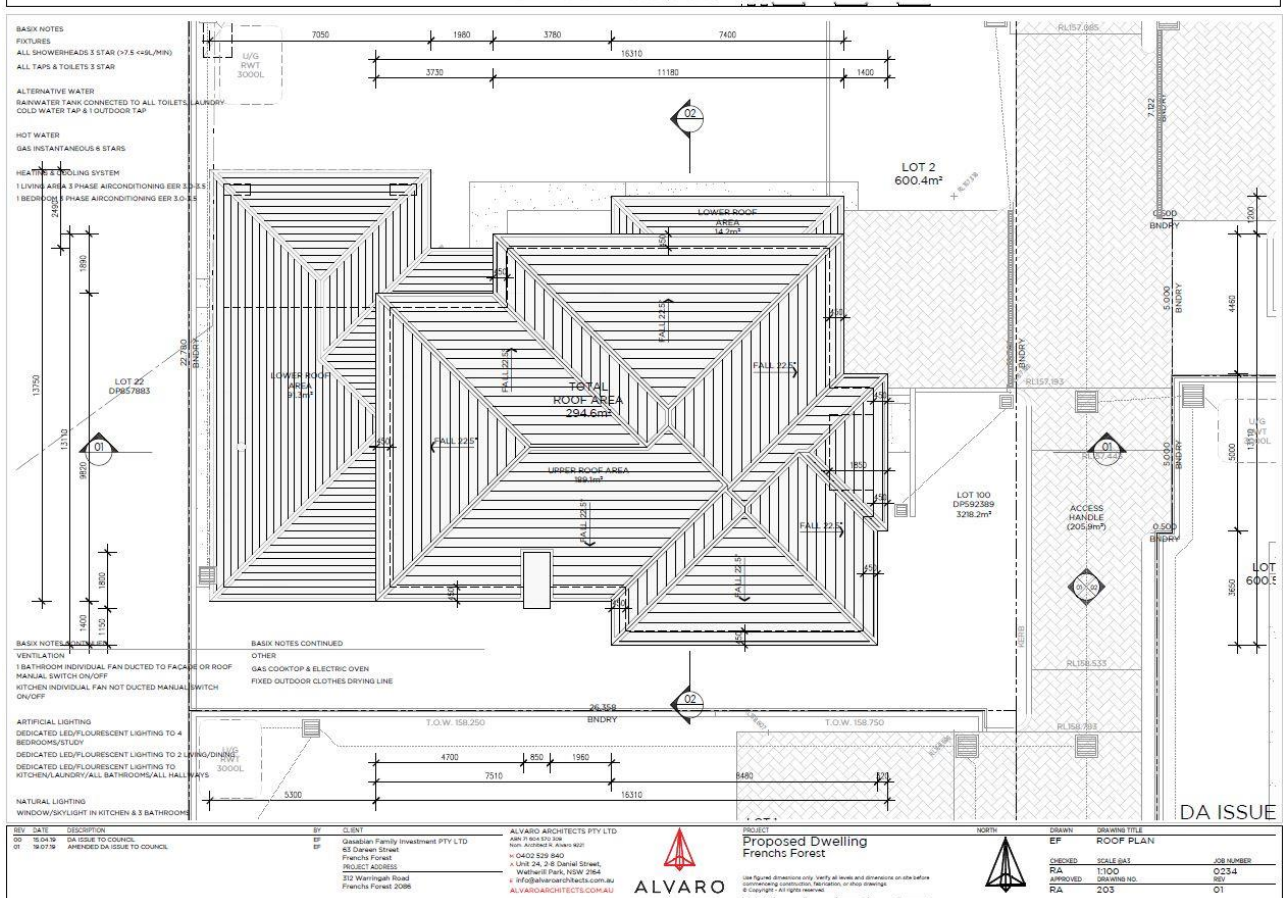
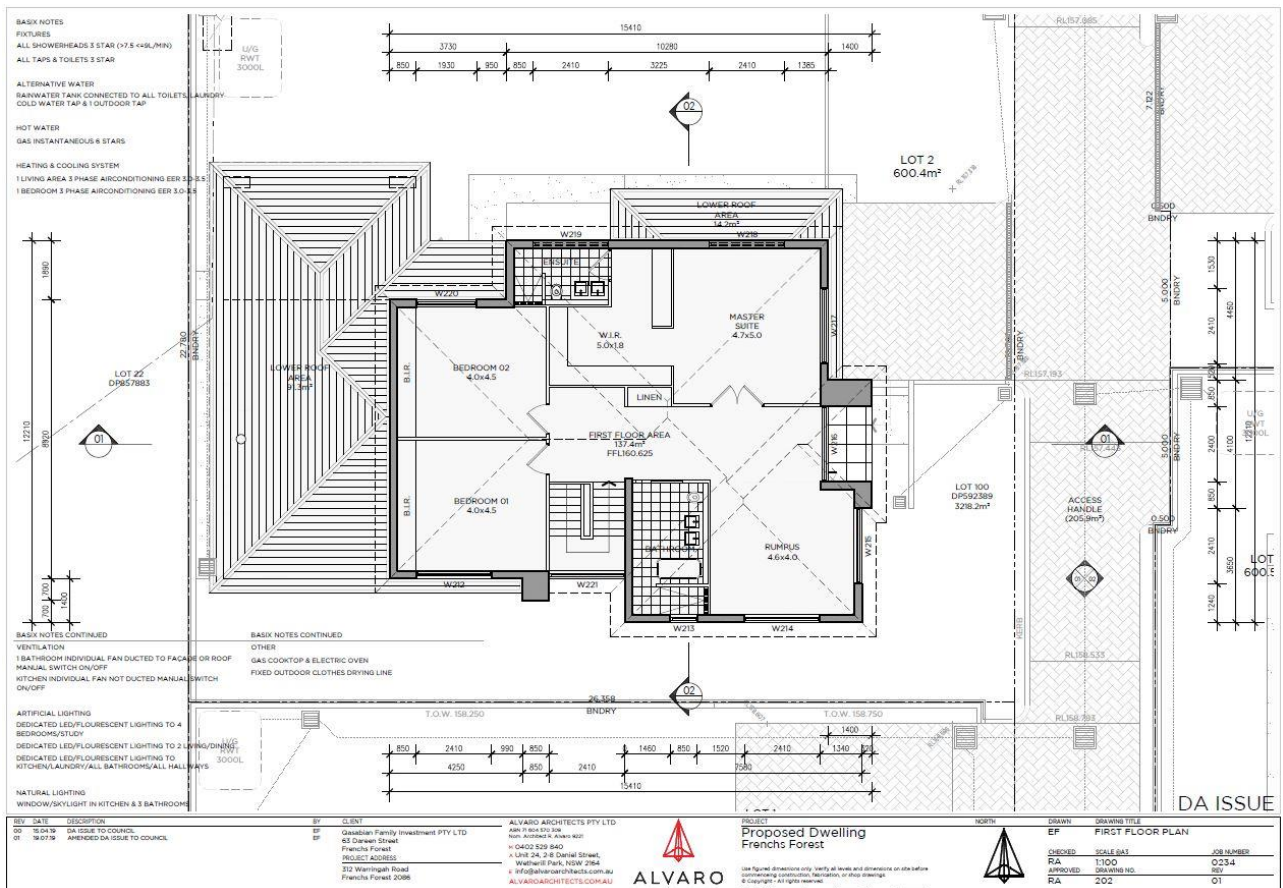
BASIC NOTES CONTINUED

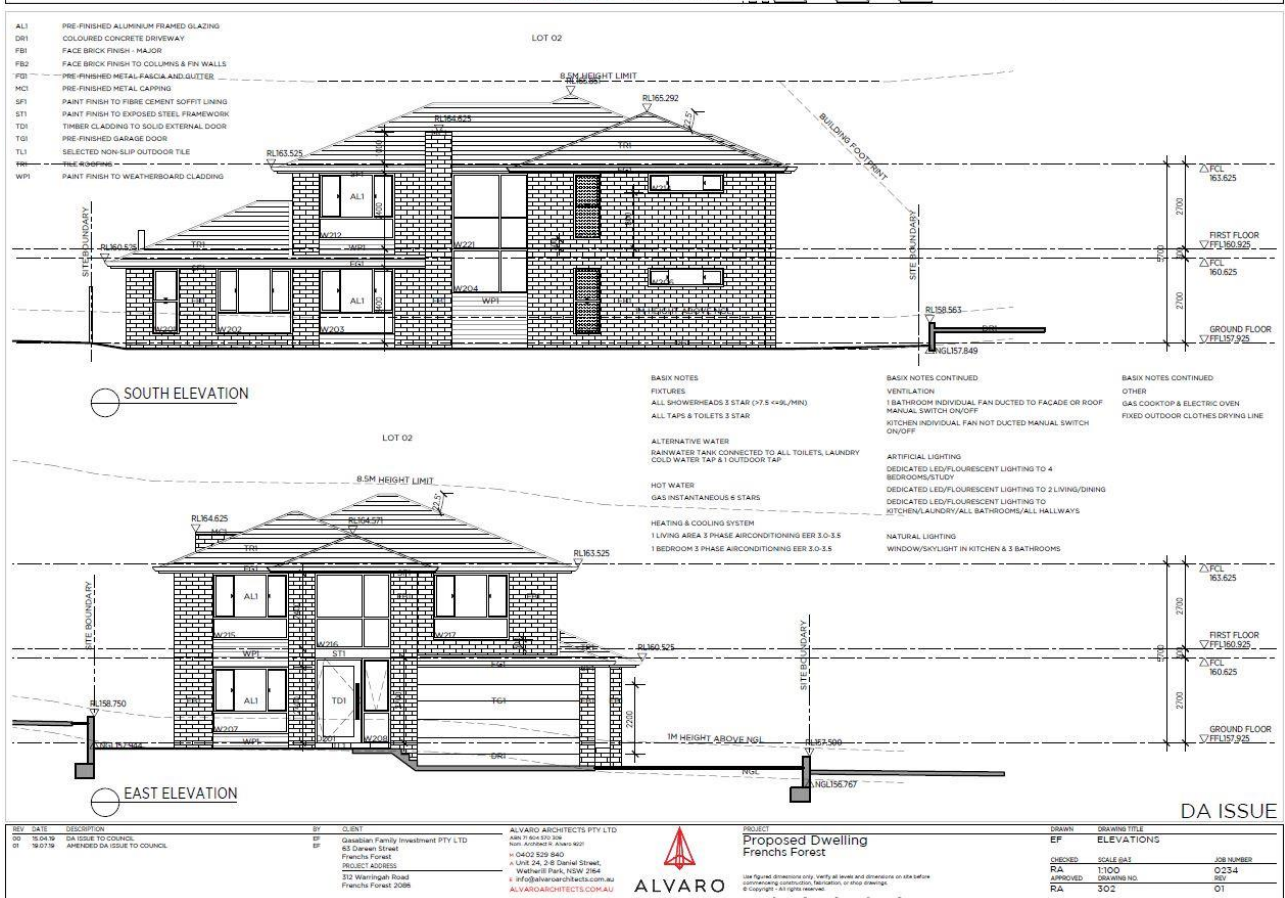
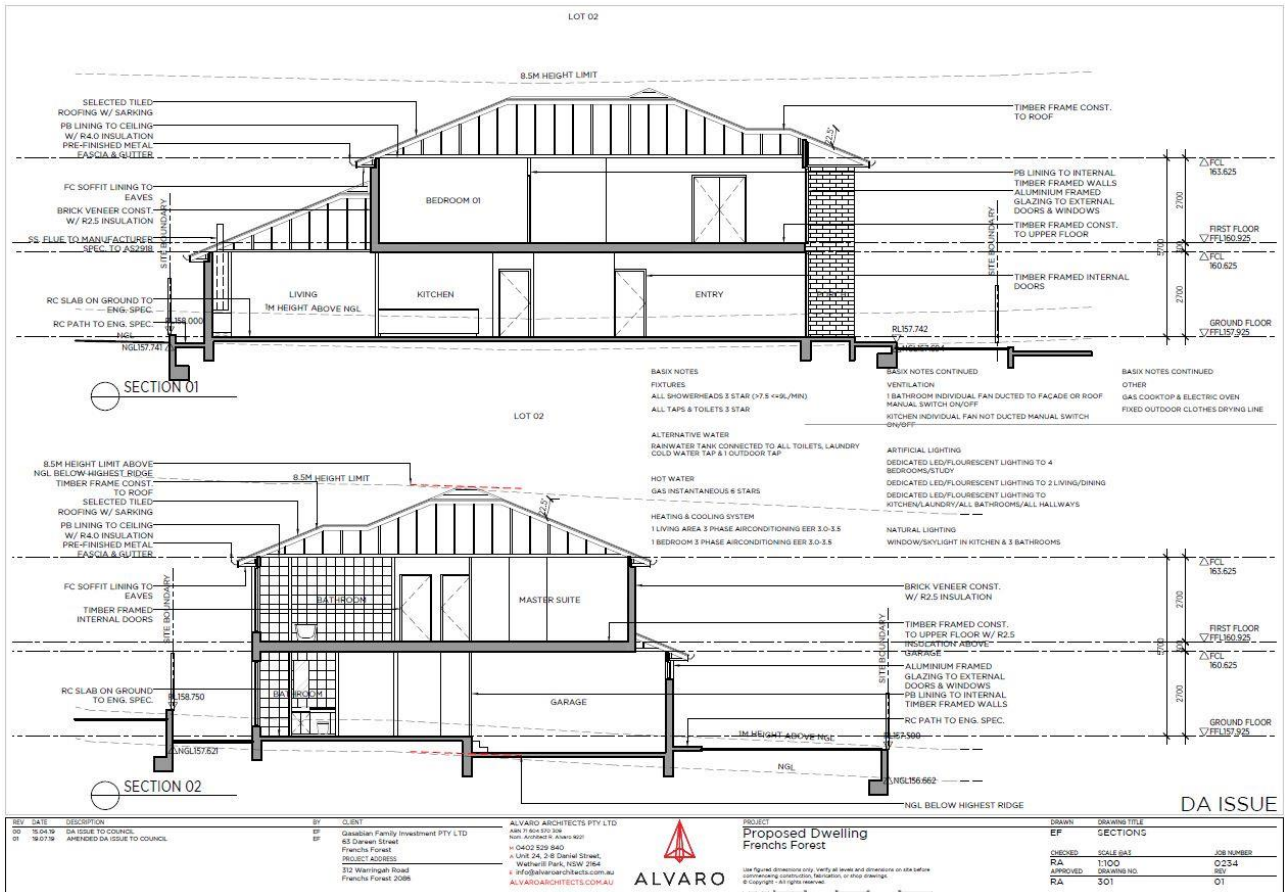
VENTILATION

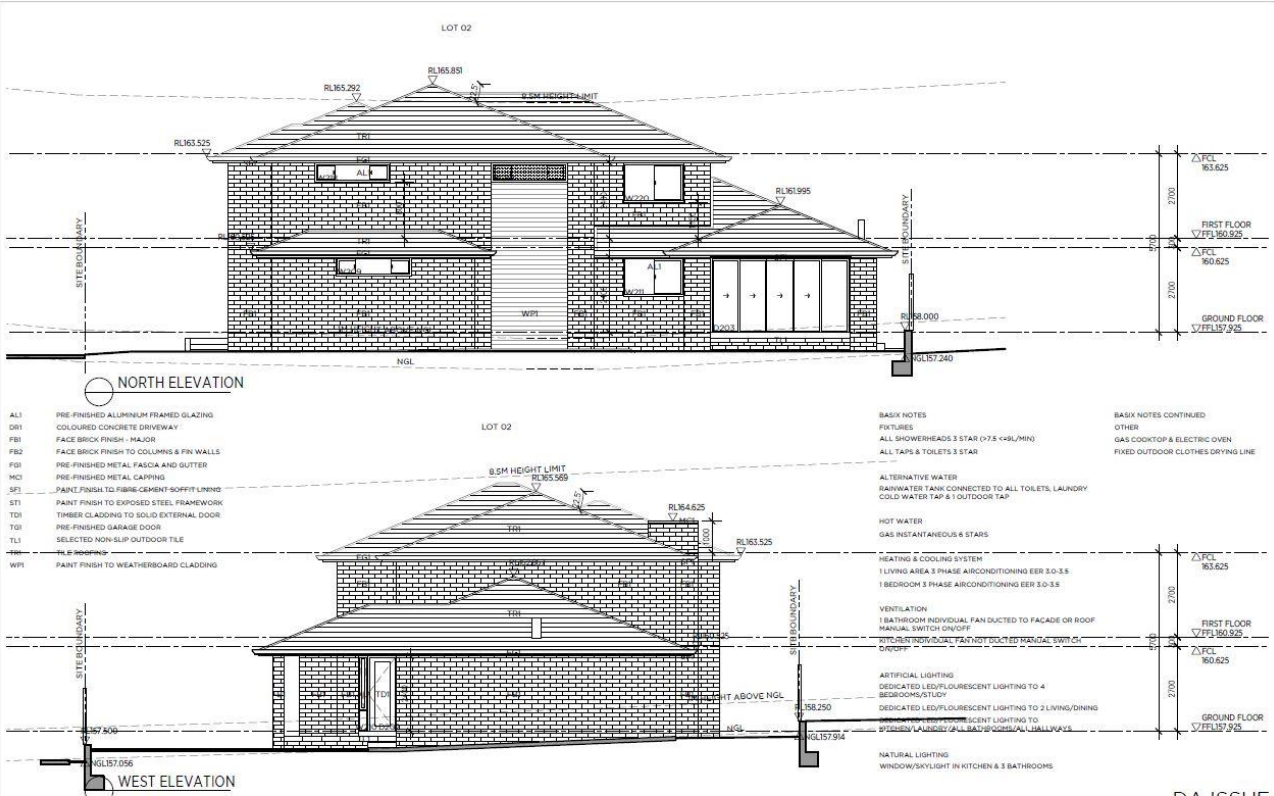
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MANUAL SWITCH ON/OFF

KITCHEN INDIVIDUAL FAN

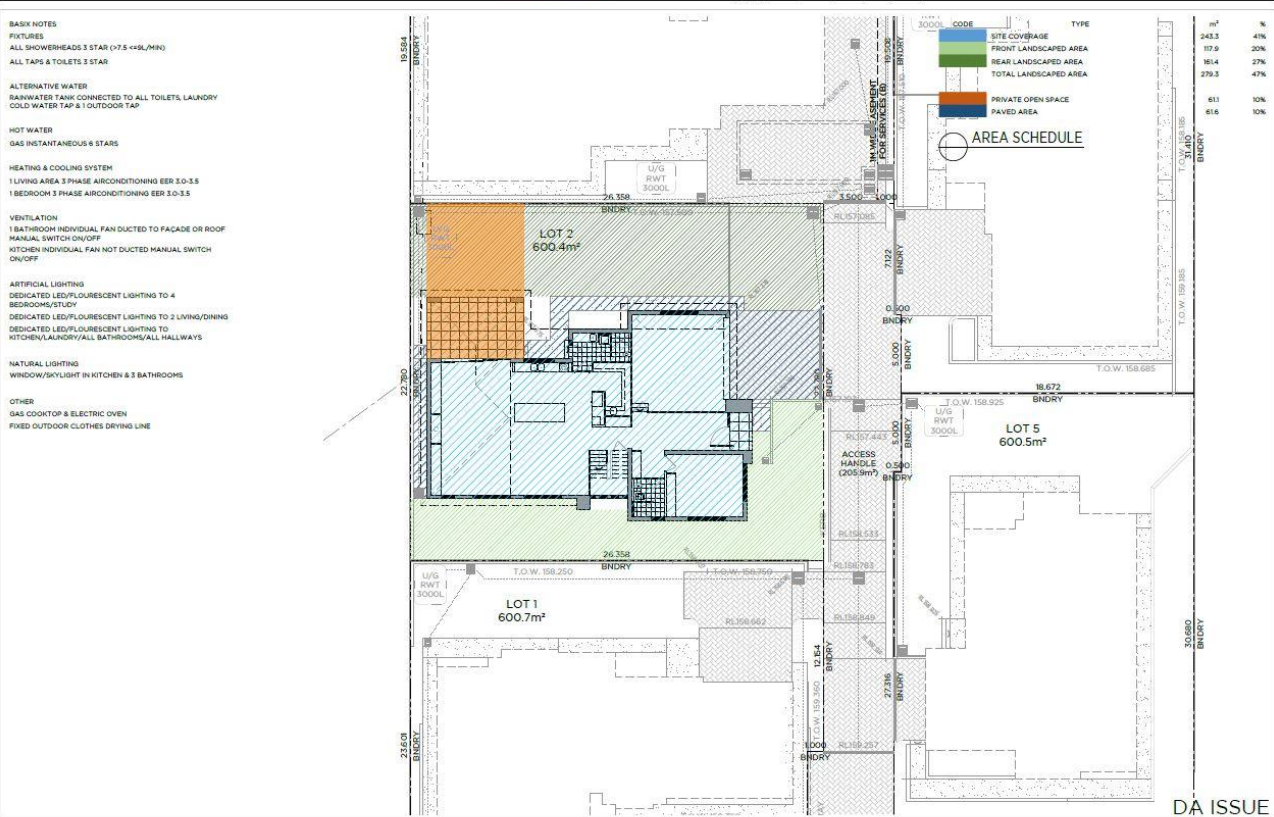






DA ISSUE

REV	DATE	DESCRIPTION	BY	CLIENT	ALVARO ARCHITECTS PTY LTD	PROJECT	DRAWN	DRAWING TITLE
00	15.04.19	DA ISSUE TO COUNCIL	EP	Gesabian Family Investment PTY LTD	48/11 Ross St St 304 North Sydney NSW 1585	Proposed Dwelling Frenchs Forest	EP	ELEVATIONS
01	19.01.19	APPENDED DA ISSUE TO COUNCIL	EP	312 Warringah Road Frenchs Forest 2086	ALVARO ARCHITECTS PTY LTD 48/11 Ross St St 304 North Sydney NSW 1585 + 0422 529 840 + 0422 529 840 + 0422 529 840 + 0422 529 840			CHECKED SCALE 3:1 JOB NUMBER
							RA 1:100 0234 APPROVED DRAWING NO RA 303 01	



DA ISSUE

00	15.04.19	DA ISSUE TO COUNCIL	EP	Gesabian Family Investment PTY LTD	ALVARO ARCHITECTS PTY LTD 48/11 ROSS ST ST 304 NORTH SYDNEY NSW 1585	PROPOSED DWELLING FRENCHS FOREST	DRAWN	AREA PLAN & SCHEDULE
01	19.01.19	APPENDED DA ISSUE TO COUNCIL	EP	312 WARRINGAH ROAD FRENCHS FOREST 2086	ALVARO ARCHITECTS PTY LTD 48/11 ROSS ST ST 304 NORTH SYDNEY NSW 1585 + 0422 529 840 + 0422 529 840 + 0422 529 840 + 0422 529 840 ALVAROARCHITECTS.COM.AU		CHECKED SCALE JOB NUMBER RA 1:200 0234 APPROVED DRAWING NO RA 401 01	

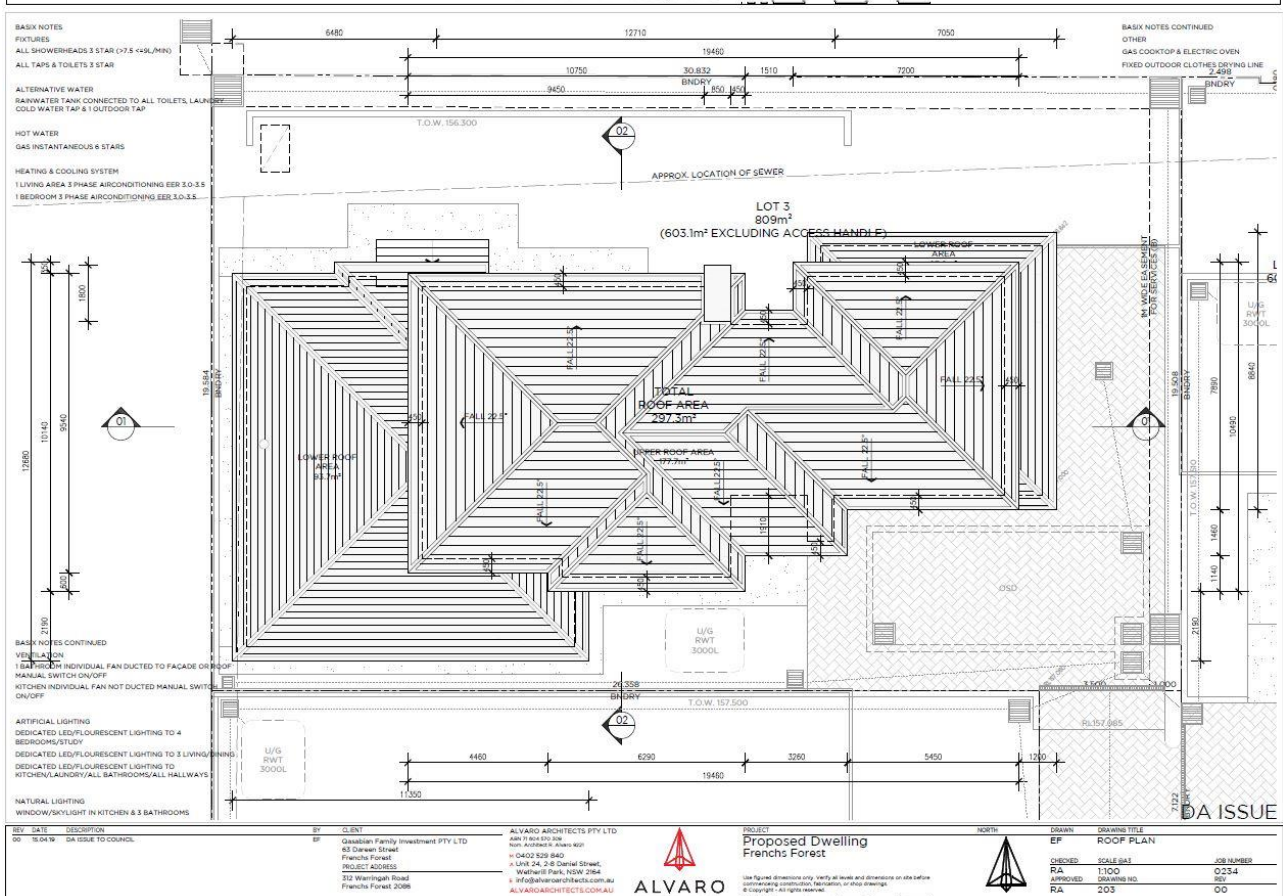
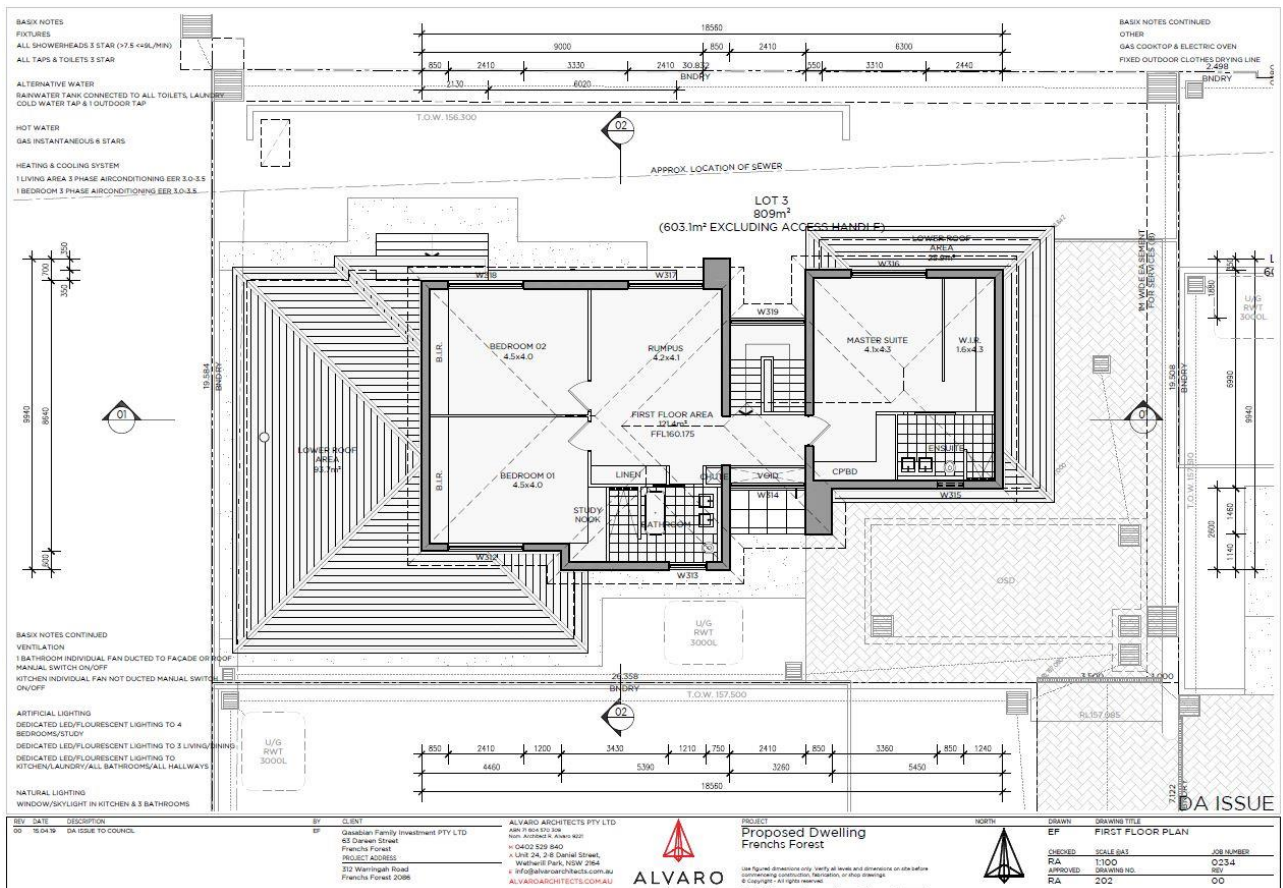
No.	STYLE	SIZE (mm)			REMARKS	CODE	ORIENTATION	EAVE (mm)		TOP OF WINDOW (mm)	BASIC NOTES
		WIDTH	HEIGHT	AREA(m ²)				WIDTH (INCL. GUTTER)	HEIGHT ABOVE WINDOW		
W201	DOUBLE HUNG WINDOW	880	2700	1.79	ESS SG 3CLR (U4&3 SHGC+0.75) LOW E GLAZING	DH2108	S	600	0	2400	FIXTURES
W202	SLIDING WINDOW	2410	2700	6.06	ESS SG 4ENTEC (SPD) (U4&5 SHGC+0.87) LOW E GLAZING	SW2124T	S	600	0	2400	ALL SHOWERHEADS 3 STAR (17.5 L/SL/MIN)
W203	SLIDING WINDOW	2410	2700	6.06	ESS SG 4ENTEC (SPD) (U4&5 SHGC+0.87) LOW E GLAZING	SW2124T	S	600	0	2400	ALL TAPS & TOILETS 3 STAR
W204	FIXED WINDOW	2410	1400	3.37	SG SG 4SPD (U4&1 SHGC+0.86) LOW E GLAZING	CUSTOM	S	600	2400	2400	ALTERNATIVE WATER
W205	OPAQUE DOUBLE HUNG WINDOW	880	2700	1.79	ESS SG 3CLR (U4&3 SHGC+0.75)	DH2108	S	600	3000	2400	RAINFALL TANK CONNECTED TO ALL TOILETS, LAUNDRY
W206	SLIDING WINDOW	2410	600	1.45	ESS SG 3CLR (U4&4 SHGC+0.76)	SW0624	S	600	3000	2400	COLD WATER TAP & 1 OUTDOOR TAP
W207	SLIDING WINDOW	2410	2700	6.06	ESS SG 3CLR (U4&4 SHGC+0.76)	SW2124T	E	600	3000	2400	
W208	AWNING WINDOW	900	2700	2.45	ESS SG 4CLR (U4&5 SHGC+0.87)	CUSTOM	E	2000	2700	2700	HOT WATER
W209	SLIDING WINDOW	2410	600	1.45	ESS SG 3CLR (U4&4 SHGC+0.76)	SW0624	N	600	0	2400	GAS INSTANTANEOUS 6 STARS
W210	AWNING WINDOW	310	2400	0.74	ESS SG 4CLR (U4&5 SHGC+0.87)	CUSTOM	W	9650	0	2400	
W211	SLIDING WINDOW	1930	1280	2.41	ESS SG 4ENTEC (SPD) (U4&5 SHGC+0.87) LOW E GLAZING	CUSTOM	N	2040	0	2400	HEATING & COOLING SYSTEM
W212	SLIDING WINDOW	2410	2700	6.06	ESS SG 3CLR (U4&4 SHGC+0.76)	SW2124T	S	600	0	2400	1 LIVING AREA 3 PHASE AIRCONDITIONING EER 3.0-3.5
W213	OPAQUE SINGLE HUNG WINDOW	880	2700	1.79	ESS SG 3CLR (U4&3 SHGC+0.75)	DH2108	S	600	0	2400	1 BEDROOM 3 PHASE AIRCONDITIONING EER 3.0-3.5
W214	SLIDING WINDOW	2410	600	1.45	ESS SG 3CLR (U4&4 SHGC+0.76)	SW0624	S	600	0	2400	VENTILATION
W215	SLIDING WINDOW	2410	2700	6.06	ESS SG 3CLR (U4&4 SHGC+0.76)	SW2124T	E	600	0	2400	1 BATHROOM INDIVIDUAL FAN DUCTED TO FACADE OR ROOF
W216	FIXED WINDOW	2400	2400	5.78	SG SG 4 CLR (U4&0 SHGC+0.78)	CUSTOM	E	2000	0	2400	MANUAL SWITCH ON/OFF
W217	SLIDING WINDOW	2410	2700	6.06	ESS SG 3CLR (U4&4 SHGC+0.76)	SW2124T	E	600	0	2400	KITCHEN INDIVIDUAL FAN NOT DUCTED MANUAL SWITCH ON/OFF
W218	SLIDING WINDOW	2410	600	1.45	ESS SG 3CLR (U4&4 SHGC+0.76)	SW0624	N	600	0	2400	
W219	OPAQUE SLIDING WINDOW	2410	600	1.45	ESS SG 3CLR (U4&4 SHGC+0.76)	SW0624	N	600	0	2400	ARTIFICIAL LIGHTING
W220	SLIDING WINDOW	1930	1280	2.41	ESS SG 3CLR (U4&4 SHGC+0.76)	CUSTOM	N	600	0	2400	DEDICATED LED/FLOURESCENT LIGHTING TO 4 BEDROOMS/STUDY
W221	FIXED WINDOW	2410	2400	5.78	SG SG 4SPD (U4&1 SHGC+0.86)	CUSTOM	S	600	0	2400	DEDICATED LED/FLOURESCENT LIGHTING TO 2 LIVING/DINING
D201	GLAZED INSERT ENTRY DOOR	1800	2700	4.05	TIMBER SG CLEAR (U4&4 SHGC+0.86)	CUSTOM	E	2000	2700	2700	DEDICATED LED/FLOURESCENT LIGHTING TO KITCHEN/LAUNDRY/ALL BATHROOMS/ALL HALLWAYS
D202	GLAZED INSERT LAUNDRY DOOR	900	2400	2.16	TIMBER SG CLEAR (U4&4 SHGC+0.86)	CUSTOM	W	9650	0	2400	
D203	GLAZED STACKING DOOR	4480	2400	10.68	ESS SG 4SPD (U4&3 SHGC+0.85) LOW E GLAZING	CUSTOM	N	4550	0	2400	NATURAL LIGHTING
WINDOW SCHEDULE										WINDOW/SKYLIGHT IN KITCHEN & 3 BATHROOMS	
										OTHER	
										GAS COOKTOP & ELECTRIC OVEN	
										FIXED OUTDOOR CLOTHES DRYING LINE	

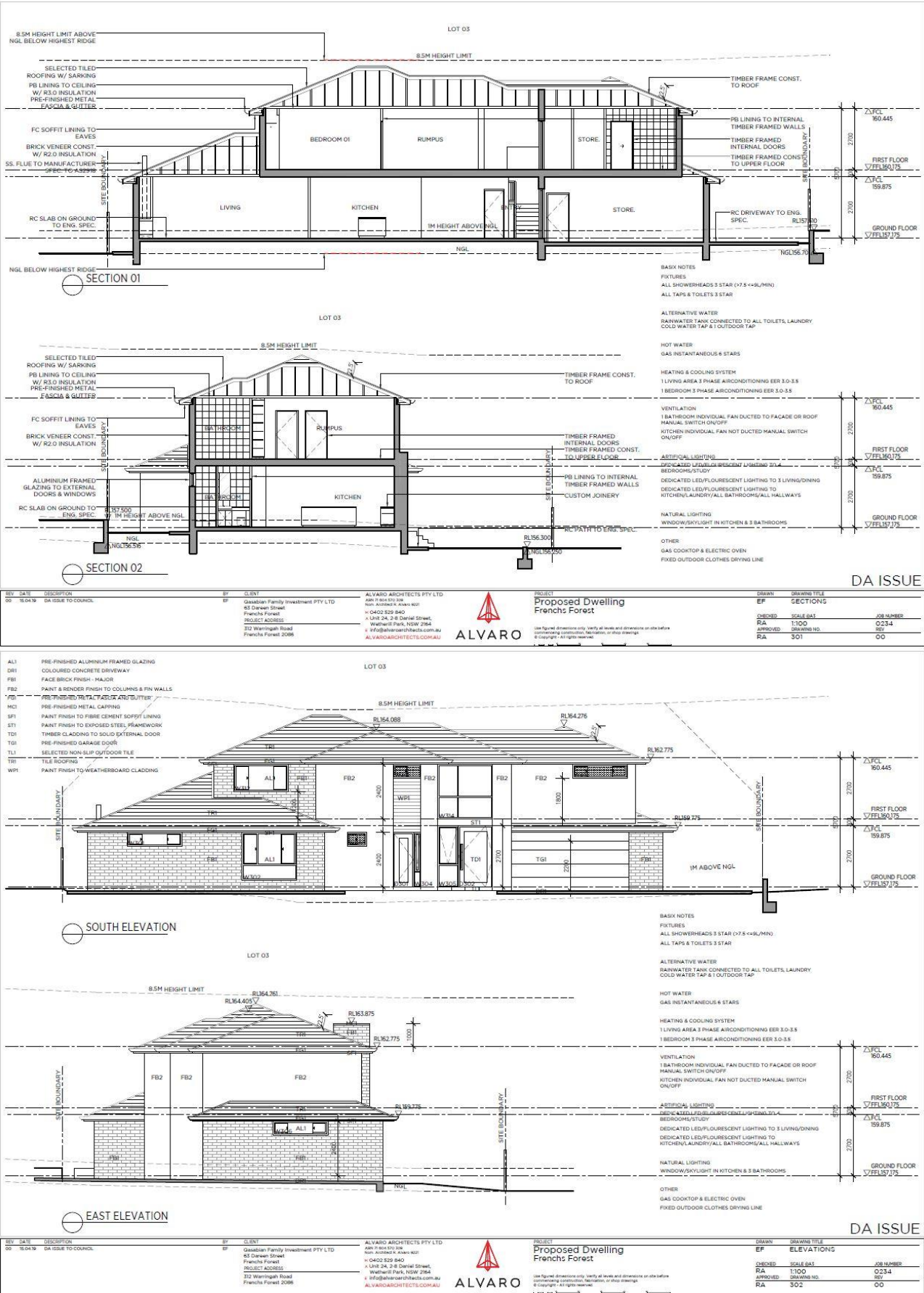
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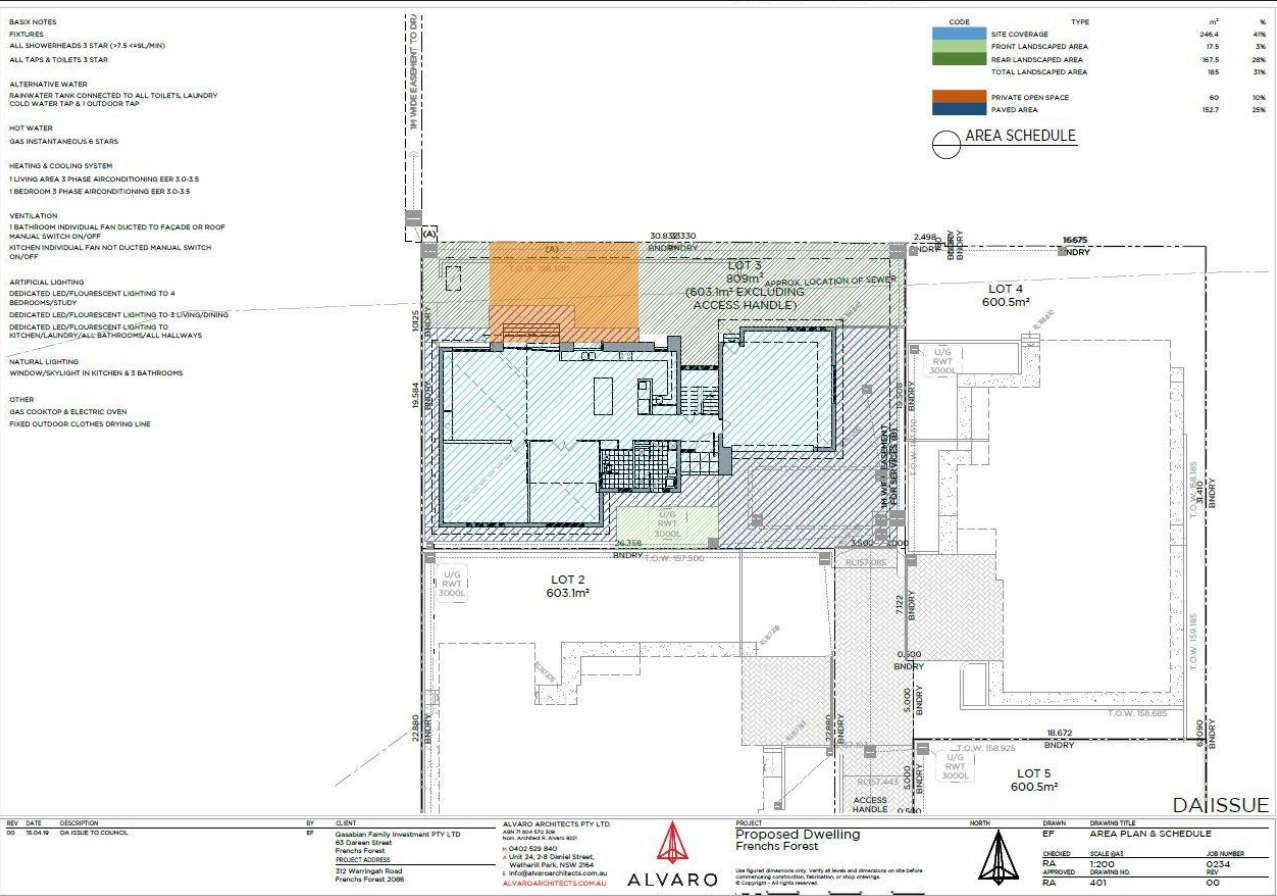
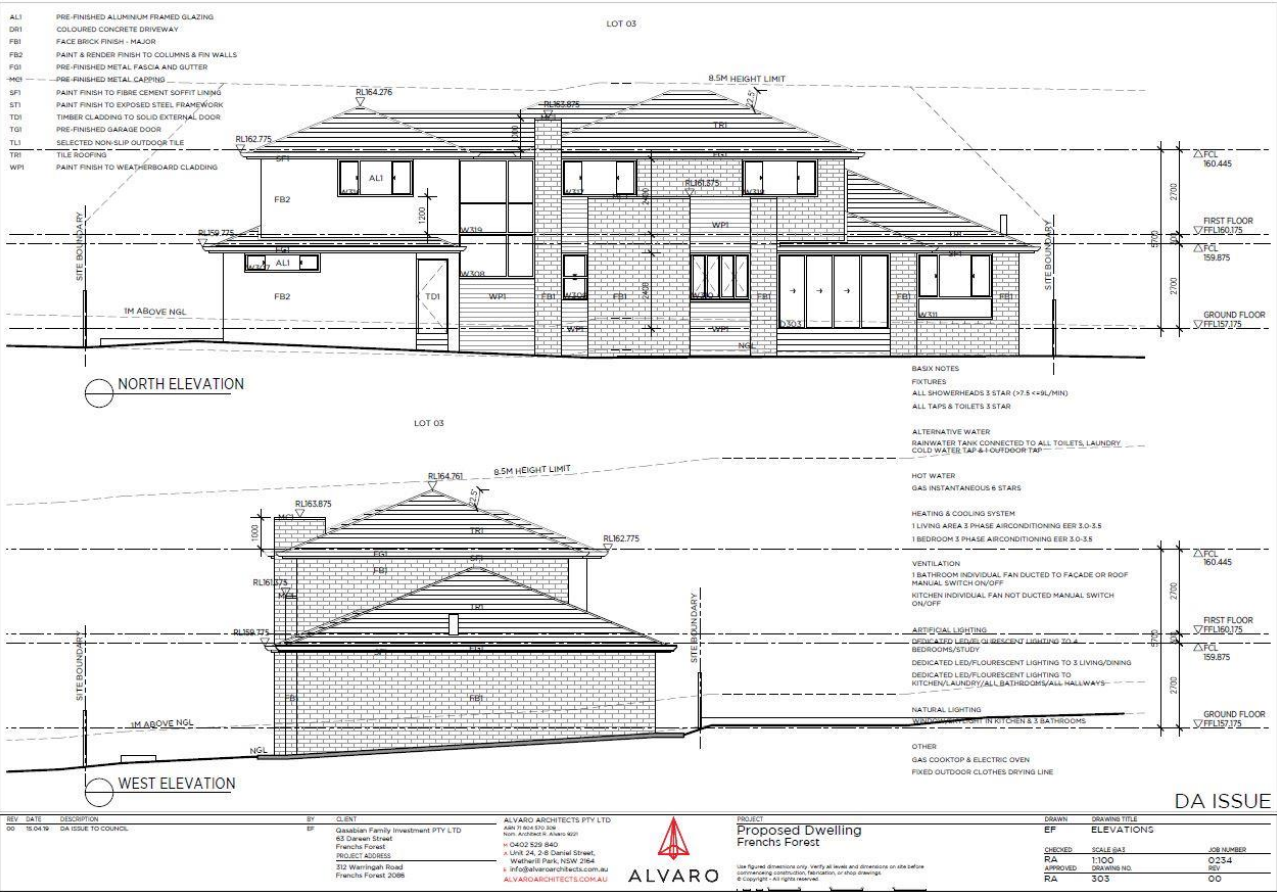
PROPOSED DWELLING 312 WARRINGAH ROAD FRENCHS FOREST 2086 - LOT 100 DP592389 (LOT 03)

DA ISSUE

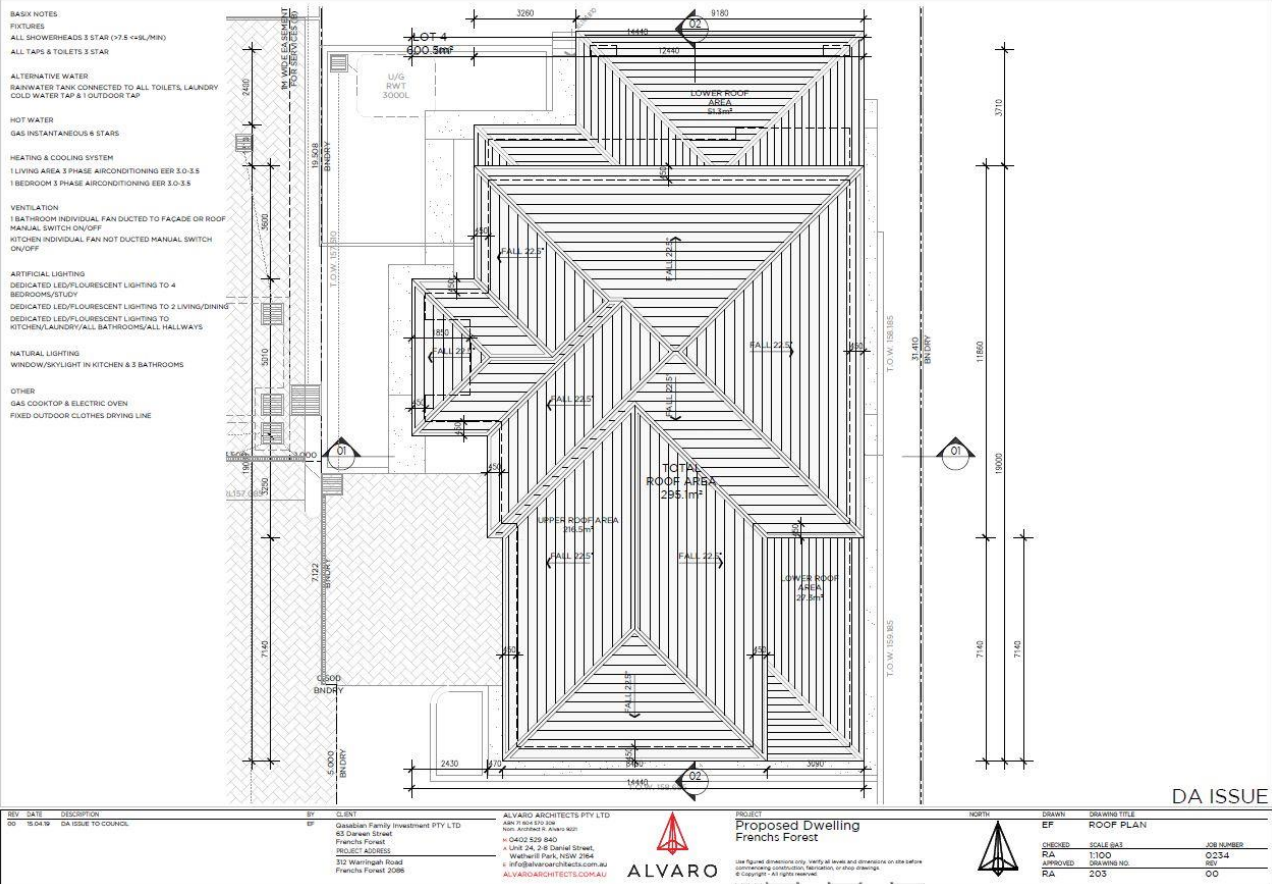
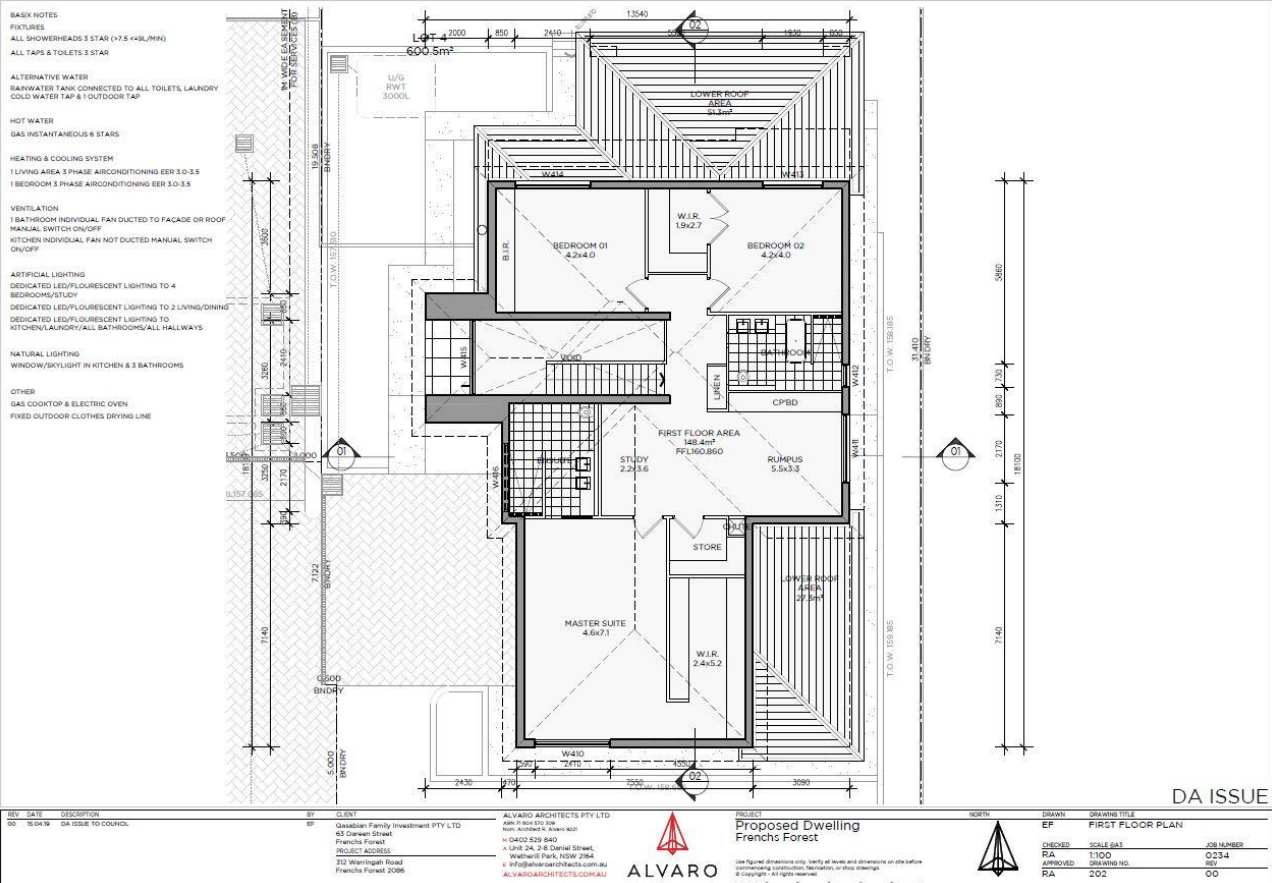
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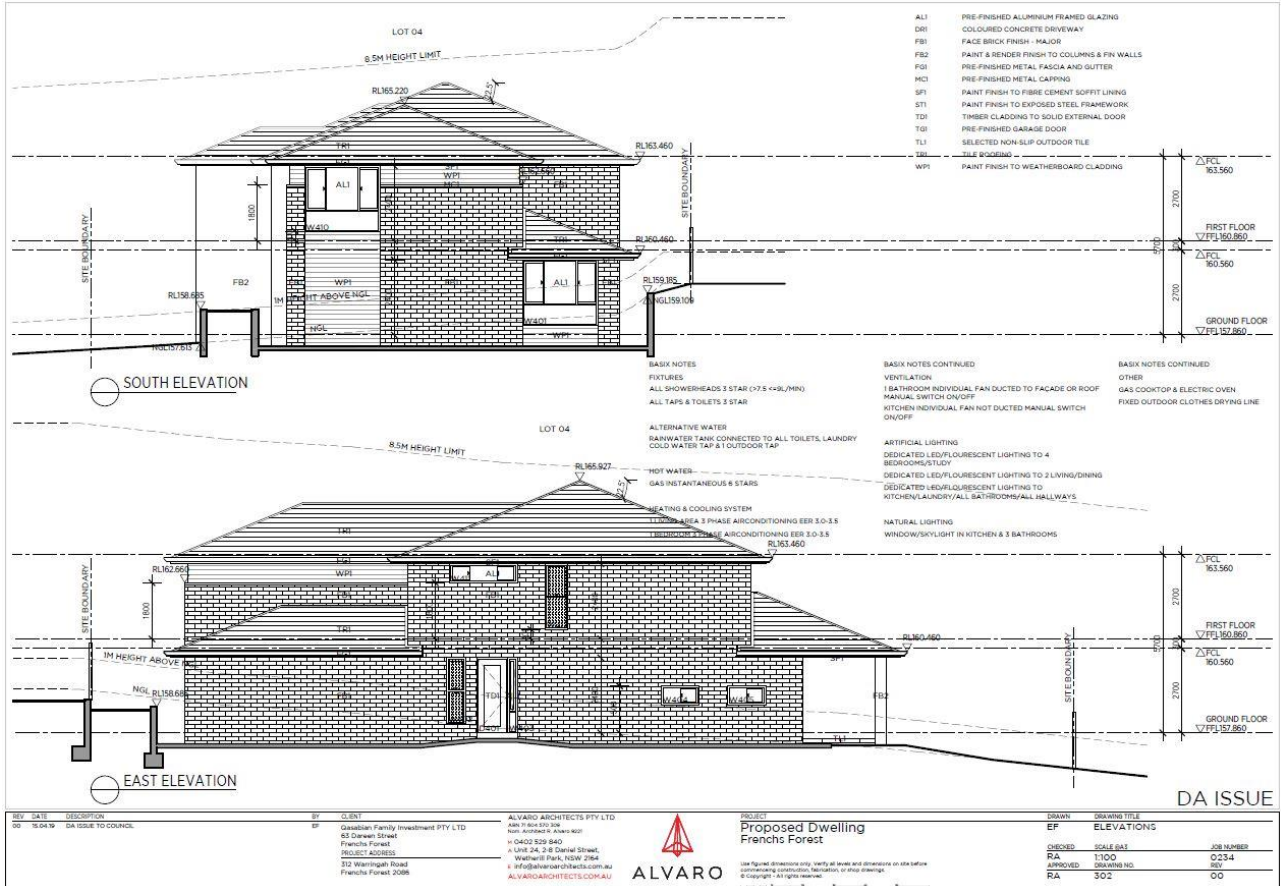
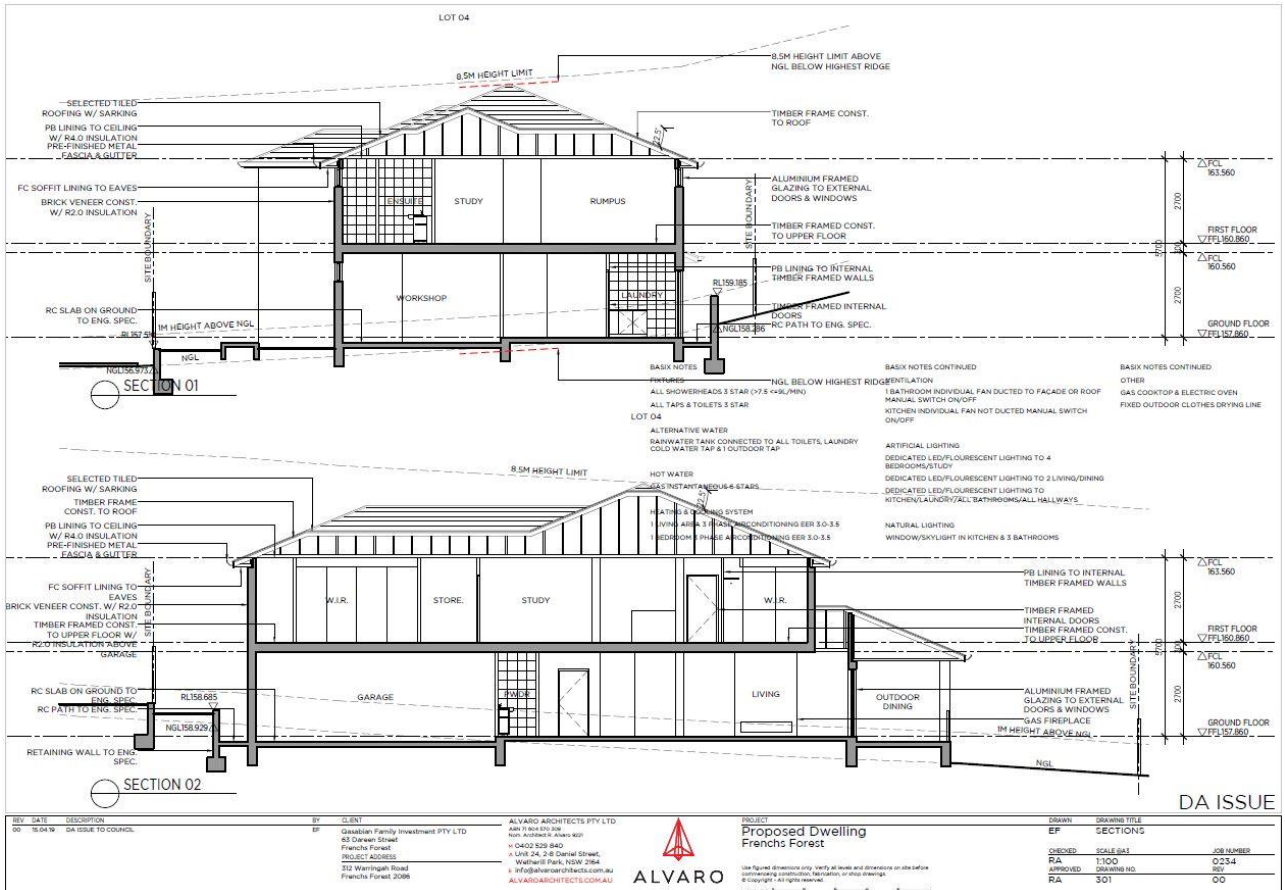


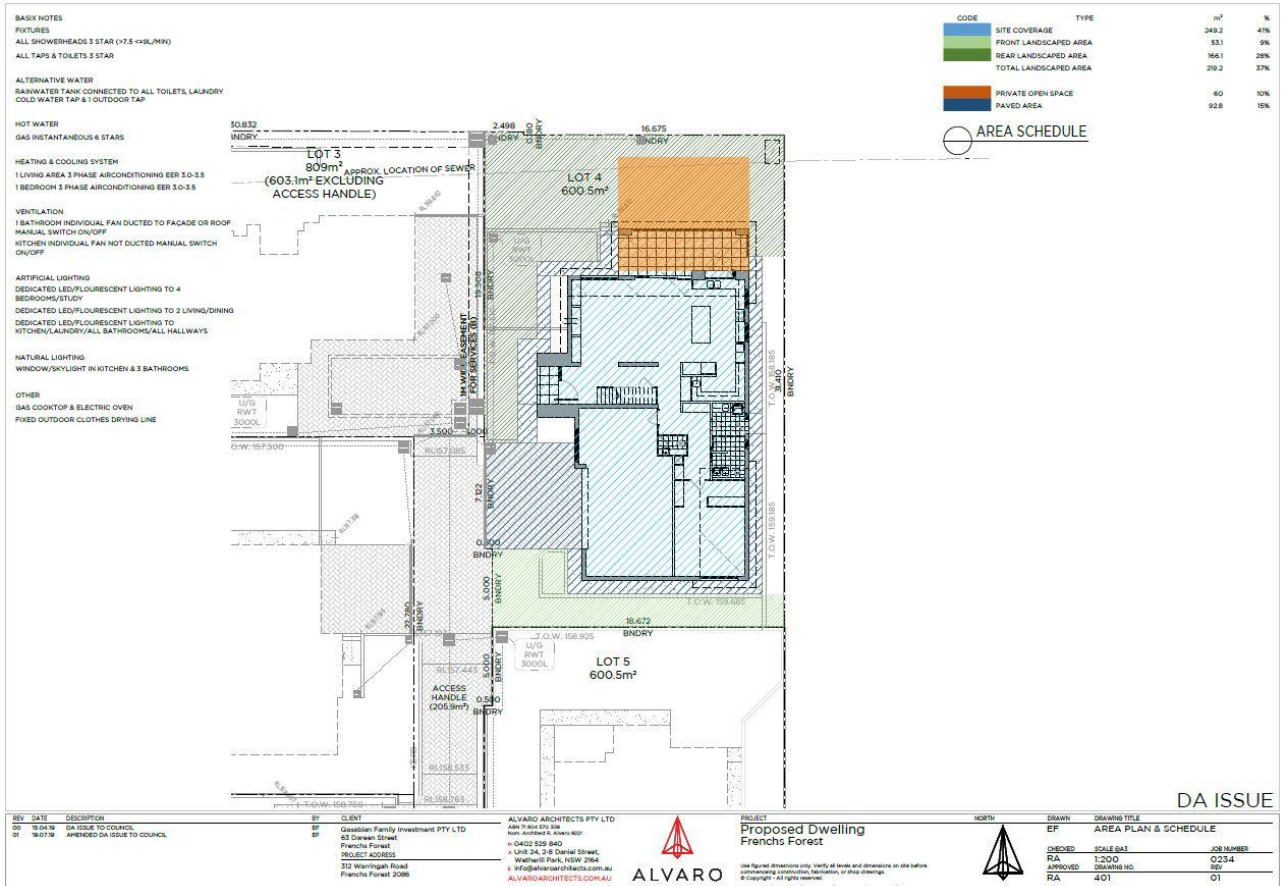
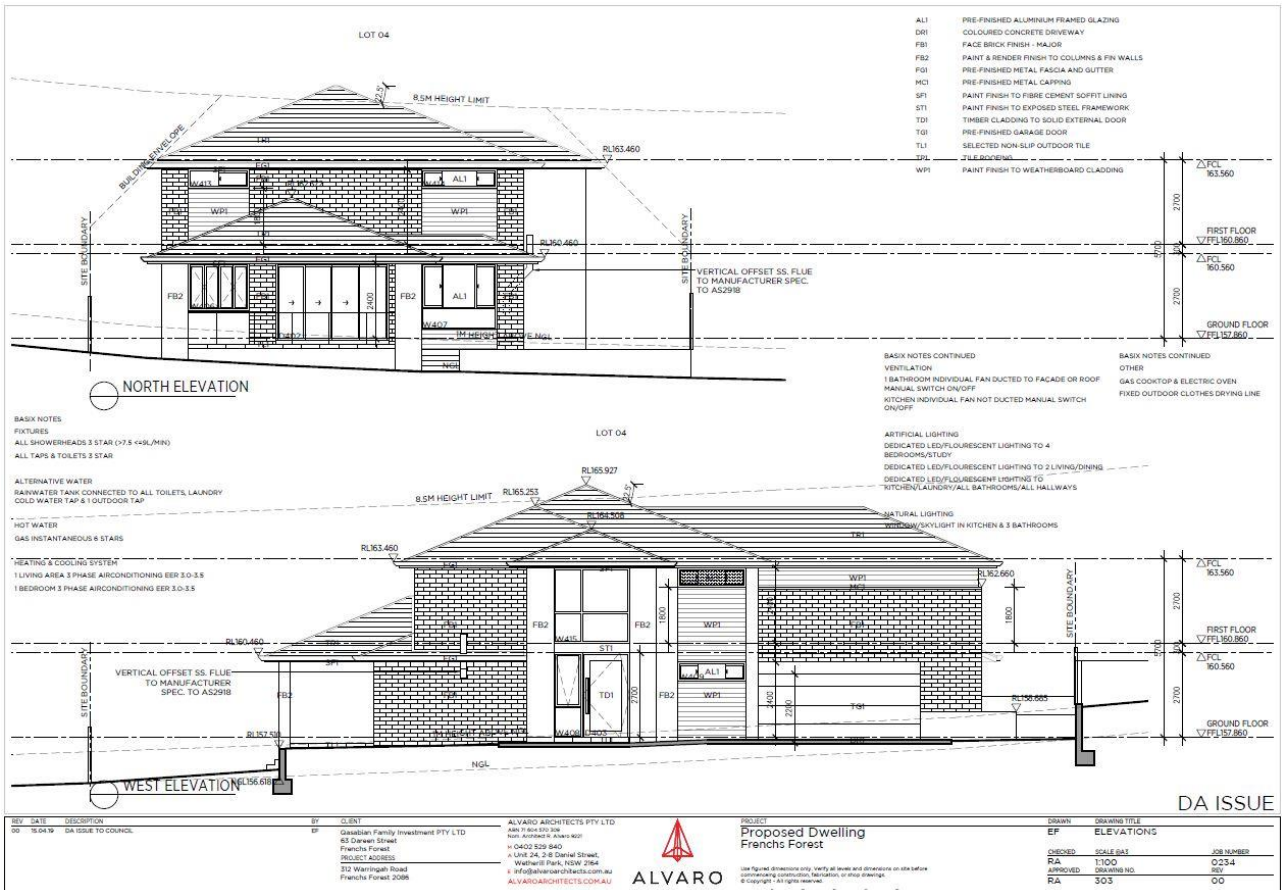




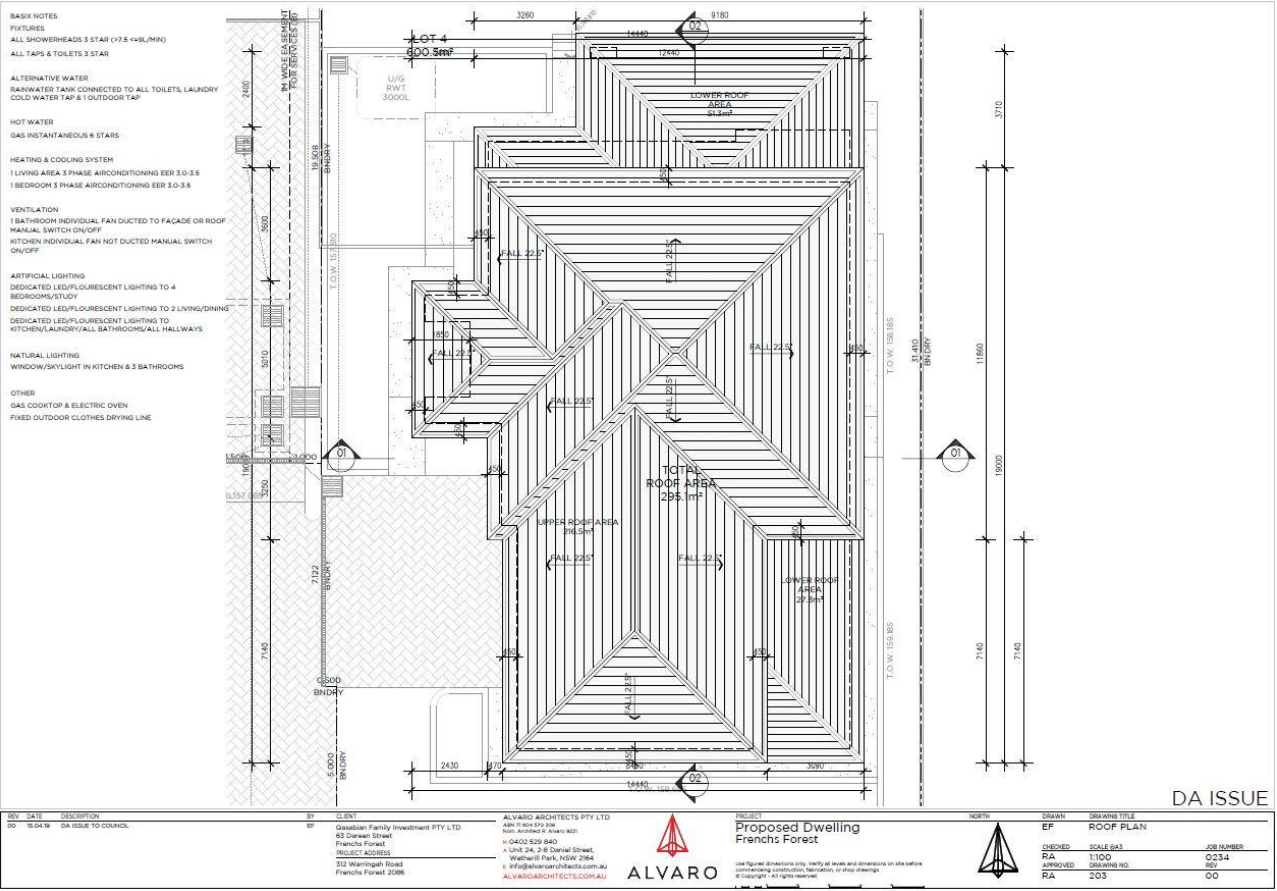
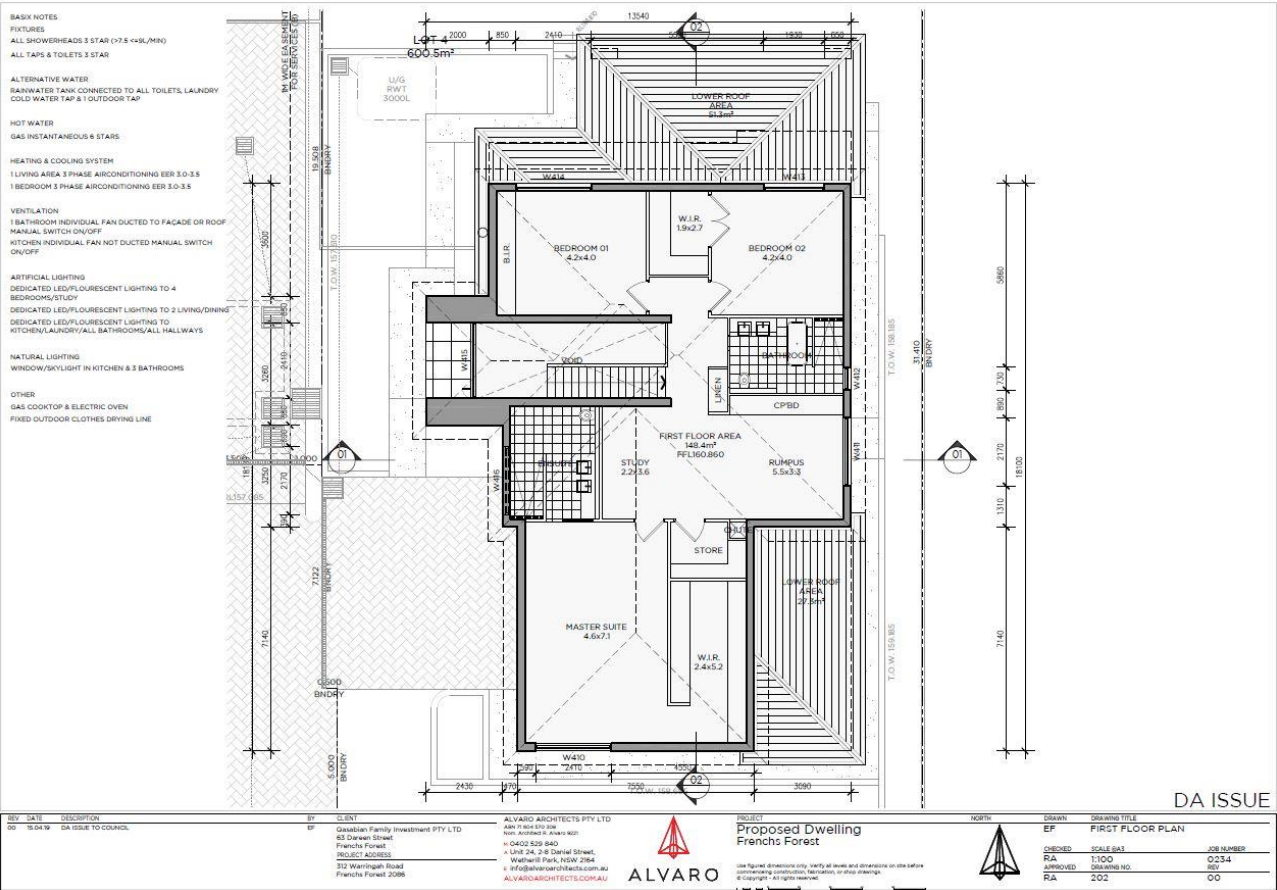
		SIZE (mm)		REMARKS	CODE	ORIENTATION	EAVE (mm)		TOP OF WINDOW (mm)	BASIC NOTES
No.	STYLE	WIDTH	HEIGHT				WIDTH (INCL. GUTTER)	HEIGHT ABOVE WINDOW		
W301	SLIDING WINDOW	2400	800	ALUMINIUM 6 DG AIR FILL CLEAR (UH4.8 SHGC=0.85)	SW0604	S	800	0	2400	FIXTURES
W302	SLIDING WINDOW	2400	2700	5.06 E55 SG 3CLR (UH4.4 SHGC=0.76)	SW2047	S	800	0	2400	ALL SHOWERHEADS 3 STAR (7.5 L/Min)
W303	OPAQUE SLIDING WINDOW	880	800	0.81 E55 SG 3CLR (UH4.4 SHGC=0.76)	SW0608	S	800	3000	2400	ALL TAPS & TOILETS 3 STAR
W304	AWNING WINDOW	310	2400	0.74 E55 SG 4CLR (UH4.5 SHGC=0.87)	CUSTOM	S	800	3000	2400	ALTERNATIVE WATER
W305	AWNING WINDOW	910	2700	2.46 E55 SG 4CLR (UH4.5 SHGC=0.87)	CUSTOM	S	2000	2700	2700	RAINWATER TANK CONNECTED TO ALL TOILETS, LAUNDRY COLD WATER TAP & 1 OUTDOOR TAP
W306	SLIDING WINDOW	2400	800	1.48 E55 SG 3CLR (UH4.4 SHGC=0.76)	SW0604	E	800	0	2400	HOT WATER
W307	SLIDING WINDOW	2400	800	1.48 E55 SG 3CLR (UH4.4 SHGC=0.76)	SW0604	N	800	0	2400	GAS INSTANTANEOUS 6 STARS
W308	FIXED WINDOW	2400	1400	3.37 SG SG 4 CLR (UH4.0 SHGC=0.78)	CUSTOM	N	800	2400	2400	HEATING & COOLING SYSTEM
W309	DOUBLE HUNG WINDOW	880	1800	1.28 E55 SG 3CLR (UH4.3 SHGC=0.75)	CUSTOM	N	800	3000	2400	1 LIVING AREA 3 PHASE AIRCONDITIONING EER 3.0-3.5
W310	BI-FOLD WINDOW	1930	1800	2.90 SG SG 4CLR (UH4.1 SHGC=0.85)	CUSTOM	N	0	N/A	2400	1 BEDROOM 3 PHASE AIRCONDITIONING EER 3.0-3.5
W311	SLIDING WINDOW	2400	2700	5.06 E55 SG 3CLR (UH4.4 SHGC=0.76)	SW2047	N	800	0	2400	VENTILATION
W312	SLIDING WINDOW	2400	1200	2.89 E55 SG 3CLR (UH4.4 SHGC=0.76)	SW0224	S	800	0	2400	1 BATHROOM INDIVIDUAL FAN DUCTED TO FACADE OR ROOF
W313	OPAQUE SLIDING WINDOW	1200	800	0.73 E55 SG 3CLR (UH4.4 SHGC=0.76)	SW0612	S	800	0	2400	MANUAL SWITCH ON/OFF
W314	FIXED WINDOW	2400	2400	5.78 SG SG 4 CLR (UH4.0 SHGC=0.78)	FW0224	S	2000	0	2400	KITCHEN INDIVIDUAL FAN NOT DUCTED MANUAL SWITCH ON/OFF
W315	OPAQUE SLIDING WINDOW	880	800	0.81 E55 SG 3CLR (UH4.4 SHGC=0.76)	SW0608	S	800	0	2400	ARTIFICIAL LIGHTING
W316	SLIDING WINDOW	2400	2700	5.06 E55 SG 3CLR (UH4.4 SHGC=0.76)	SW2047	N	800	0	2400	DEDICATED LED/FLOURESCENT LIGHTING TO 4 BEDROOMS/STUDY
W317	SLIDING WINDOW	2400	2700	5.06 E55 SG 3CLR (UH4.4 SHGC=0.76)	SW2047	N	800	0	2400	DEDICATED LED/FLOURESCENT LIGHTING TO 3 LIVING/DINING
W318	SLIDING WINDOW	2400	2700	5.06 E55 SG 3CLR (UH4.4 SHGC=0.76)	SW2047	N	800	0	2400	DEDICATED LED/FLOURESCENT LIGHTING TO KITCHEN/LAUNDRY/ALL BATHROOMS/ALL HALLWAYS
W319	FIXED WINDOW	2400	2400	5.78 SG SG 4 CLR (UH4.0 SHGC=0.78)	CUSTOM	N	800	0	2400	NATURAL LIGHTING
D301	GLAZED INSERT LAUNDRY DOOR	800	2400	2.16 TIMBER SG CLEAR (UH4.4 SHGC=0.86)	CUSTOM	S	800	3000	2400	WINDOW/SKYLIGHT IN KITCHEN & 3 BATHROOMS
D302	GLAZED INSERT ENTRY DOOR	1800	2700	4.08 TIMBER SG CLEAR (UH4.4 SHGC=0.86)	CUSTOM	S	2000	2700	2700	OTHER
D303	GLAZED STACKING DOOR	3600	2400	8.64 E55 SG 4CLR (UH4.2 SHGC=0.74)	CUSTOM	N	980	0	2400	GAS COOKTOP & ELECTRIC OVEN
										FIXED OUTDOOR CLOTHES DRYING LINE
WINDOW SCHEDULE										

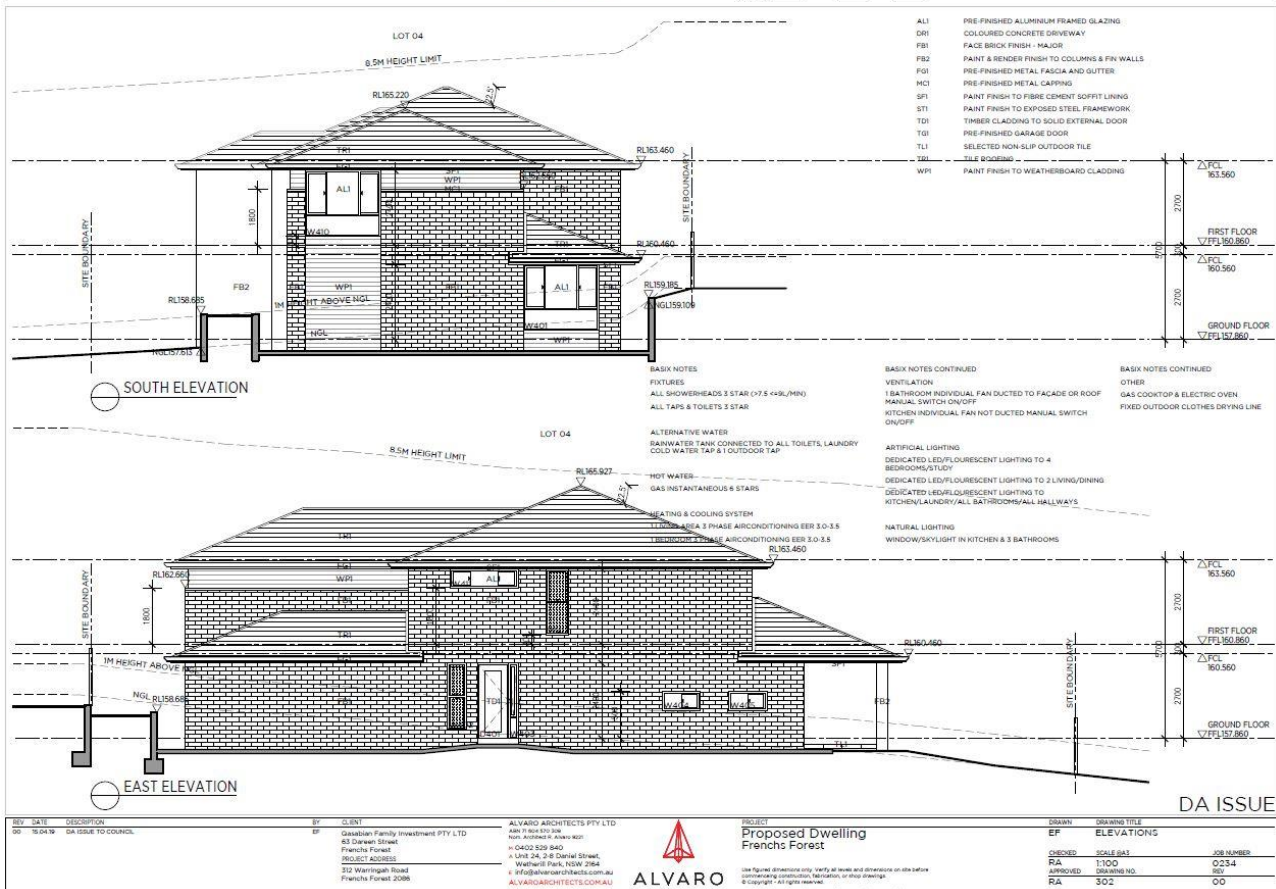
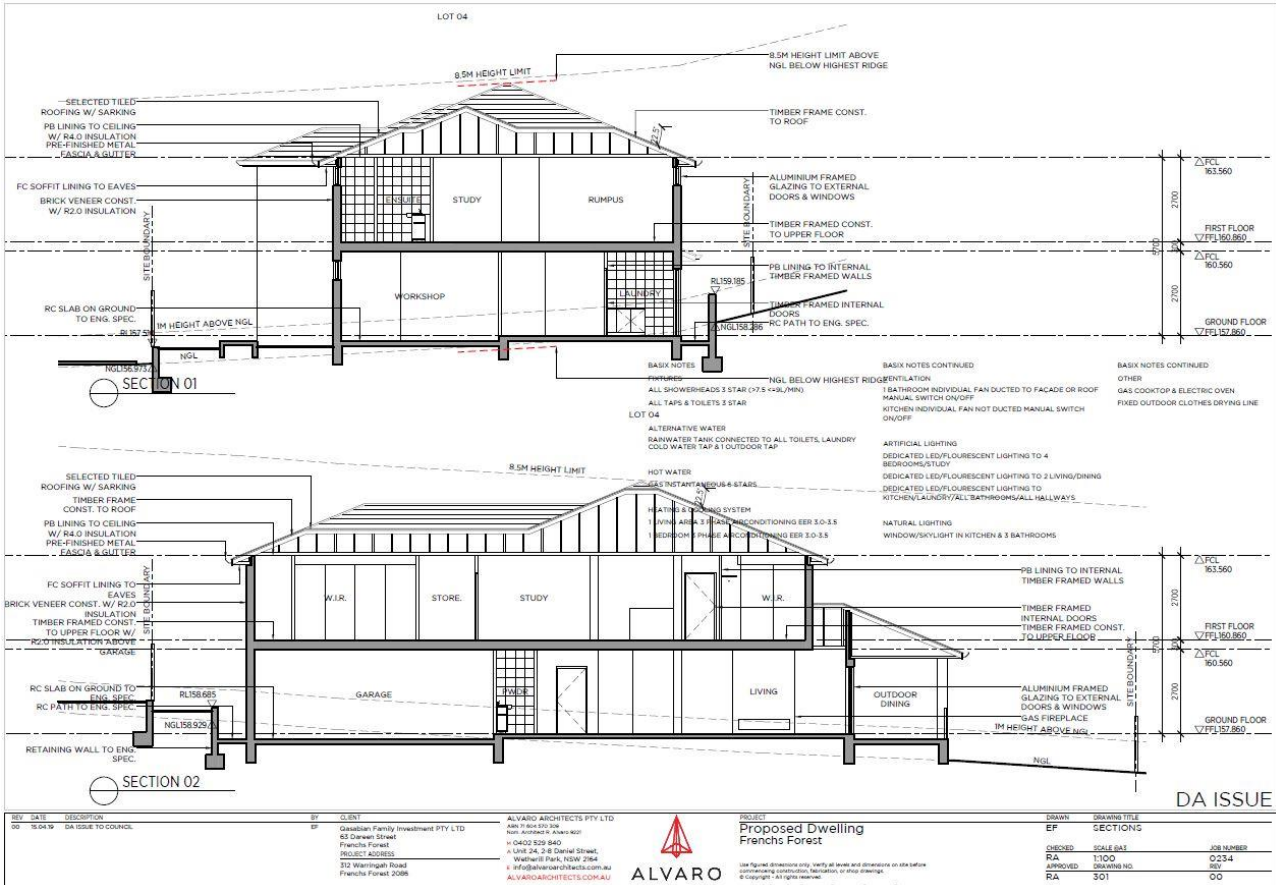


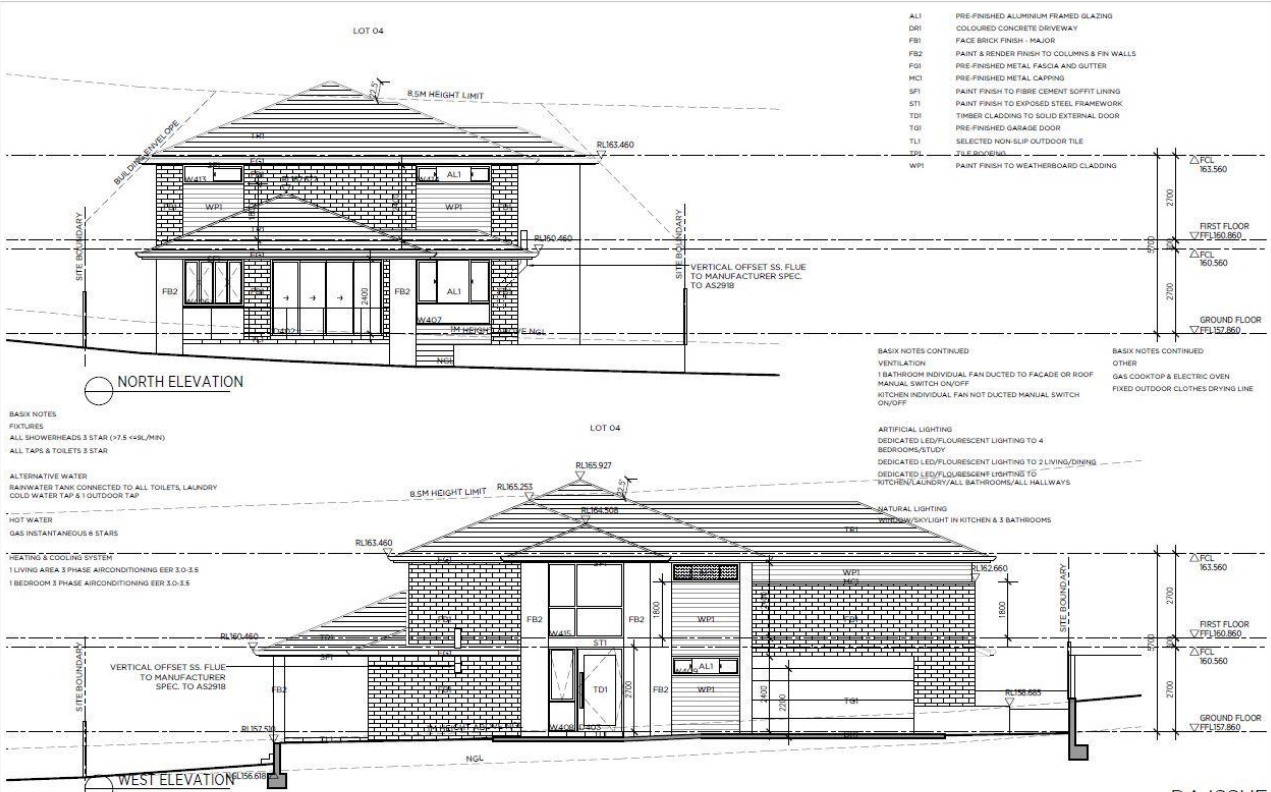




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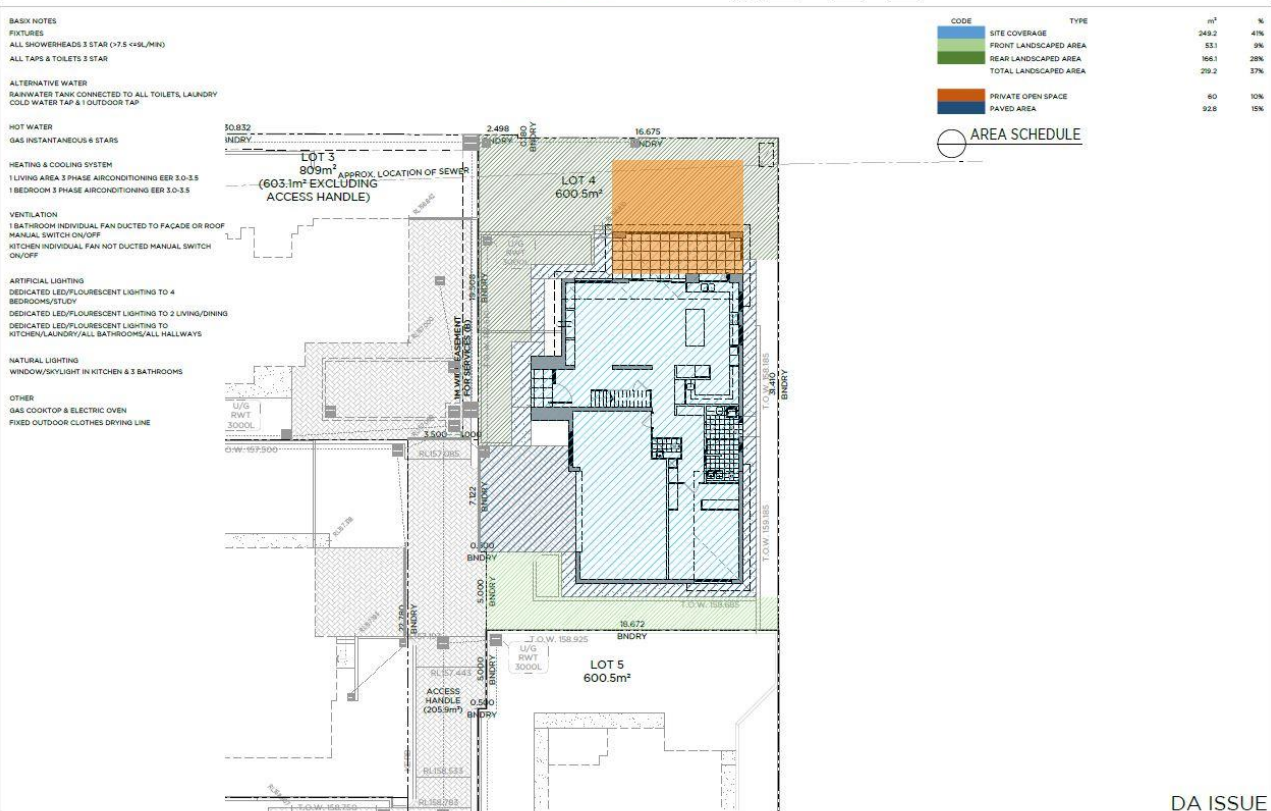






DA ISSUE

REV	DATE	DESCRIPTION	BY	CLIENT	ALVARO ARCHITECTS PTY LTD	PROJECT	DRAWN	DRAWING TITLE
00	15.04.19	DA ISSUE TO COUNCIL	EP	Goswami Family Investment PTY LTD 63 Darnley Street Frenchs Forest PROJECT ADDRESS 312 Warringah Road Frenchs Forest 2086	ALVARO ARCHITECTS PTY LTD ABN 71 604 071 306 Room 401/2 Level 4, 401/2 Unit 24, 2/4 Daniel Street Wentworth Park, NSW 2164 info@alvaroarchitects.com.au ALVAROARCHITECTS.COM.AU	Proposed Dwelling Frenchs Forest	EP	ELEVATIONS
							CHECKED	SCALE 3/4
							RA	1:100
							APPROVED	DRAWING NO.
							RA	303
								JOB NUMBER
								0234
								00



DA ISSUE

REV	DATE	DESCRIPTION	BY	CLIENT	ALVARO ARCHITECTS PTY LTD	PROJECT	DRAWN	DRAWING TITLE
00	15.04.19	DA ISSUE TO COUNCIL	EP	Goswami Family Investment PTY LTD 63 Darnley Street Frenchs Forest PROJECT ADDRESS 312 Warringah Road Frenchs Forest 2086	ALVARO ARCHITECTS PTY LTD ABN 71 604 071 306 Room 401/2 Level 4, 401/2 Unit 24, 2/4 Daniel Street Wentworth Park, NSW 2164 info@alvaroarchitects.com.au ALVAROARCHITECTS.COM.AU	Proposed Dwelling Frenchs Forest	EP	AREA PLAN & SCHEDULE
							CHECKED	SCALE 3/4
							RA	1:200
							APPROVED	DRAWING NO.
							RA	401
								JOB NUMBER
								0234
								01

No.	STYLE	SIZE (mm)		AREA(m ²)	REMARKS	CODE	ORIENTATION	EAVE (mm)		TOP OF WINDOW (mm)	BASIX NOTES
		WIDTH	HEIGHT					WIDTH (INCL. GUTTER)	HEIGHT ABOVE WINDOW		
W401	SLIDING WINDOW	2410	2700	5.06	E55 SG 3CLR (U4&4 SHGC+0.76)	SW2124T	S	600	0	2400	FIXTURES
W402	OPAGUE DOUBLE HUNG WINDOW	610	2700	1.28	E55 SG 3CLR (U4&3 SHGC+0.75)	DH2108	E	600	3000	2400	ALL SHOWERHEADS 3 STAR (17.5 L/ML/MIN)
W403	AWNING WINDOW	3500	2400	0.72	E55 SG 4CLR (U4&5 SHGC+0.87)	CUSTOM	E	600	3000	2400	ALL TAPS & TOILETS 3 STAR
W404	SLIDING WINDOW	1210	600	0.73	E55 SG 3CLR (U4&4 SHGC+0.76)	SW0612	E	600	3900	1800	ALTERNATIVE WATER
W405	SLIDING WINDOW	1210	600	0.73	E55 SG 3CLR (U4&4 SHGC+0.76)	SW0612	E	600	3900	1800	RAHWATER TANK CONNECTED TO ALL TOILETS, LAUNDRY
W406	BI-FOLD WINDOW	1930	1800	2.90	S10 SG 4CLR (U4&1 SHGC+0.81)	CUSTOM	N	3675	0	2400	COLD WATER TAP & 1 OUTDOOR TAP
W407	SLIDING WINDOW	2410	2700	5.06	E55 SG 3CLR (U4&4 SHGC+0.76)	SW2124T	N	600	0	2400	HOT WATER
W408	AWNING WINDOW	910	2700	2.46	E55 SG 4CLR (U4&5 SHGC+0.87)	CUSTOM	W	2000	2700	2700	GAS INSTANTANEOUS 6 STARS
W409	SLIDING WINDOW	2770	600	1.30	E55 SG 3CLR (U4&4 SHGC+0.76)	SW0621	W	600	3000	2400	HEATING & COOLING SYSTEM
W410	SLIDING WINDOW	2410	2700	5.06	E55 SG 3CLR (U4&4 SHGC+0.76)	SW2124T	S	600	0	2400	1 LIVING AREA 3 PHASE AIRCONDITIONING EER 3.0-3.5
W411	SLIDING WINDOW	2770	600	1.30	E55 SG 3CLR (U4&4 SHGC+0.76)	SW0621	E	600	0	2400	1 BEDROOM 3 PHASE AIRCONDITIONING EER 3.0-3.5
W412	OPAGUE SINGLE HUNG WINDOW	750	2000	1.53	E55 SG 3CLR (U4&3 SHGC+0.75)	SH0517	E	600	0	2400	VENTILATION
W413	SLIDING WINDOW	1930	600	1.16	E55 SG 3CLR (U4&4 SHGC+0.76)	CUSTOM	N	600	0	2400	1 BATHROOM INDIVIDUAL FAN DUCTED TO FACADE OR ROOF
W414	SLIDING WINDOW	2410	600	1.45	E55 SG 3CLR (U4&4 SHGC+0.76)	SW0624	N	600	0	2400	MANUAL SWITCH ON/OFF
W415	FIXED WINDOW	2410	2400	5.78	S10 SG 4 CLR (U4&0 SHGC+0.78)	CUSTOM	W	2000	0	2400	KITCHEN INDIVIDUAL FAN NOT DUCTED MANUAL SWITCH ON/OFF
W416	OPAGUE SLIDING WINDOW	2770	600	1.30	E55 SG 3CLR (U4&4 SHGC+0.76)	SW0621	W	600	0	2400	ARTIFICIAL LIGHTING
D401	GLAZED INSERT LAUNDRY DOOR	1000	2400	2.40	TIMBER SG CLEAR (U4&4 SHGC+0.86)	CUSTOM	E	600	3000	2400	DEDICATED LED/FLOURESCENT LIGHTING TO 4 BEDROOMS/STUDY
D402	GLAZED STACKING DOOR	3600	2400	8.64	E55 SG 4CLR (U4&2 SHGC+0.74)	CUSTOM	N	3600	0	2400	DEDICATED LED/FLOURESCENT LIGHTING TO 2 LIVING/DINING
D403	GLAZED INSERT ENTRY DOOR	1800	2700	4.05	TIMBER SG CLEAR (U4&4 SHGC+0.86)	CUSTOM	W	2000	2700	2700	DEDICATED LED/FLOURESCENT LIGHTING TO KITCHEN/LAUNDRY/ALL BATHROOMS/ALL HALLWAYS
WINDOW SCHEDULE											NATURAL LIGHTING
											WINDOW/SKYLIGHT IN KITCHEN & 3 BATHROOMS
											OTHER
											GAS COOKTOP & ELECTRIC OVEN
											FIXED OUTDOOR CLOTHES DRYING LINE

DA ISSUE

REV.	DATE	DESCRIPTION	BY	CLIENT	ALVARO ARCHITECTS PTY LTD	PROJECT	DRAWN	DRAWING TITLE
00	15.04.19	DA ISSUE TO COUNCIL	EF	Qasabian Family Investment PTY LTD	40th Fl Box 510 10th Floor, Archibald & Macao 6011	Proposed Dwelling Frenchs Forest	EF	WINDOW SCHEDULE
				63 Denison Street Frenchs Forest	Ph: 0420 529 840		CHECKED	SCALE 6:1
				PROJECT ADDRESS	11/119 244-248 Denison Street, Wetherill Park, NSW 2154		RA	NTS
				312 Warringah Road Frenchs Forest 2088	info@alvaroarchitects.com.au		APPROVED	DATE 15.04.19
					ALVAROARCHITECTS.COM.AU		RA	501
								JOB NUMBER
								0254
								001
								00

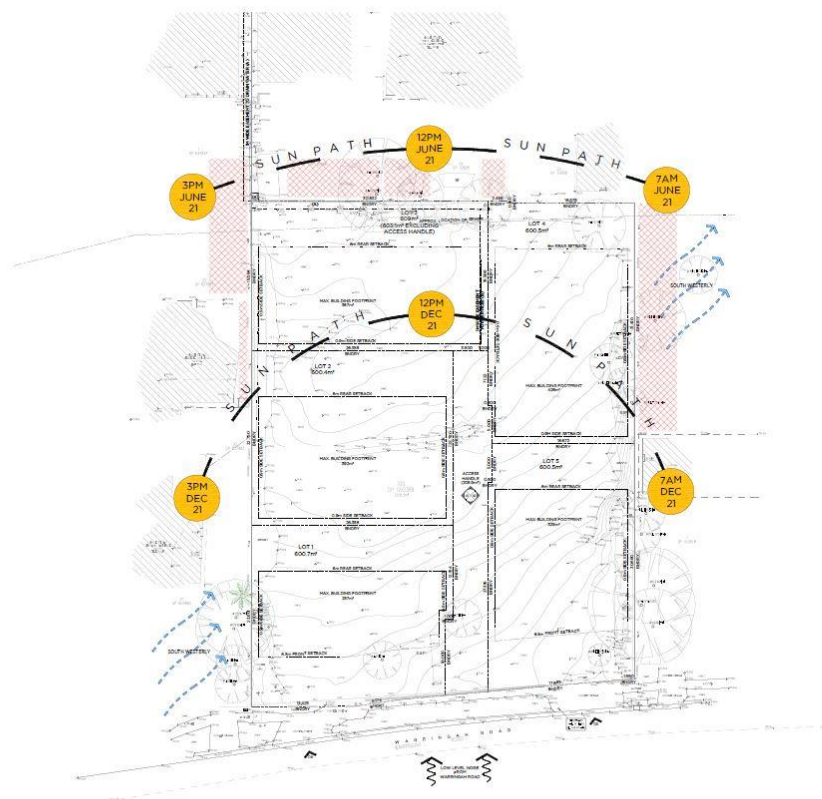
Use figured dimensions only. Verify all levels and dimensions on site before commencing construction. Fabrication, or shop drawings. © Copyright. All rights reserved.

A photograph of a modern, two-story house with a dark roof and light-colored walls, situated on a street with trees and a sidewalk.

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 E-mail: alvaro@alvaro.com.br
www.alvaro.com.br

	SP	COVER SHEET & STORE
	DATE	REVISION
	NO.	DATE
	BY	DATE
	BY	DATE



- VIEWS AND VIEWS
- NOISE
- PERVIOUS WINDS
- DRIVEWAY / VEHICULAR ACCESS POINT
- EXISTING NEIGHBOURLAND STRUCTURES
- VIEW NO. FROM CHARGE

 ROCK OUTCROP PE
 RUGBY FIELD PE
 URBAN ORGANIC SP
 URBAN ORGANIC SP
 POTENTIAL FOR URBAN ORGANIC SP
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- NO. OF STORES
- MEMBERSHIP DATABASE
- MEMBERSHIP PRIVATE OPEN SPACE
- MEMBERSHIP WINDOW PAINT SITE
- EXISTING/PROPOSED TREES

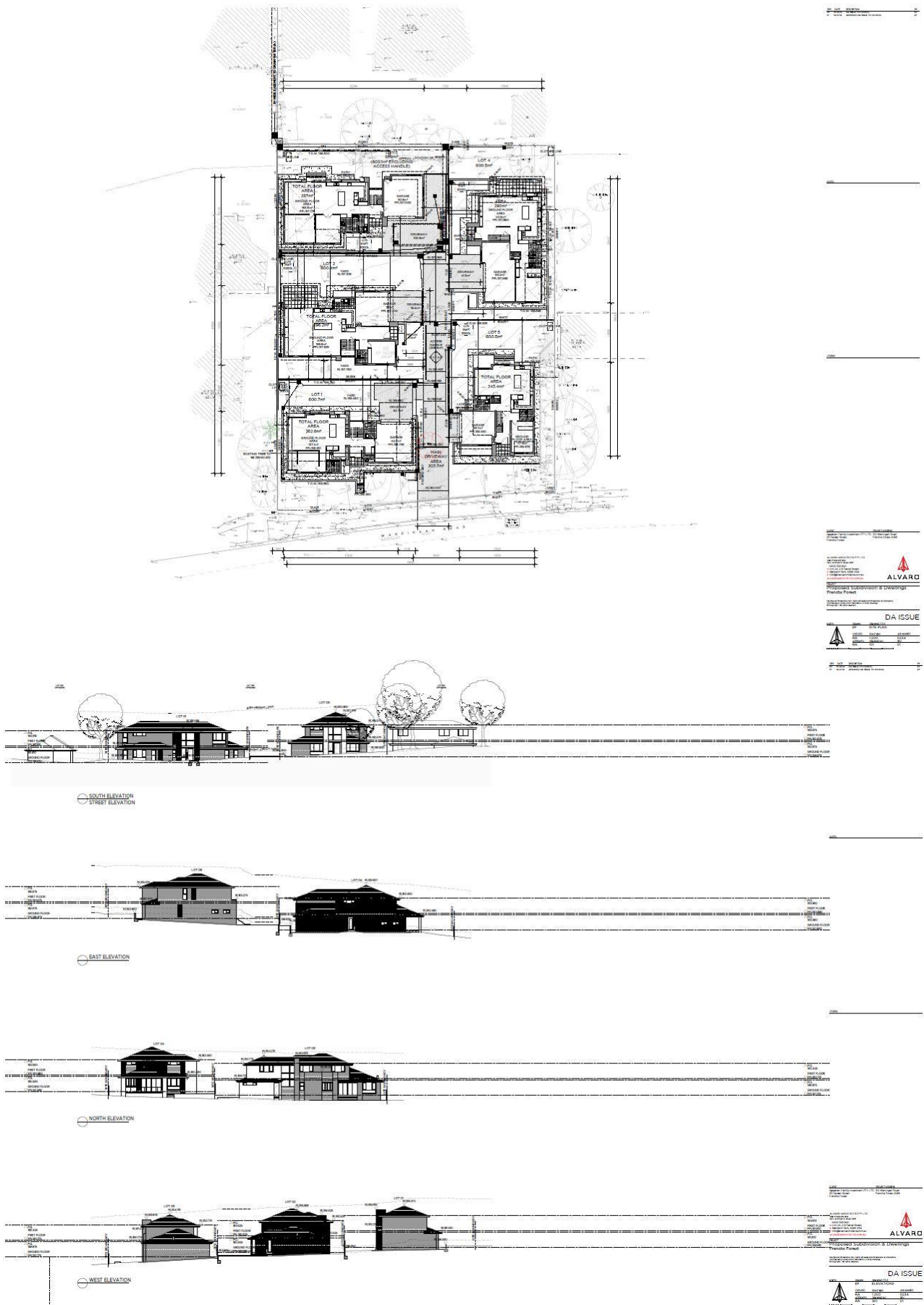
EXISTING THINGS TO BE REMOVED	CONTRIBUTIONS NOT TO BE MADE TO THE PROJECT
	

EXISTING THINGS TO BE REMOVED	CONTRIBUTIONS NOT TO BE MADE TO THE PROJECT
	

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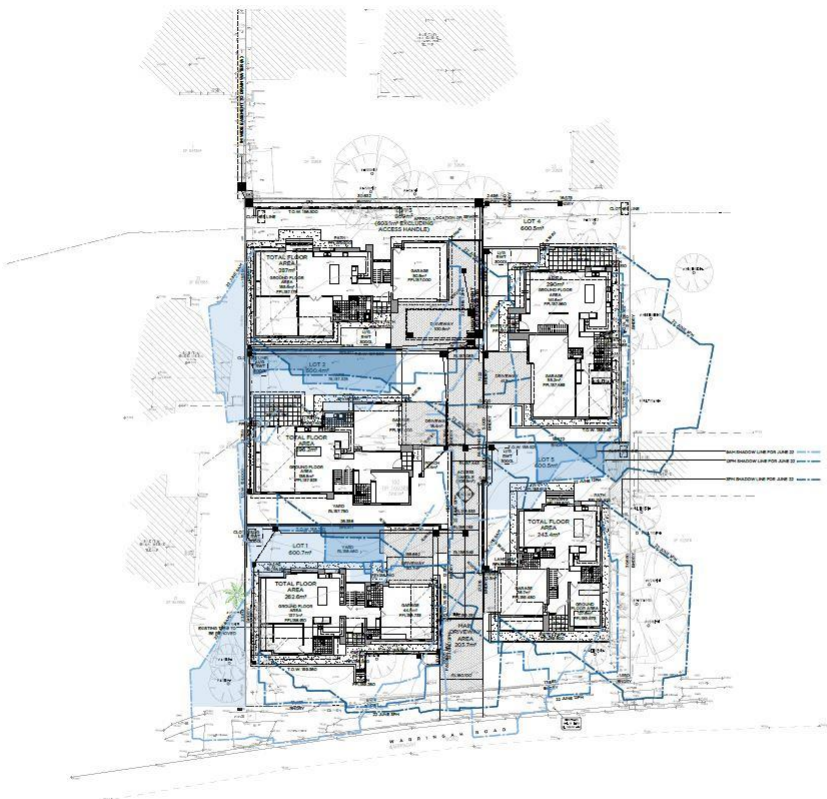
**Proposed Subdivision & Dwellings
French Forest**

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