

30 Jan 2014

Pittwater Council
1 Park Street
Mona Vale NSW 2103

Dear Sir /Madam

Re: Lodgement of CC2013-218 for DA No. N0262/12
Site address: No. 16 North Avalon Road, Avalon Beach NSW 2107

Please find attached all required documentation relied upon to issue Construction Certificate and Notice of Commencement for the above development:

- Part 4A Lodgement Fee \$36.00 payable to Council.
- Copy of Home Owner's Warranty Insurance/Owner Builder Permit.
- Sydney Water approval
- 1 full set of Construction Certificate plans & specification.
- 1 Structural Engineer's plans & details.
- Stormwater Management Plans OSD.
- Council Driveway profile application & Section 139 Consent.
- Schedule of Finishes
- Arboriculture Assessment & Development Impact Report.
- Arboriculture Assessment Tree Root Investigation..
- Vehicle Driveway Gradients (longitudinal section)
- 1 Basix Certificate
- Long Service Levy receipt.
- Landscape plan.



Yours faithfully

A handwritten signature in dark ink, appearing to read "Craig Formosa".

Craig Formosa

\$36 Rec. 355549 6/2/14.

POSTED
03/01/14



CONSTRUCTION CERTIFICATE #2013-218

Approved 30/01/14

Issued in accordance with the provisions of the Environmental & Assessment Act 1979 under Sections 109C(1)(b) and 109F

Date Application Received	05/09/2013				
Council	Pittwater Council				
Development Consent No.	N0262/12	Date Approved	18/03/2013		
Certifying Authority	Craig Formosa	Accredited Certifier	Craig Formosa - BPB0124		
Accreditation Body	Building Professionals Board	BCA in Force	BCA2013		
APPLICANT DETAILS					
Name	Anthea Vallis	Ph No.	0414 407947		
Address	305 Lower Plateau Road, Bilgola NSW 2107				
OWNER DETAILS					
Name & Address	Anthea Vallis 305 Lower Plateau Road, Bilgola NSW 2107				
DEVELOPMENT DETAILS					
Subject Land	16 North Avalon Road, Avalon Beach NSW 2107	Lot No.	15	DP	8394
Description of Development	Demolition of existing dwelling and construction of a new dwelling and swimming pool.				
Class of Building	1a, 10b	Value of Work	\$850,000.00		
BUILDER DETAILS					
Name & Address	Anthea Vallis 68 Marine Pde Avalon Beach				
Contact Number	0414 407947	O/B Permit	408172P		
APPROVED PLANS & DOCUMENTS					
Plans Prepared By	Map Architecture + Interiors				
Drawing Numbers	CC-100 A, CC-200 A to CC-203 A, CC-300A to CC-303A, CC-400A to CC-403A	Dated	March 2012		
Engineer Details Prepared By	Barrenjoey Consulting Engineers Pty Ltd (structural)	(Hydraulic) SW1			
Drawing Numbers	S1.00, S2.00 to S2.02, S3.00 to S3.03, S4.00 to S4.06, S5.00 to S5.05, S6.00 to S6.06	Ref: 120906	Dated	undated	undated
Basix Certificate No.	438303S	Dated	04/09/2013		
CERTIFICATION					
I, Craig Formosa, as the certifying authority am satisfied that;					
(a) The requirements of the regulations referred to in s81A (5) have been complied with. That is, work completed in accordance with the documentation accompanying the application for this certificate (with such modifications verified by the certifying authority as may be shown on that documentation) will comply with the requirements of the Regulation as referred to in section 81A (5) of the Act, and					
(b) Long Service Levy has been paid where required under s34 of the Building & Construction Industry Long Service Payments Act 1986.					
Signed:					Date: 30/01/14



IMPORTANT ADVICE

Due to changes in planning laws, (Sect. S81A (2)C of the Act), **the critical stage inspections are mandatory and must** be inspected by the P.C.A or the final certificate (Occupation Certificate) may not be able to be issued (causing complications and delays when selling/refinancing etc). **The critical stage inspections are listed on the Notice of Commencement part of this document.**

Also, **NO CHANGES** to the building, as detailed in the plans, can be made without notification to your PCA (**some changes will need council consent**). **Please take note of any changes made in red to your plans, the builder will have to be provided with a copy of the approved construction certificate plans so that compliance with the Building Code of Australia and Council's DA conditions is achieved first time.**

Unauthorised changes may lead to fines and orders being issued by Council's Compliance Officers and prevent an Occupation Certificate being issued.

To arrange the mandatory inspections please give 48 hours notice by contacting Form Building Certifiers by telephone.

Please do not hesitate to ring me if there are any enquiries in respect of these matters.

Kind regards

A handwritten signature in dark ink, appearing to be "Craig Formosa".

Craig Formosa

Director

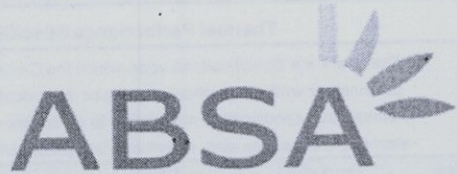
Form Building Certifiers

Assessor Certificate

Single Dwelling

Certificate Version 6.1.1. Prior versions not valid after 1 March 2006

Issued in Accordance with the requirements of
BASIX THERMAL COMFORT - Simulation Method



Assessor			
Name:	Melissa Vaz	Company	Gat & Associates
Address:		Suite 15, Level 1, 469-475 Parramatta Rd Leichhardt NSW 2040	
Phone:	02 9569 1100	Fax:	
Declaration of interest:		None	
Email:		melissa@gatassoc.com.au	
Assr #: 60501			

Client			
Name:	Ross & Anthea Vallis	Company:	c/- Greg Jones, Map Architecture & Interiors
Address: -- SELECT -- 0			
Phone:		Fax:	
Email:			

Project			
Address: 16 North Avalon Road AVALON NSW 2107			
Lot / DP:	15 / 8394	LGA:	Pittwater Council
Applicant:			

Assessment			
Date:	Job ID: B1365	Filename:	1
Run #		1	
Software:	AccuRate	Version:	2.0.2.13
Climate Zone:		56	

Referenced documents			
All details upon which this Assessment has been based, are included in the project documentation which has been stamped and signed by the Assessor issuing this Certificate, as detailed below:			

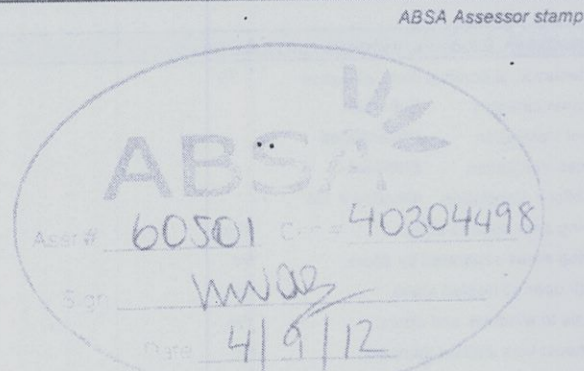
Thermal Performance Specification / Commitments attached and affixed to drawings, page	A102-A
Drawings:	Proposed New House
Specifications:	

ABSA Assessor Certificate	Assessor # 60501	Certificate #40304498	Issued:04/09/2012
THERMAL COMFORT - Simulation Method			
The details must be entered into your BASIX Assessment			

Area calculations (M2)			
Net Conditioned Floor Area	277	Net Unconditioned Floor Area	26
Concessions / Ventilation Bonus			
Eligible Concessions: None			
The dwelling has the required shading to qualify for BASIX cross ventilation bonus: N/A			

Predicted annual energy loads			
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Heating:		45
Cooling:		40
(sensible + latent)		
Total:		85



SYDNEY WATER APPROVED

Position of structure in relation to Sydney Water's assets is satisfactory.

Connections to Sydney Water sewer/water services may only be made following the issue of a permit to a licensed plumber/drainier.

It is the owner's responsibility to ensure that all proposed fittings will drain to Sydney Water's sewer.

Any Plumbing and/or Drainage Work to be carried out in accordance with the Sydney Water Act 1994, AS 3500 and the NSW Code of Practice.

Drains, Inspection Shafts and Boundary Traps shall not be placed under any Roof, Balcony, verandah, Floor or other cover unless otherwise approved by Sydney Water.

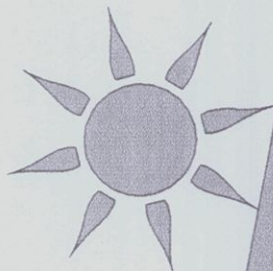
Property No. 3437894

Reece, Mona Vale

Quick Check Agent on behalf of
SYDNEY WATER

Reece

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GENERAL NOTES

GENERAL

G1 - These drawings are to be read in conjunction with all architectural and other consultants drawings and specifications. Any discrepancies are to be referred to all parties and rectified before proceeding with the works.
G2 - Dimensions shall not be obtained by scaling from these drawings.
G3 - During construction the structure shall be kept in a stable condition and no part shall be over stressed.
G4 - All materials and workmanship are to be in accordance with the current Australian Standards, OH&S requirements, and the by-laws and ordinances of any relevant statutory authority.

FOUNDATIONS

F1 - The foundation material is to be SANDY CLAY 250KPa bearing capacity.
F2 - The foundation material is to be inspected, verified and approved by a Geotechnical Consultant as being in accordance with the above and that it is sound and consistent with minimal possibility of differential settlement across the development.
F3 - Should variable foundation material be encountered the engineer is to be contacted and it is likely all foundations are to be pierced to similar material of the greatest bearing capacity and that additional detailing of the foundation reinforcement will be required.
F4 - Any excavation works are to include measures to ensure the temporary and long term stability of any existing structure within its vicinity.
F5 - All foundations shall be a minimum 300mm into the approved material unless otherwise noted.
F6 - Foundation depth dimensions are a minimum only and final depth will be dependent on the adequacy of the bearing material.
F7 - All organic matter and top soil shall be removed from the underside of all slabs and foundations.
F8 - Any soft or questionable excavated areas are to be brought to the attention of the Geotechnical Consultant and may require controlled filling.
F9 - Any filling shall be to the approval of the Geotechnical Consultant and will generally be granular material compacted in not more than 150mm layers to a minimum dry density ratio of 98%.

CONCRETE

C1 - All workmanship and materials shall be in accordance with AS3600.
C2 - Concrete quality shall be verified by tests.
C3 - All concrete shall have a slump of 80mm and maximum aggregate size of 20mm.
C4 - Concrete strength and cover shall be as detailed on the plans.
C5 - Size of concrete members do not include thickness of applied finishes.
C6 - Beam depths are written first and include slab thickness if any.
C7 - No penetrations are to be made to the concrete members without the written approval of the engineer.
C8 - No water is to be added to the concrete prior to placement.
C9 - All construction joints shall be located to the approval of the engineer.
C10 - Fire rating requirements and adequacy is to be reviewed and specified by others.
C11 - All concrete members are to be cured by keeping the surfaces continuously wet for a period of 3 days followed by the prevention of loss of moisture for a further 7 days.
C12 - All concrete elements shall be compacted to form a dense homogenous mass using mechanical vibrators.

C13 - All formwork shall be installed and stripped in accordance with AS3610.
C14 - All formwork is to be free of debris prior to pouring of concrete.
C15 - Exposed finished concrete surfaces (such as polished floors etc) will require additional top reinforcement (SL102) and specialist curing / shrinkage controlling additives as per the concrete suppliers recommendations.
C16 - All parties are to acknowledge that exposed finished concrete surfaces (such as polished floors etc) will be susceptible to cracking.

REINFORCEMENT

R1 - All reinforcement shall be Grade D500.
R2 - Top reinforcement is to be continuous over supporting elements and lapped between supporting elements to be continuous.
R3 - Bottom reinforcement is to be continuous between supporting elements and lapped at supporting elements only.
R4 - Reinforcement is represented diagrammatically only and is not necessarily shown in its true projection.
R5 - Welding of reinforcement is not permitted.
R6 - All reinforcement shall be supported on bar chairs at max 750mm spacing.
R7 - Reinforcement shall be tied at alternate intersections.
R8 - Reinforcement bars are to lap a minimum length equal to 40 times the bar diameter (ie min 480mm for N12 bars, 640mm for N16 bars) .
R9 - Reinforcement fabric is to lap 1 complete square plus 25mm.

MASONRY

M1 - All workmanship and materials shall be in accordance with AS3700.
M2 - An approved slip joint material is to be placed over all load bearing masonry supporting a concrete slab and laid on smooth brick work or a trowed mortar finish, this material may constitute two layers of greased metal.
M3 - Masonry shall be constructed on suspended concrete structures only after all propping has been removed and the concrete has achieved its specified strength.
M4 - Control joints are to be placed in all walls at a maximum of 8m centres and between new and existing structures or closer as deemed necessary by the engineer. The joints are to be 10mm wide and sealed with an approved flexible sealant, with ties at 600mm centres vertical.
M5 - Concrete blocks shall have a minimum compressive strength of 15 MPa.
M6 - Core filling shall be 20 MPa concrete with 10mm aggregate, 230mm slump and compacted adequately.
M7 - Concrete blocks used in retaining wall construction are to be Double Web H blocks.
M8 - Maximum pour height for unrestrained blockwork is 1.8m.
M9 - All masonry components are to be tied at not more than 600mm centres to adjacent steel or concrete columns.

STEEL

S1 - All workmanship and materials shall be in accordance with AS4100.
S2 - Hot rolled plates shall comply with AS 3678.
S3 - Hot rolled sections shall comply with AS3679.
S4 - Cold formed sections shall comply with AS4600.
S5 - Welded and seamless hollow sections shall comply with AS1163.
S6 - Unless noted otherwise all welds shall be 6mm continuous fillet from E4xx electrodes, unless noted otherwise.

These drawings and specifications will comply with the relevant Australian Standards and specifications referred to in Section 8 of the Building Act 1993 and the Building Regulations 2006.

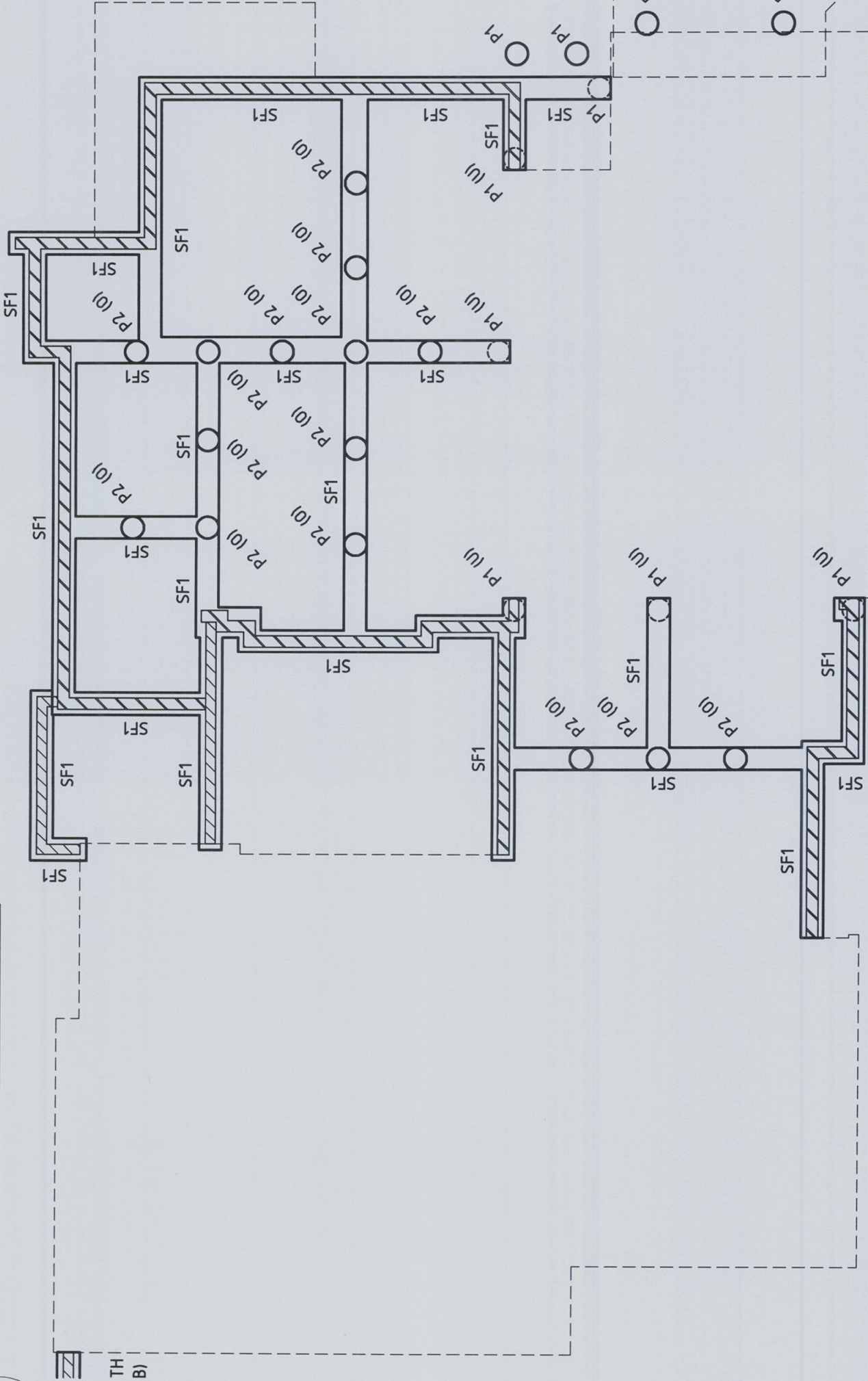
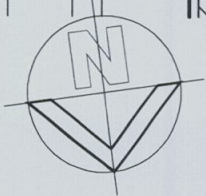
Project :

NEW RESIDENCE
16 NORTH AVALON ROAD
AVALON
for Mr R & Mrs A VALLIS

Drawing :

This is the plan/spec. referred to in Form Building Certifiers Certificate

Certificate No. CC/12013-212
Plan Nos. S1.00, S2.00, S3.00, S4.00, S5.00, S6.00, S7.00, S8.00, S9.00, S10.00, S11.00, S12.00, S13.00, S14.00, S15.00, S16.00, S17.00, S18.00, S19.00, S20.00, S21.00, S22.00, S23.00, S24.00, S25.00, S26.00, S27.00, S28.00, S29.00, S30.00, S31.00, S32.00, S33.00, S34.00, S35.00, S36.00, S37.00, S38.00, S39.00, S40.00, S41.00, S42.00, S43.00, S44.00, S45.00, S46.00, S47.00, S48.00, S49.00, S50.00, S51.00, S52.00, S53.00, S54.00, S55.00, S56.00, S57.00, S58.00, S59.00, S60.00, S61.00, S62.00, S63.00, S64.00, S65.00, S66.00, S67.00, S68.00, S69.00, S70.00, S71.00, S72.00, S73.00, S74.00, S75.00, S76.00, S77.00, S78.00, S79.00, S80.00, S81.00, S82.00, S83.00, S84.00, S85.00, S86.00, S87.00, S88.00, S89.00, S90.00, S91.00, S92.00, S93.00, S94.00, S95.00, S96.00, S97.00, S98.00, S99.00, S100.00, S101.00, S102.00, S103.00, S104.00, S105.00, S106.00, S107.00, S108.00, S109.00, S110.00, S111.00, S112.00, S113.00, S114.00, S115.00, S116.00, S117.00, S118.00, S119.00, S120.00, S121.00, S122.00, S123.00, 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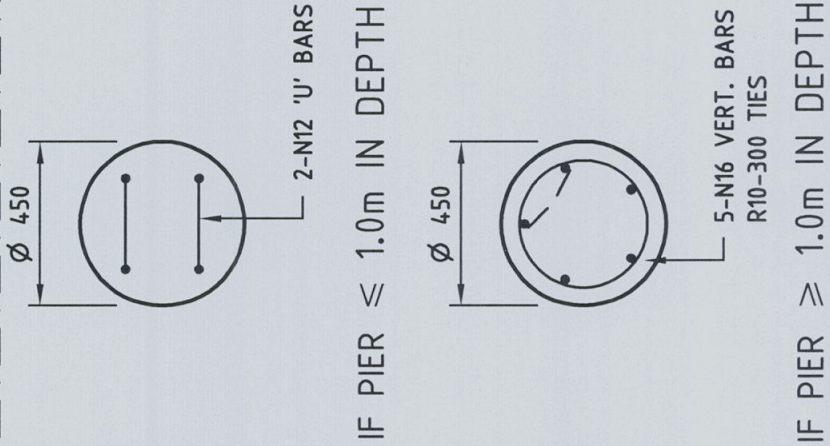
NOTE :

- SF1 450 x 450 STRIP FOOTING
- P1 450 Ø PIERS
- P2 450 Ø PIERS
- RW1 190 BLOCKWORK RETAINING WALL

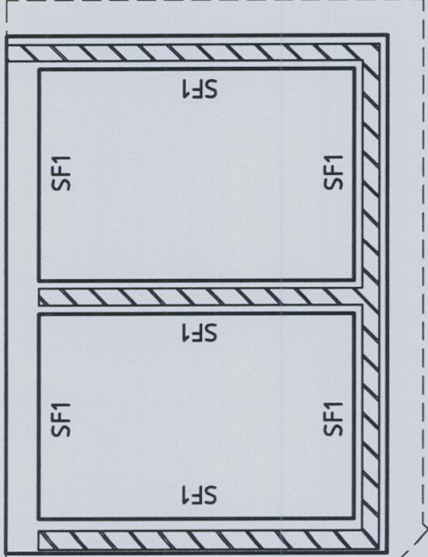
F'c - 25 MPa, 50mm COVER

- P (O) PIER OVER
- P (U) PIER UNDER

FOOTING PLAN



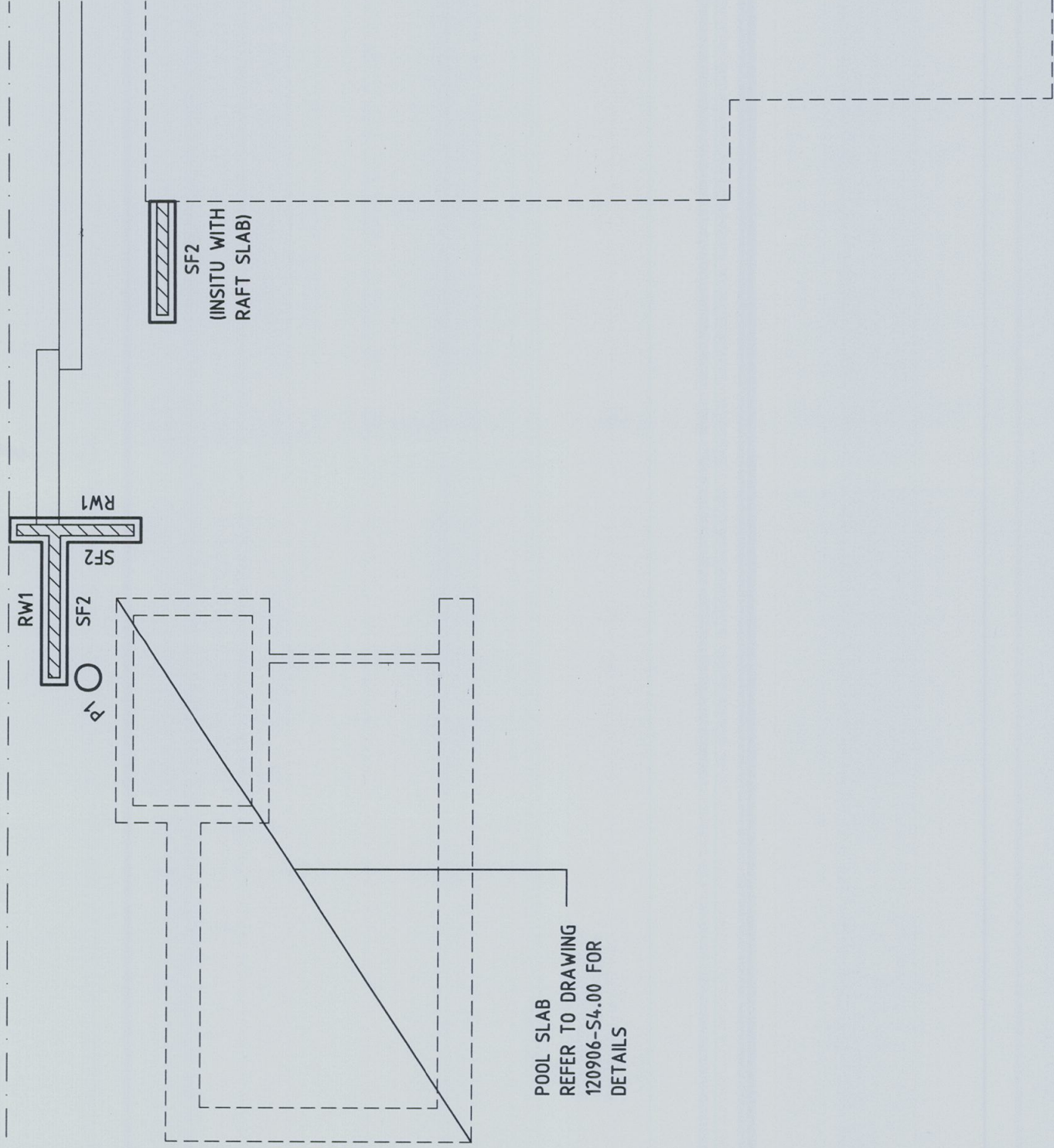
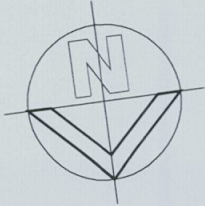
TYPICAL PIER (P1) SECTION



THIS PLAN/DOCUMENT FORMS
PART OF THE BUILDING
CERTIFIERS CC/CBG

Project :		Drawing :	
Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil		Job No : 120906	
NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS		Drawing No : S2.00	
PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasbce@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917		Document certification Barrenjoey Consulting Engineers Pty Ltd	
PER Lucas Molloy MIEA CPEng NPER Director			

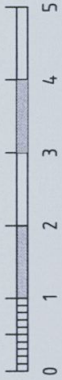
FOOTING PLAN
SHEET 1



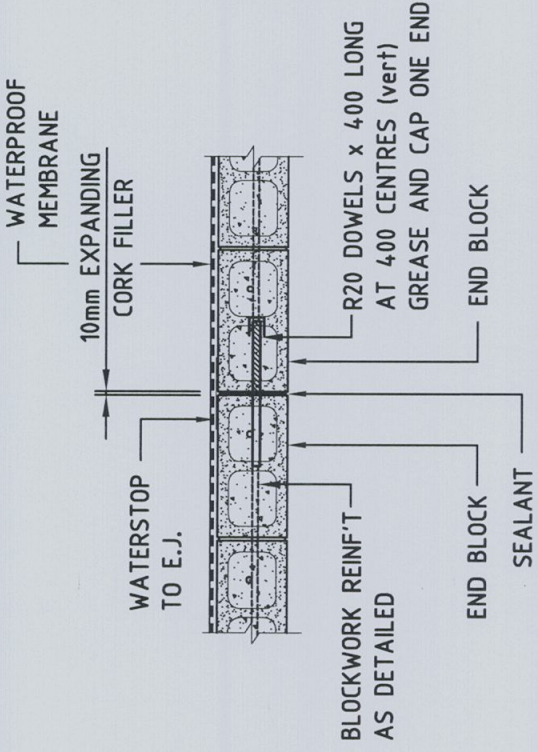
NOTE :

- SF2 450 x 450 STRIP FOOTING
- P1 450Ø PIER
- RW1 190 BLOCKWORK RETAINING WALL
- F'c - 25 MPa, 50mm COVER

FOOTING PLAN



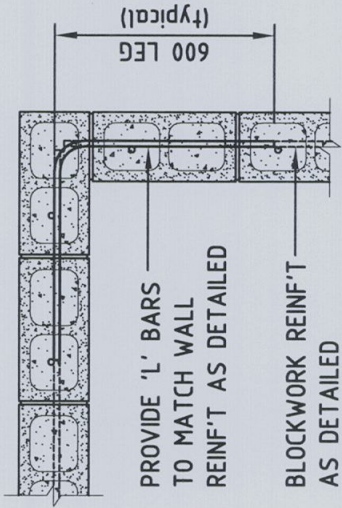
Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasbce@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917		Project : NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS		Drawing : FOOTING PLAN SHEET 2		THIS IS AN DOCUMENT FORMS PART OF FORM SUBMITTING CERTIFICATE 120906		Job No : S2.01		Drawing No : S2.01	
						Document certification Barrenjoey Consulting Engineers Pty Ltd		PER Lucas Molloy MIEA CPEng NPER Director			



TYPICAL BLOCKWORK VERTICAL

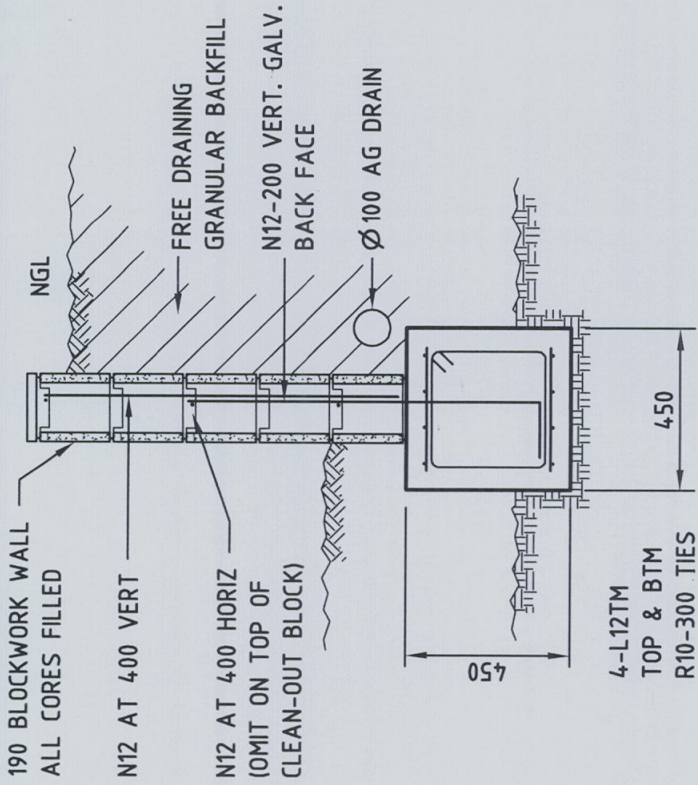
EXPANSION JOINT

UNLESS OTHERWISE NOTED ON PLAN
JOINTS SHALL BE LOCATED AT 8000 CENTRES max.



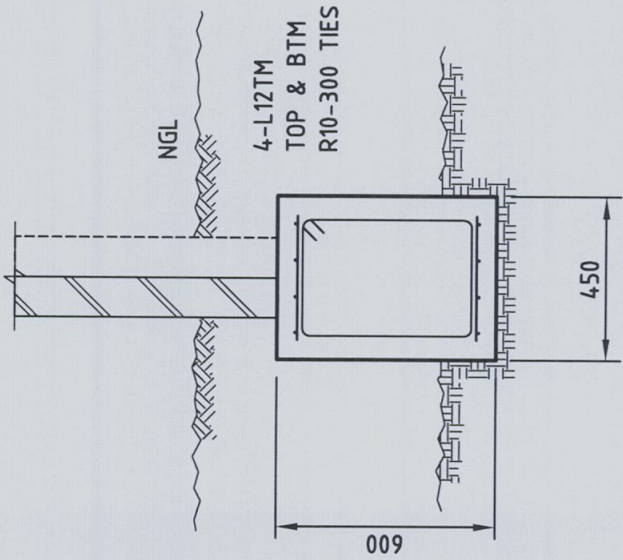
TYPICAL BLOCKWORK

CORNER DETAIL



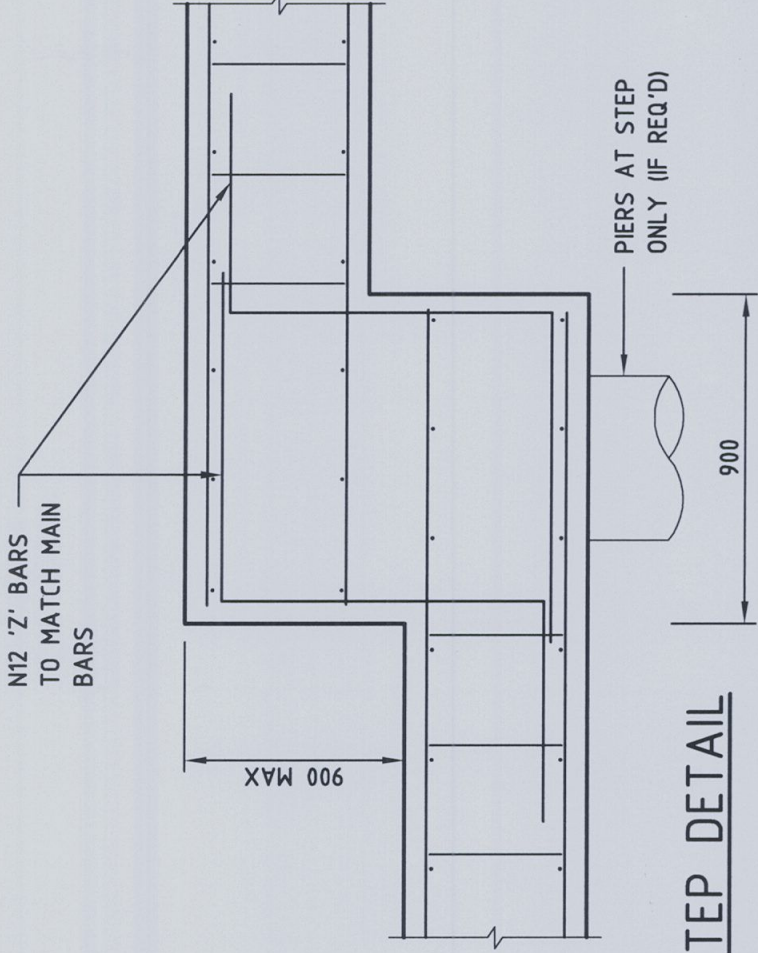
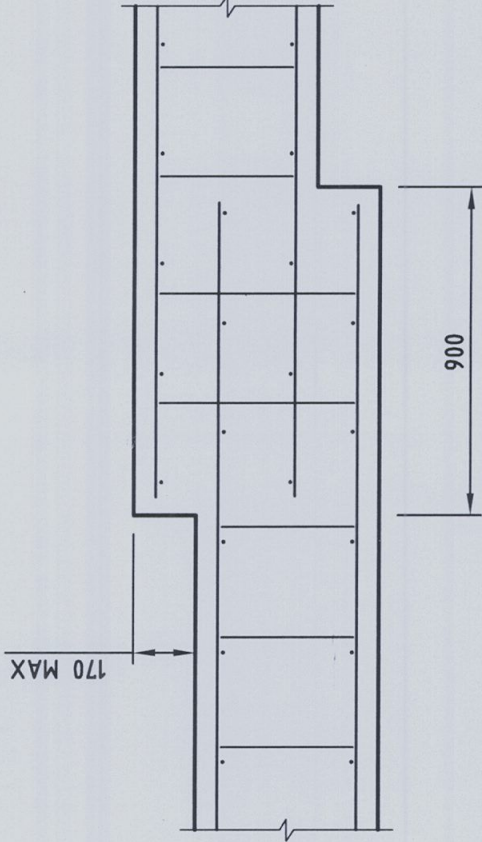
TYPICAL STRIP FOOTING

SF2 DETAIL

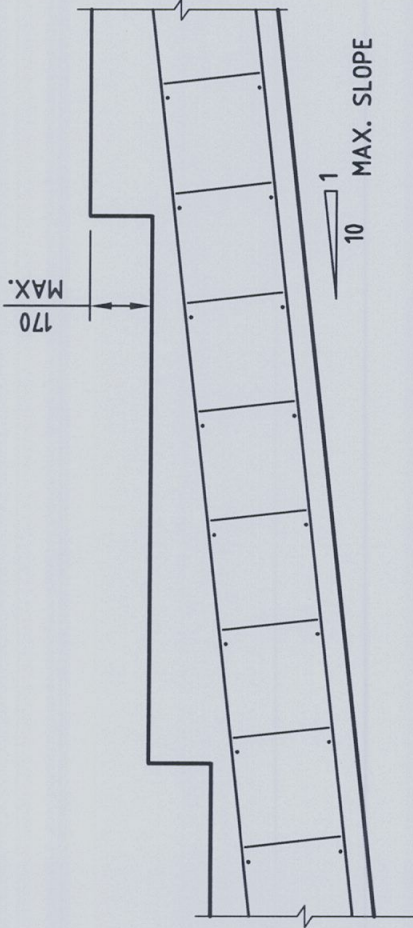


TYPICAL STRIP FOOTING

SF1 DETAIL



TYPICAL FOOTING STEP DETAIL



TYPICAL STRIP FOOTING ON SLOPE

Barrenjoey Consulting Engineers Pty Ltd
Stormwater Structural Civil
PO Box 672
Avalon nsw 2107
P : 9918 6264 F : 9918 5841
M : 0418 620 330
E : lucasboe@bigpond.com
ABN : 13 124 694 917
ACN : 124 694 917

Project :

NEW RESIDENCE
16 NORTH AVALON ROAD
AVALON
for Mr R & Mrs A VALLIS

Drawing :

FOOTING DETAILS

Job No :

120906

Drawing No :

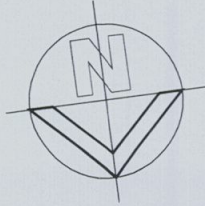
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THIS PLAN/DOCUMENT FORMS
PART OF FORM BUILDING
Document certification
CERTIFIER: SGC/CPC
Barrenjoey Consulting Engineers Pty Ltd

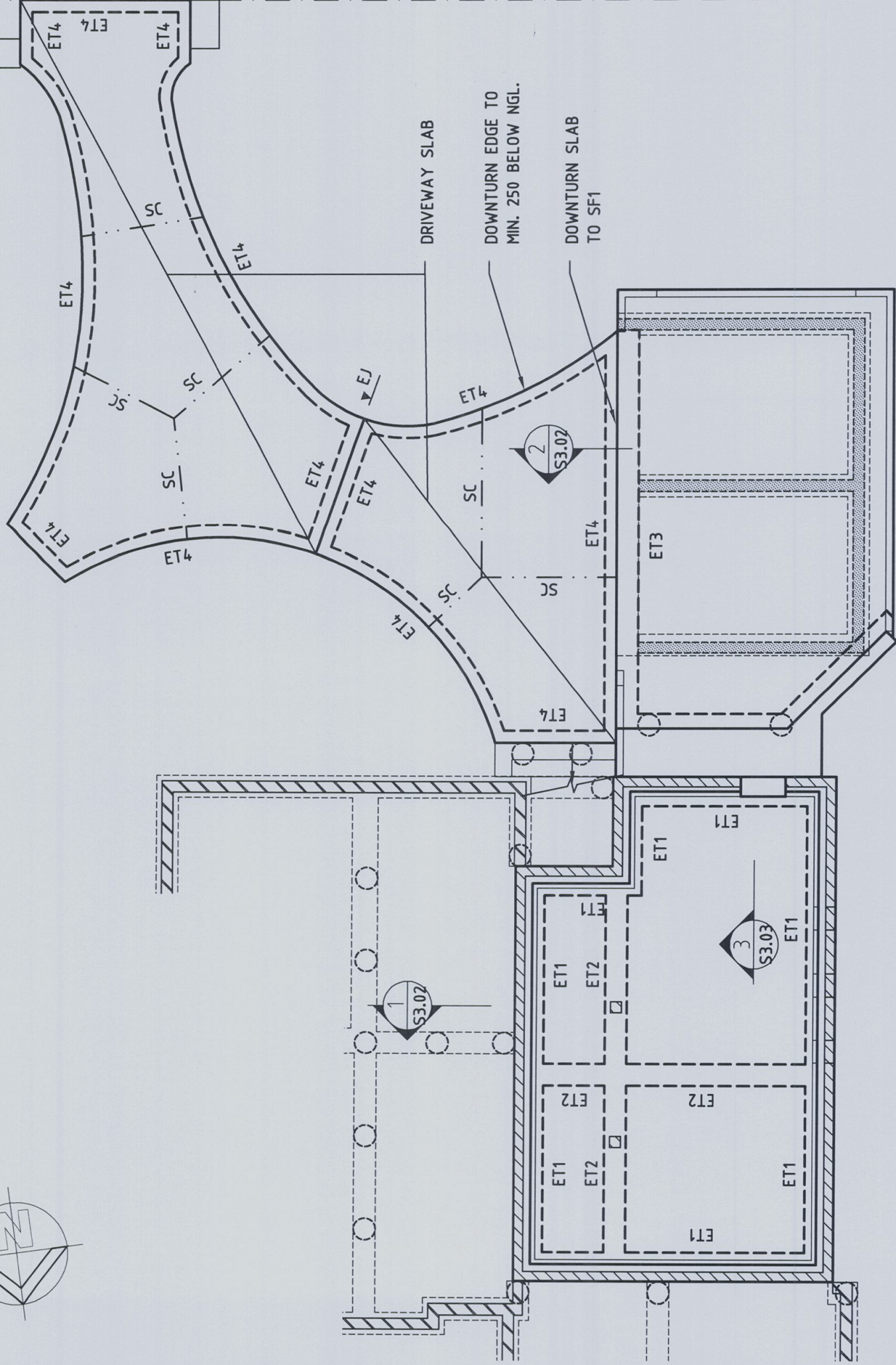
PER

Lucas Molloy

MIEA CPEng NPER Director



150 THICK SLAB
SL82 FABRIC TOP
TO COUNCIL DETAILS



NOTE - STORE SLAB :

ALL SLABS SHALL BE 120 THICK PLACED ON A WATERPROOF MEMBRANE OVER A 30mm SAND BLINDING UNO.

ALL SLABS SHALL BE REINFORCED WITH SL102 FABRIC TOP UNO.

ET1 TO ET4 - EDGE THICKENING

F'c - 32MPa COVER 30mm TO INTERNAL AREAS
50mm TO GROUND
65mm TO EXTERNAL AREAS

NOTE - GARAGE SLAB (ON FORM FILL):

150 MIN THICK SLAB UNO, F'c = 40 MPa
30mm INTERNAL COVER 45mm EXTERNAL COVER
SLAB REINFORCED WITH SL102 FABRIC
TOP & BTM + N12-200 EXTRA EACH WAY TOP

NOTE - DRIVEWAY SLAB:

ALL SLABS SHALL BE 130 THICK PLACED ON A WATERPROOF MEMBRANE OVER A 30mm SAND BLINDING UNO.

ALL SLABS SHALL BE REINFORCED WITH SL92 FABRIC TOP UNO.
65mm COVER, F'c = 32 MPa

LOWER GROUND SLAB PLAN

Barrenjoey Consulting Engineers Pty Ltd
Stormwater Structural Civil

PO Box 672
Avalon nsw 2107
P : 9918 6264 F : 9918 5841
M : 0418 620 330
E : lucasbce@bigpond.com
ABN : 13 124 694 917
ACN : 124 694 917

Project :

NEW RESIDENCE
16 NORTH AVALON ROAD
AVALON
for Mr R & Mrs A VALLIS

Drawing :

LOWER GROUND SLAB PLAN

THIS PLAN/DRAWING IS PART OF A DOCUMENT CERTIFICATION
DOCUMENT CERTIFICATION
Barrenjoey Consulting Engineers Pty Ltd

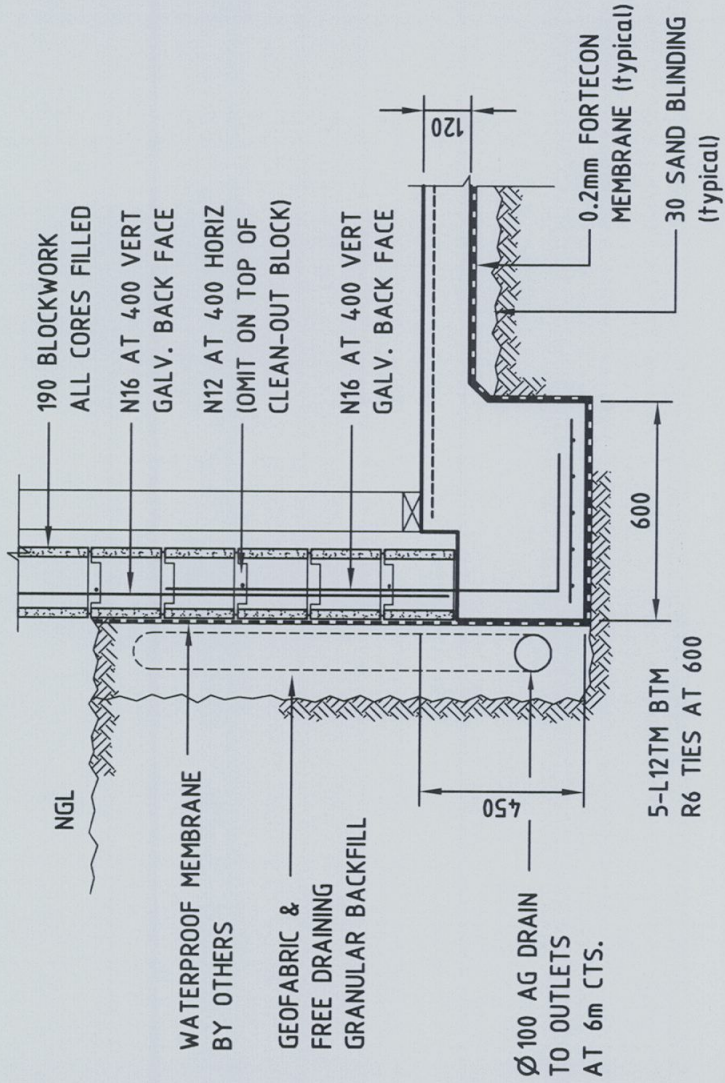
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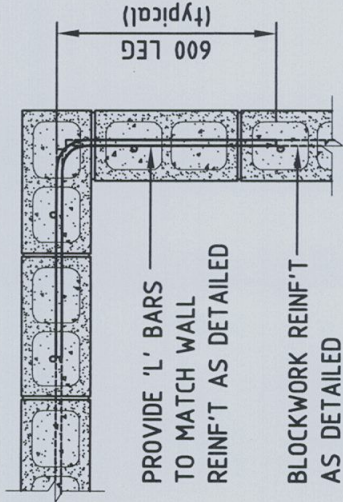
Drawing No :

S3.00

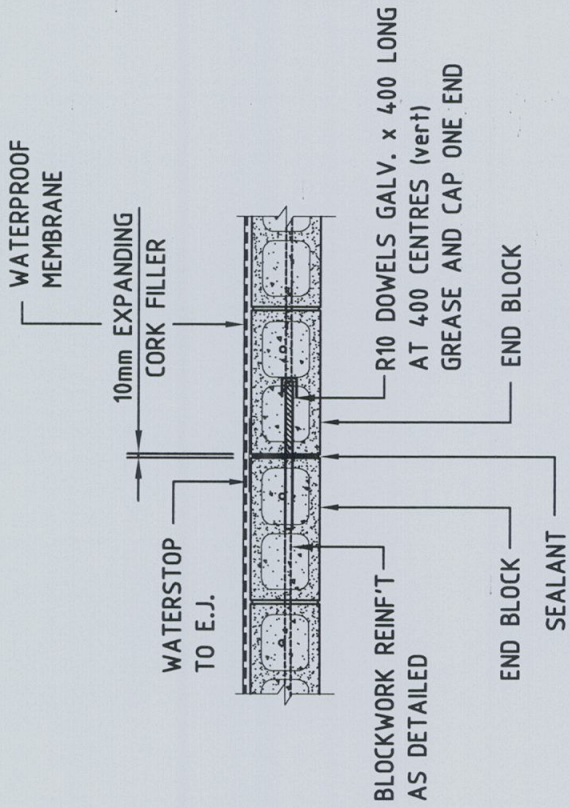
PER
Lucas Molloy MIEA CPEng NPER Director



ET1 DETAIL

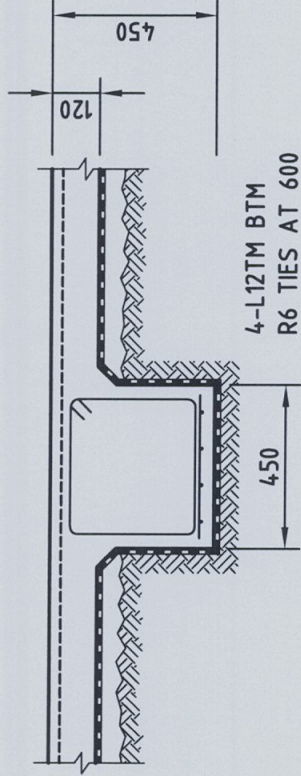


TYPICAL BLOCKWORK CORNER DETAIL

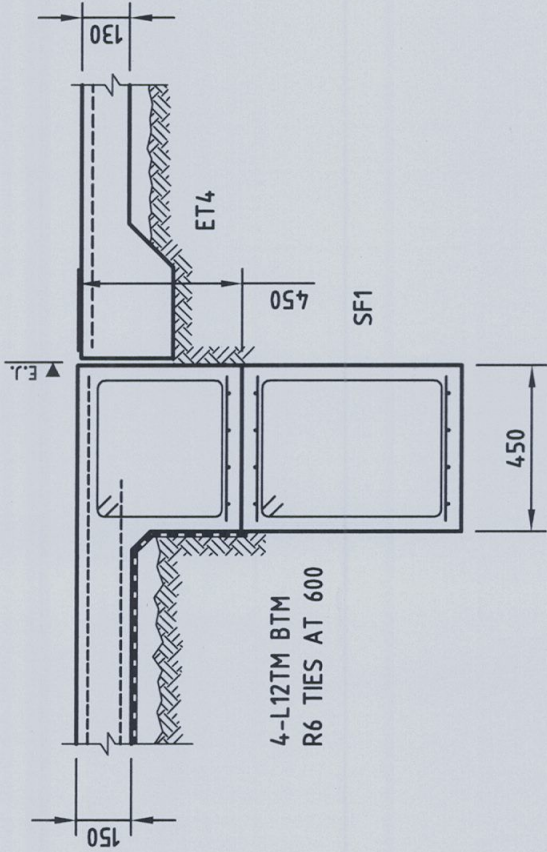


TYPICAL BLOCKWORK VERTICAL EXPANSION JOINT

UNLESS OTHERWISE NOTED ON PLAN
JOINTS SHALL BE LOCATED AT 8000 CENTRES max.

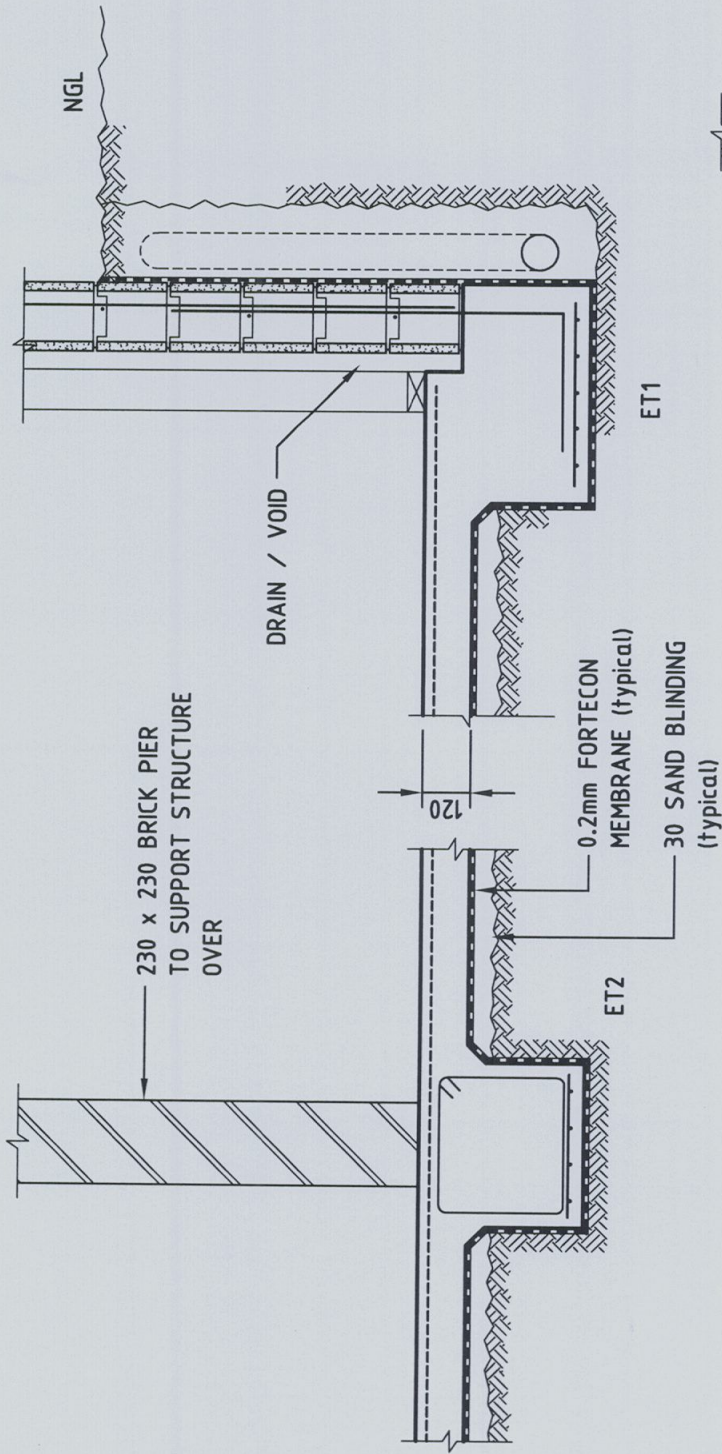


ET2 DETAIL

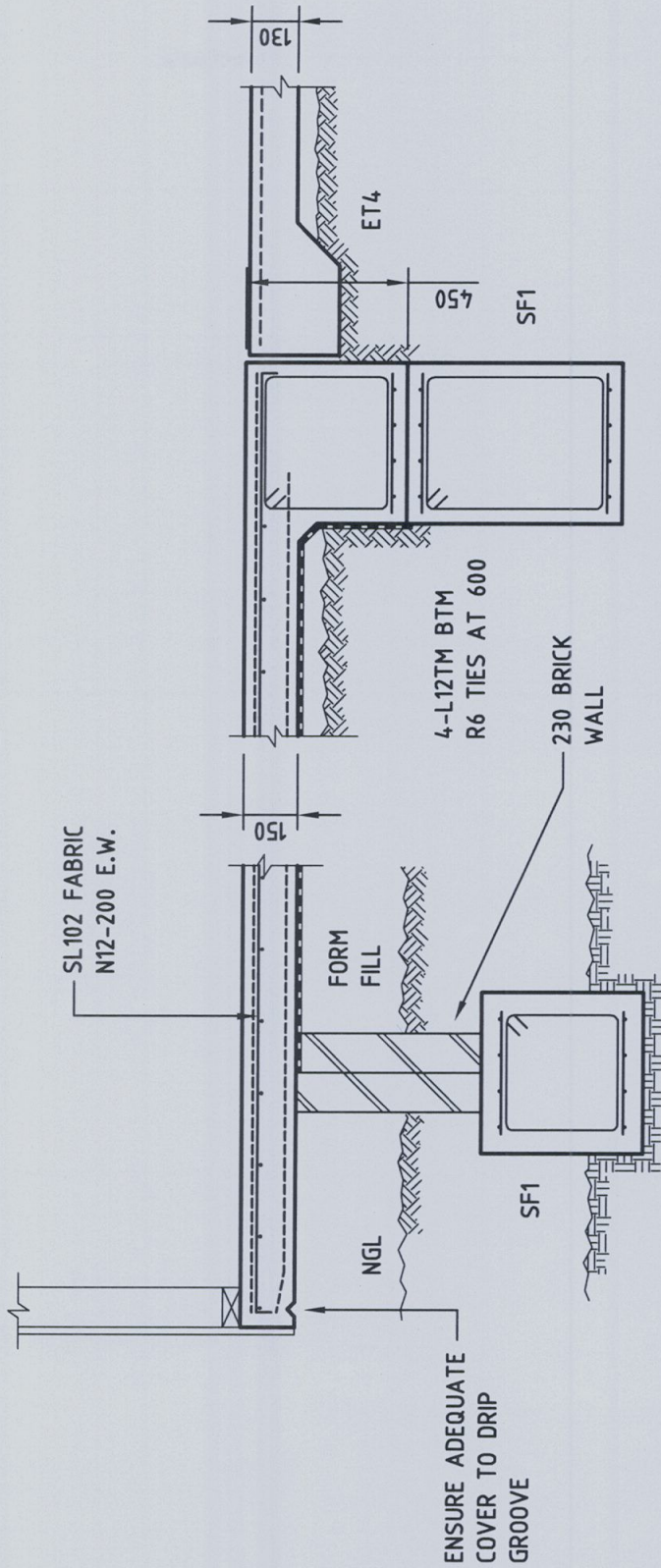


ET3 DETAIL

Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasbce@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917	Project : NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS	Drawing : THIS PLAN/DRAWING IS PART OF FORM DOCUMENT CERTIFICATION Barrenjoey Consulting Engineers Pty Ltd Certi fication Barrenjoey Consulting Engineers Pty Ltd	Job No : 1209006	Drawing No : S3.01
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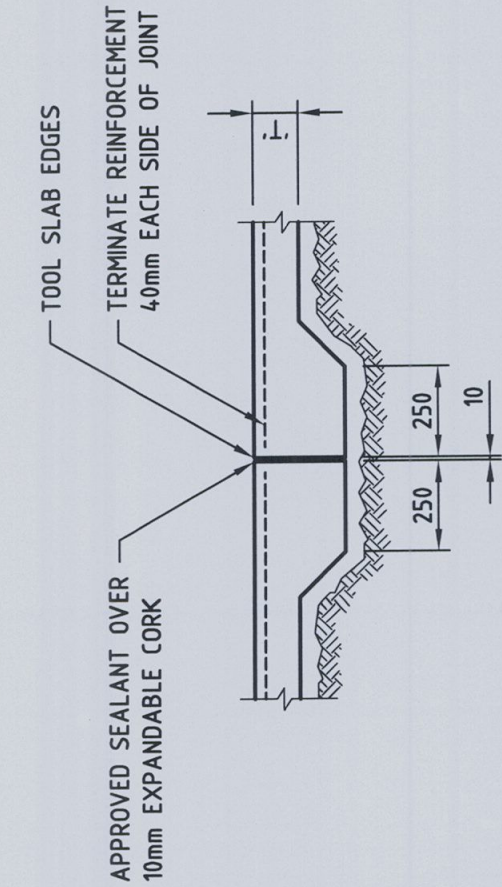


SECTION 1
SCALE 1:20



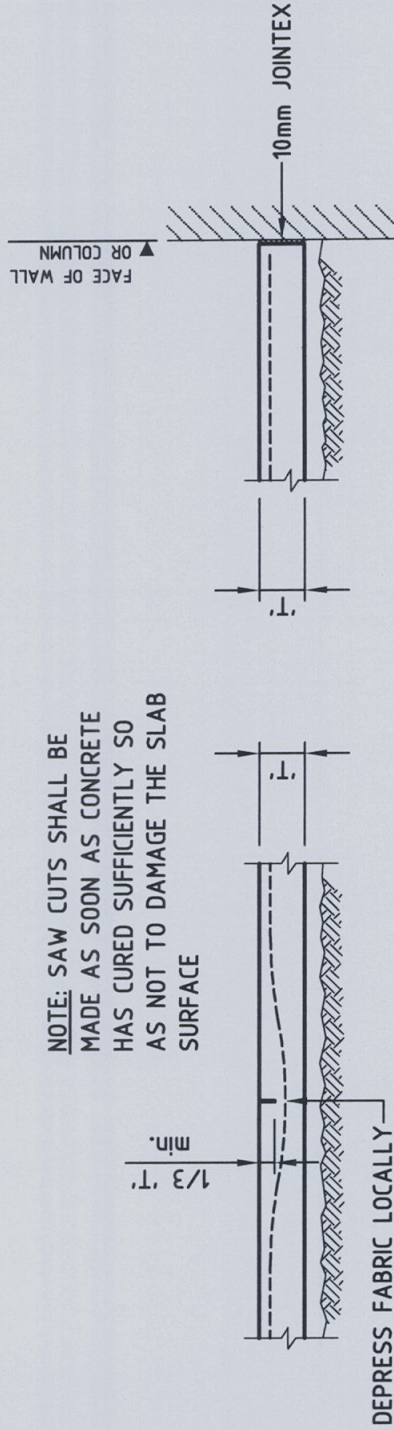
SECTION 2
SCALE 1:20

Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasbce@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917	Project : NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS	Drawing : LOWER GROUND SLAB DETAILS - SHEET 2	THIS PLAN/DRAWING IS PART OF FORM BUILDING CERTIFIERS CC/CDC Job No : 120906 Document certification Barrenjoey Consulting Engineers Pty Ltd PER Lucas Molloy MIEA CPEng NPER Director	Drawing No : S3.02
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SCALE 1:20

53.00



DEPRESS FABRIC LOCALLY—
AND CUT EVERY SECOND BAR
(NOTE: ENSURE FABRIC LAPS
DO NOT OCCUR AT JOINTS)

NOTED SC ON PLAN

TYPICAL AT ALL WALLS AND COLUMNS
SCALE 1:20

NOTED EJ ON PLAN

EXPANSION JOINT

NOTED EJ ON PLAN
SCALE 1:20

Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasbce@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917	Project : NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS	Drawing : LOWER GROUND SLAB DETAILS - SHEET 3	Drawing No : S3.03	Job No : 120906
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SLAB ON GROUND

SUSPENDED SLAB ON FILL

NOTE : SUSPENDED SLAB / SLAB ON FILL FORM 150 THICK SLAB UNO, $F'c = 40 \text{ MPa}$ PLACED ON A WATERPROOF MEMBRANE 20mm INTERNAL COVER 45mm EXTERNAL COVER SLAB REINFORCED WITH SL102 FABRIC TOP & BTM. EXTRA BARS AS SHOWN ON PLAN AND OVER ALL PIERS

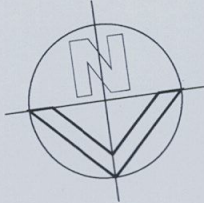
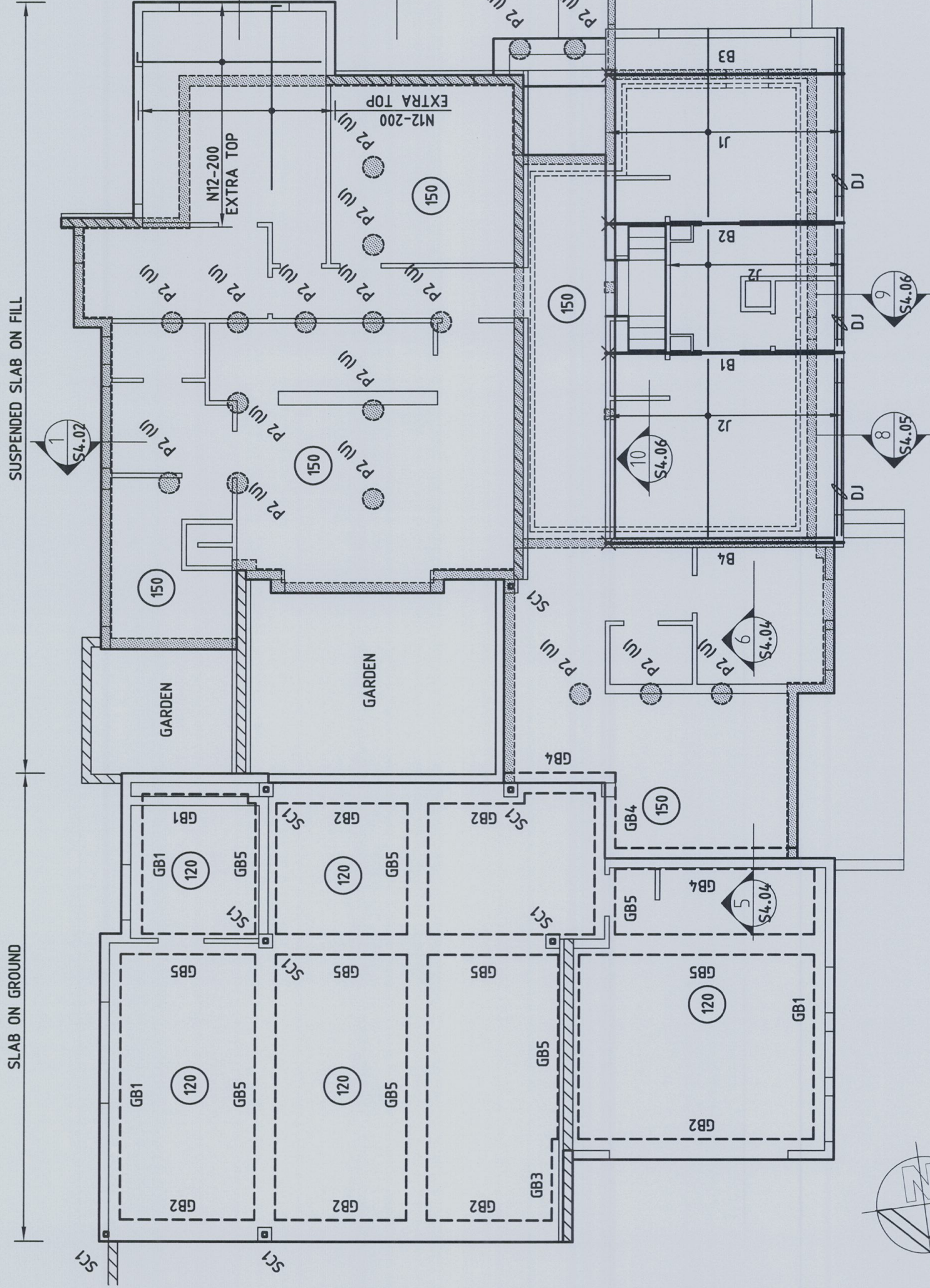
→ DENOTES SPAN DIRECTION FOR SLAB PRIMARY REINFORCEMENT

GB1 TO GB3 - CONCRETE BEAM
P2 (U) - 450 Ø PIER TO SF1 UNDER
CJ - CONSTRUCTION JOINT

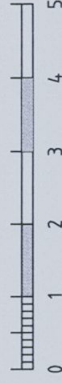
190 DENOTES SLAB THICKNESS

NOTE :
SLAB ON GROUND ALL SLABS SHALL BE 120 THICK PLACED ON A WATERPROOF MEMBRANE OVER A 30mm SAND BLINDING UNO. ALL SLABS SHALL BE REINFORCED WITH SL102 FABRIC TOP UNO. CONCRETE STRENGTH $F'c=32\text{MPa}$ 30mm COVER INT. 65mm COVER EXT. 50mm GROUND COVER

NOTE :
J1 200 x 45 HYPAN LVL JOISTS AT 450 CTS
J2 150 x 45 HYPAN LVL JOISTS AT 300 CTS
B1, B2 200UB25
B3, B4 300 x 63 HYPAN LVL OR 150 PFC
DJ DOUBLE JOISTS
X DOUBLE STUDS AND TIE DOWN TO FLOOR FRAMING



GROUND FLOOR SLAB PLAN



Barrenjoey Consulting Engineers Pty Ltd
Stormwater Structural Civil
PO Box 672
Avalon nsw 2107
P : 9918 6264 F : 9918 5841
M : 0418 620 330
E : lucasboe@bigpond.com
ABN : 13 124 694 917
ACN : 124 694 917

Project :

NEW RESIDENCE
16 NORTH AVALON ROAD
AVALON
for Mr R & Mrs A VALLIS

Drawing :

GROUND FLOOR SLAB PLAN

THIS PLAN/DRAWING IS A DOCUMENT CERTIFICATION OF THE BUILDING CERTIFIERS OF BARRENJOEY CONSULTING ENGINEERS PTY LTD

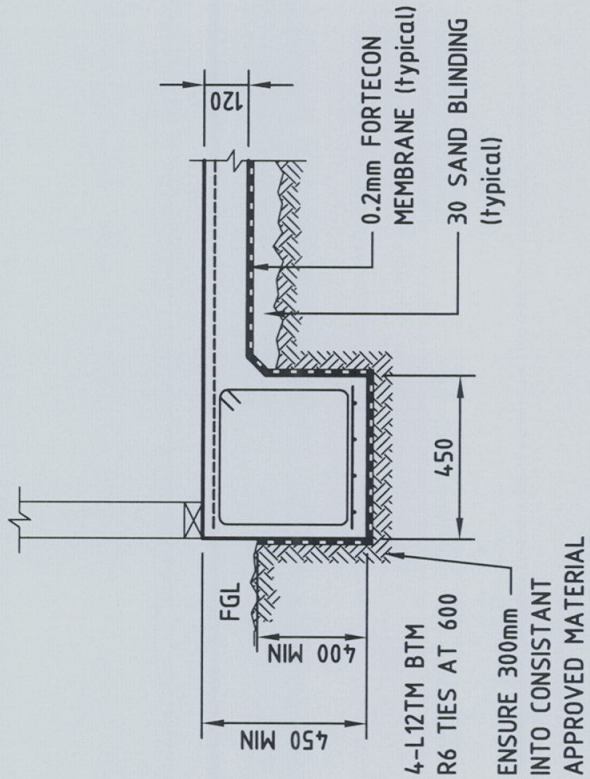
Job No :

120906

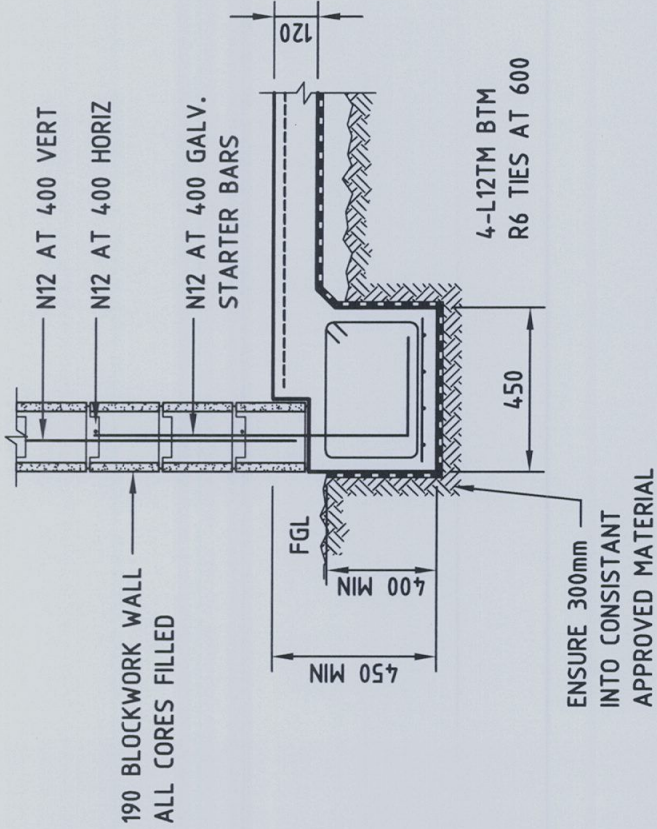
Drawing No :

S4.00

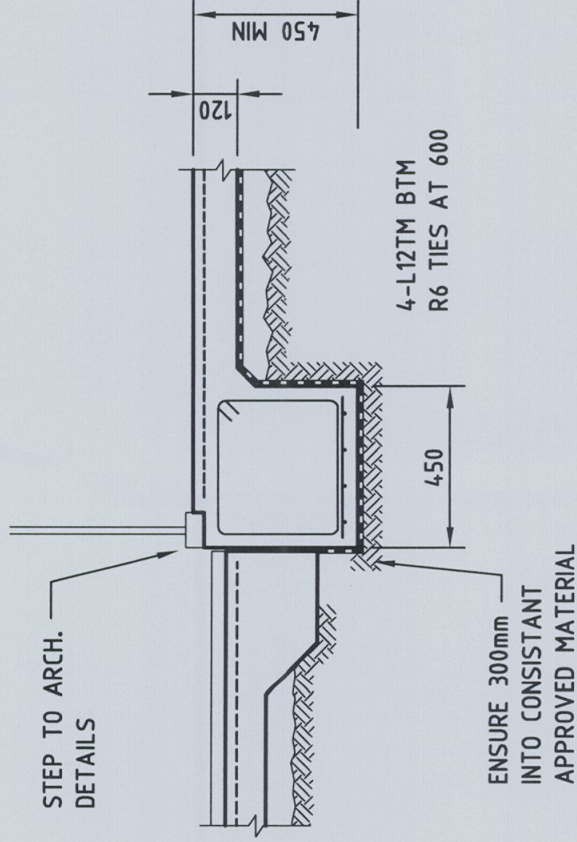
PER Lucas Molloy MIEA CPEng NPER Director



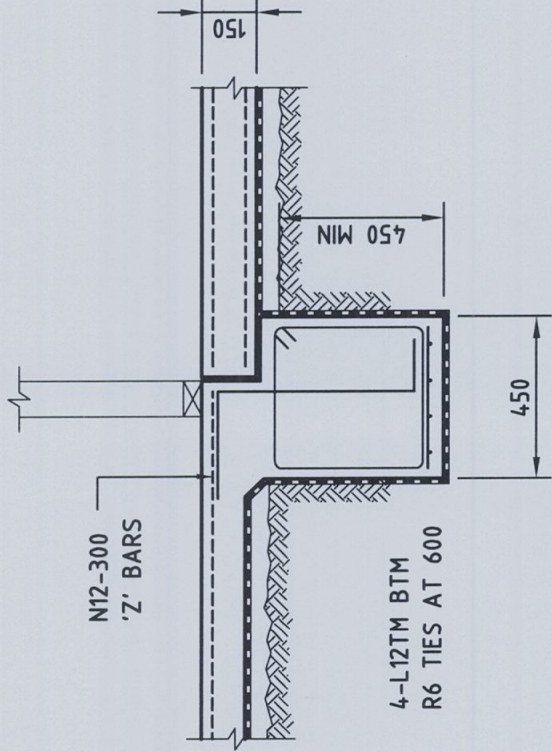
GB1 DETAIL



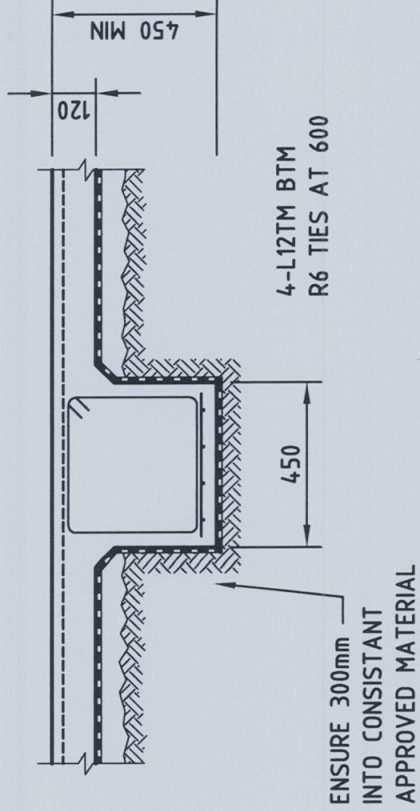
GB3 DETAIL



GB2 DETAIL

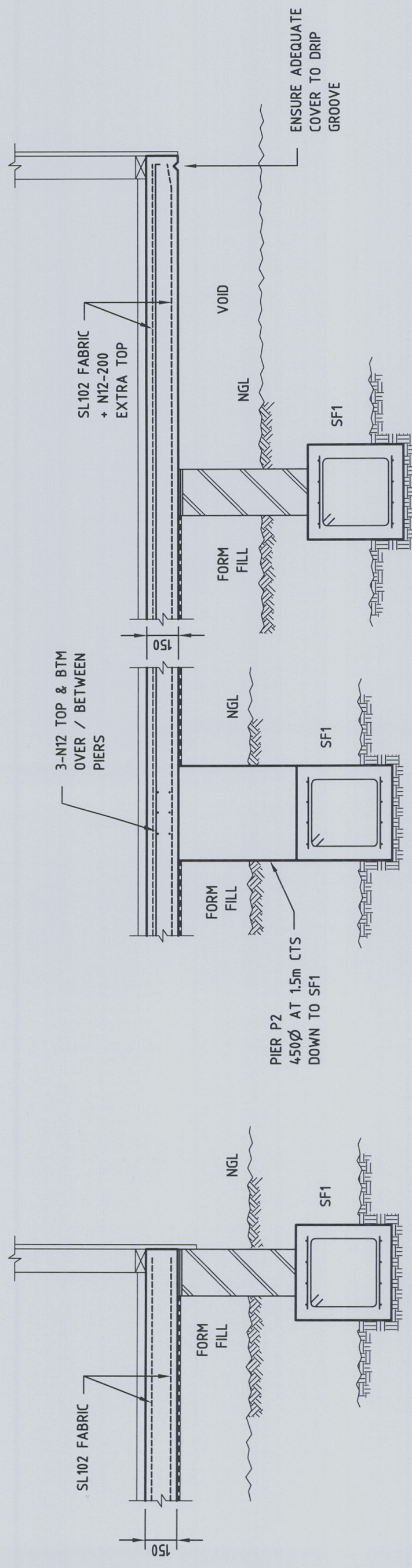


GB4 DETAIL



GB5 DETAIL

Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil	Project :	NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS	Drawing :	Job No : 120906	Drawing No : S4.01
PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasbee@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917	GROUND FLOOR SLAB DETAILS SHEET 1				
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PER Lucas Molloy MIEA CPEng NPER Director					

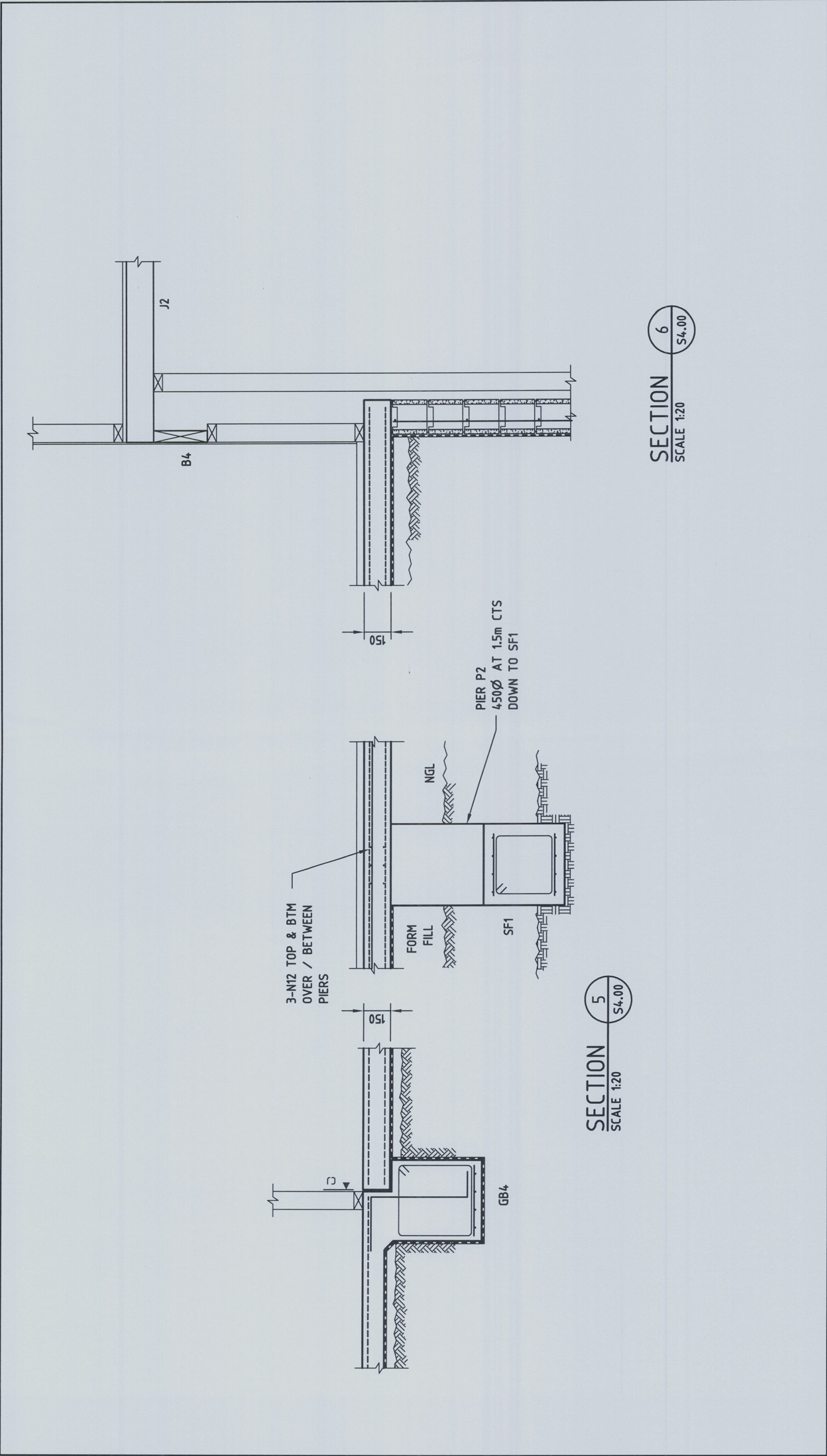


SECTION
SCALE 1:20

SECTION
SCALE 1:20

Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasbce@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917	Project : NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS	Drawing : GROUND FLOOR SLAB DETAILS SHEET 2	Job No : 120906 Drawing No : S4.02
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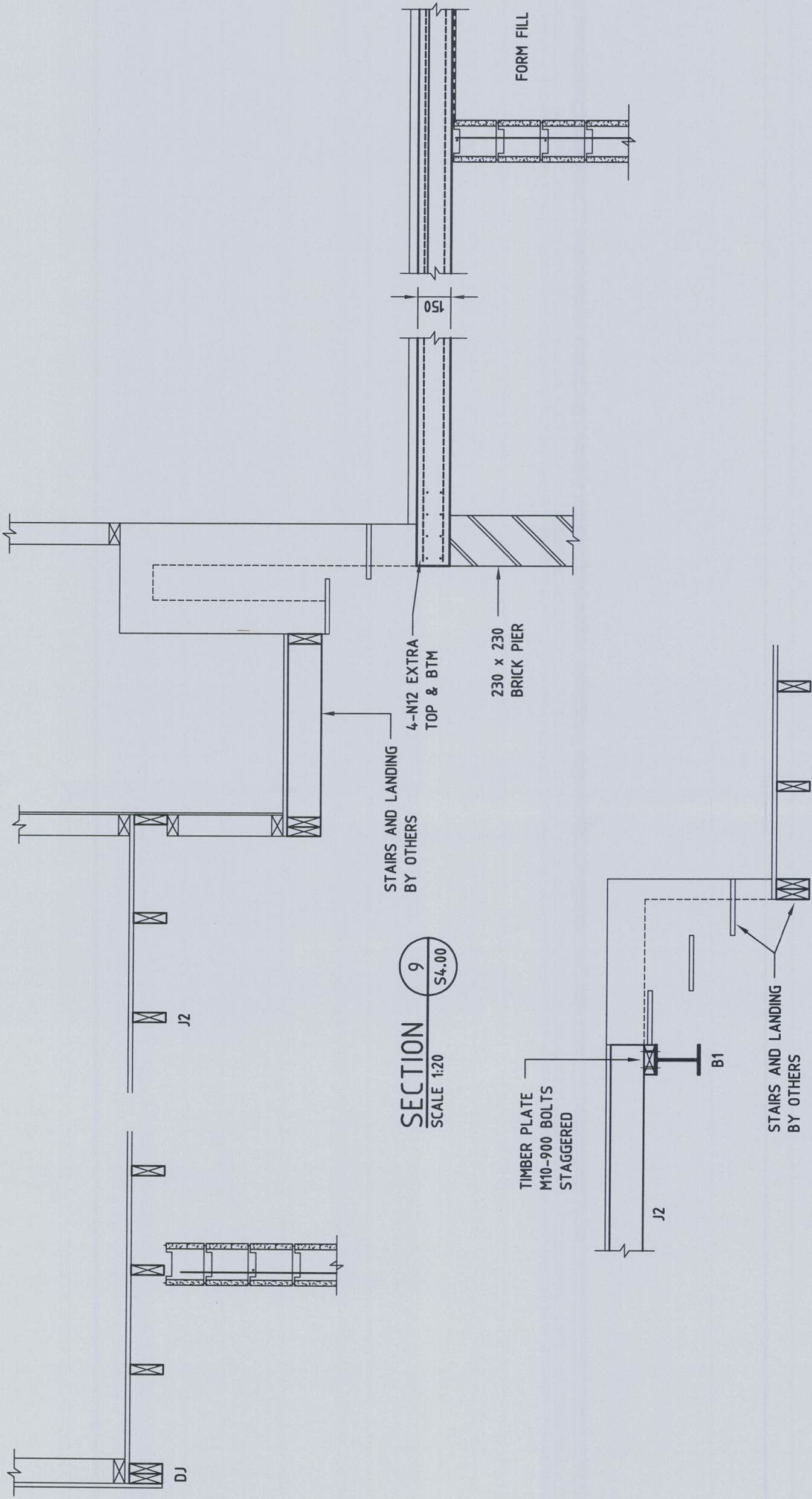
3-N12 TOP & BTM OVER / BETWEEN PIERS 190 BLOCKWORK WALL FORM FILL NGL FORM FILL NGL PIER P2 450Ø AT 1.5m CTS DOWN TO SF1 SF1 PIER TO CONSISTANT BEARING ET1 PIER P1 SF1 N12 AT 300 N12 AT 200 N12 AT 200 N12 AT 200 150 150 STEP TO ARCHITECTS DETAIL NGL SECTION 3 SCALE 1:20 S4.00 <tr><td data-bbox="1550 211 1880 2865"> Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasbce@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917 Project : NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS Drawing : GROUND FLOOR SLAB DETAILS SHEET 3 Job No : 120906 Drawing No : S4.03 THIS PLAN HAS BEEN PART OF THE CERTIFIERS CC/CDC Document certification Barrenjoey Consulting Engineers Pty Ltd PER Lucas Molloy MIEA CPEng NPER Director </td></tr>	Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasbce@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917 Project : NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS Drawing : GROUND FLOOR SLAB DETAILS SHEET 3 Job No : 120906 Drawing No : S4.03 THIS PLAN HAS BEEN PART OF THE CERTIFIERS CC/CDC Document certification Barrenjoey Consulting Engineers Pty Ltd PER Lucas Molloy MIEA CPEng NPER Director
Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasbce@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917 Project : NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS Drawing : GROUND FLOOR SLAB DETAILS SHEET 3 Job No : 120906 Drawing No : S4.03 THIS PLAN HAS BEEN PART OF THE CERTIFIERS CC/CDC Document certification Barrenjoey Consulting Engineers Pty Ltd PER Lucas Molloy MIEA CPEng NPER Director	



SECTION 6
SCALE 1:20
S4.00

Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasbce@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917	Project : NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS	Drawing : GROUND FLOOR SLAB DETAILS SHEET 4	Job No : 1209006	Drawing No : S4.04
Document certification Barrenjoey Consulting Engineers Pty Ltd THIS PLAN/DRAWING IS PART OF FIRM BUILDING CERTIFICATION PER CC/000 Lucas Molloy MEA CPEng NPER Director				

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SECTION 9
SCALE 1:20 S4.00

SECTION 10
SCALE 1:20 S4.00

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Stormwater Structural Civil
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Avalon nsw 2107
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E : lucasbce@bigpond.com
ABN : 13 124 694 917
ACN : 124 694 917

Project :

NEW RESIDENCE
16 NORTH AVALON ROAD
AVALON
for Mr R & Mrs A VALLIS

Drawing :

GROUND FLOOR SLAB
DETAILS SHEET 6

Job No :

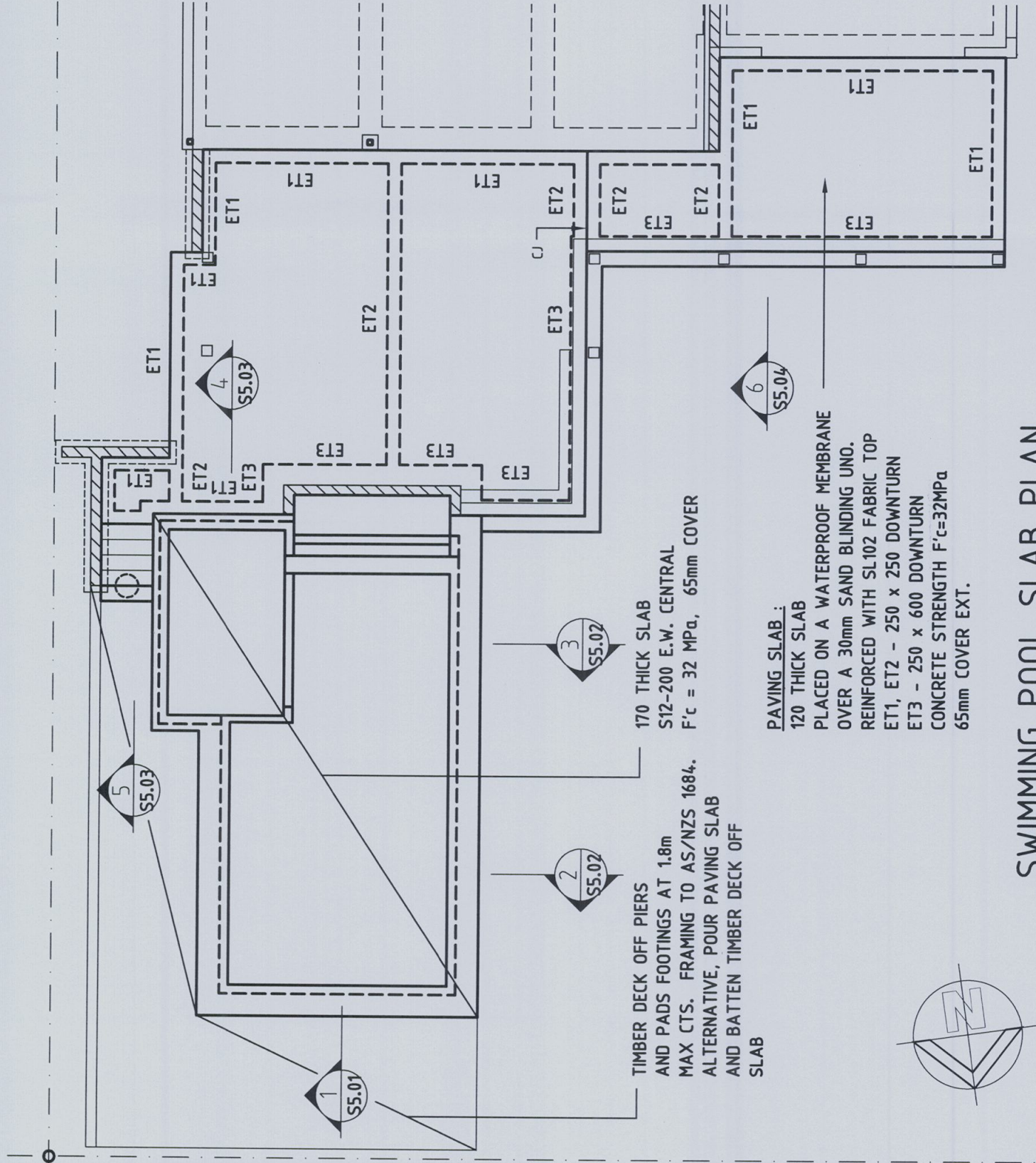
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Drawing No :

S4.06

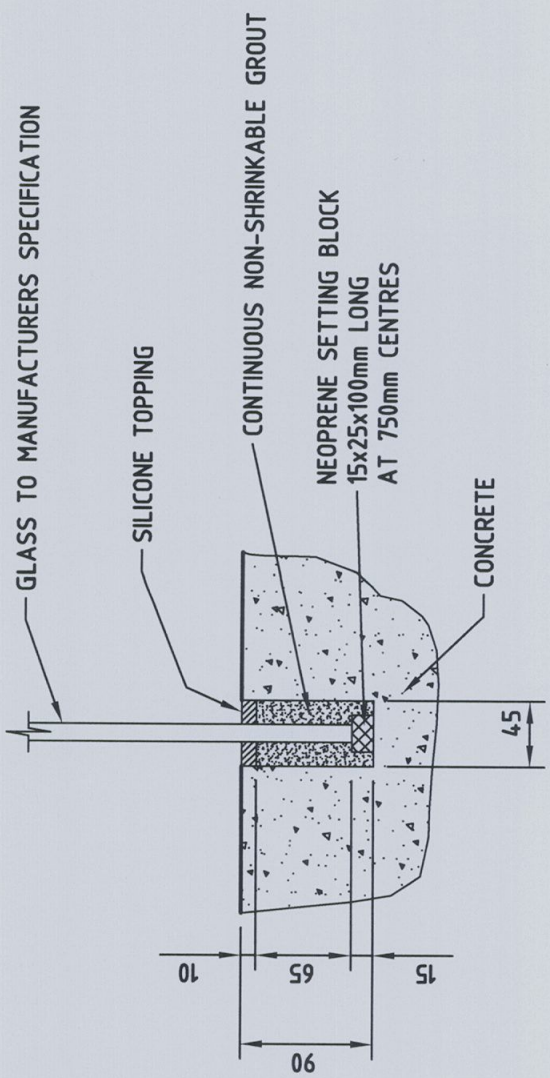
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PER
Lucas Molloy MIEA CPEng NPER Director



SWIMMING POOL SLAB PLAN

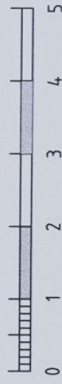
POOL SETOUT AND DIMENSIONS
ARE TO ARCHITECTS DETAILS



REBATE SIZE AND FIXING DETAILS
TO BE CONFIRMED WITH THE
GLASS BALUSTRADE MANUFACTURE

GLASS BALUSTRADE FIXING DETAIL

SCALE = 1 : 5



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Stormwater Structural Civil

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ABN : 13 124 694 917
ACN : 124 694 917

Project :

NEW RESIDENCE
16 NORTH AVALON ROAD
AVALON
for Mr R & Mrs A VALLIS

Drawing :

SWIMMING POOL SLAB
PLAN

Job No :

120906

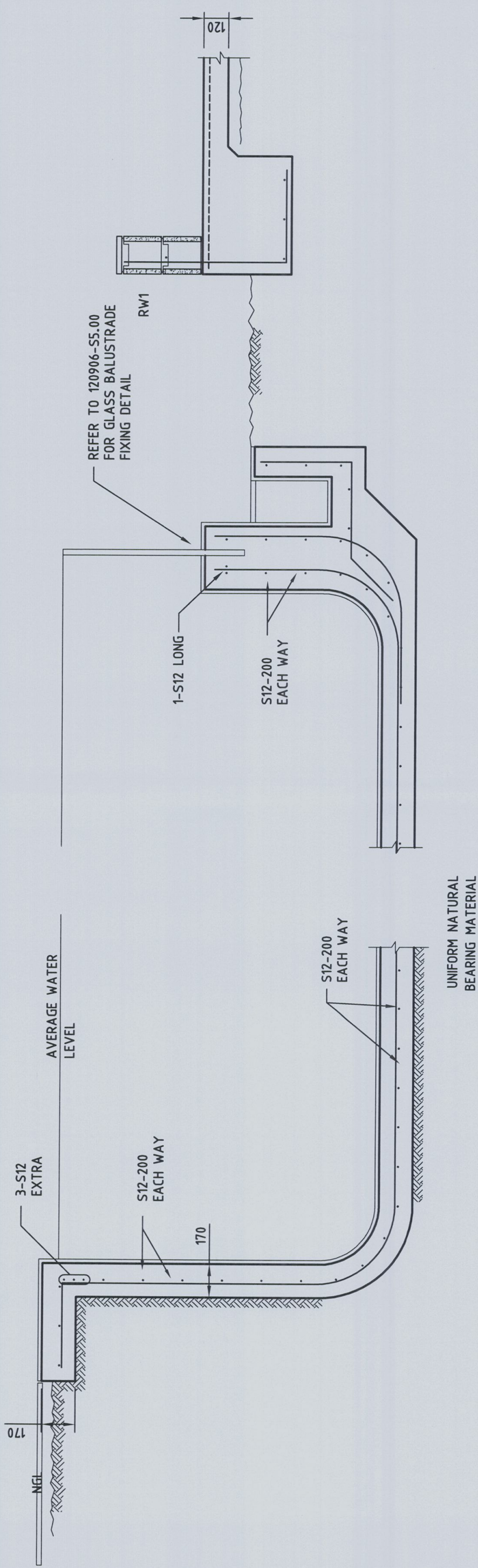
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S5.00

Document certification

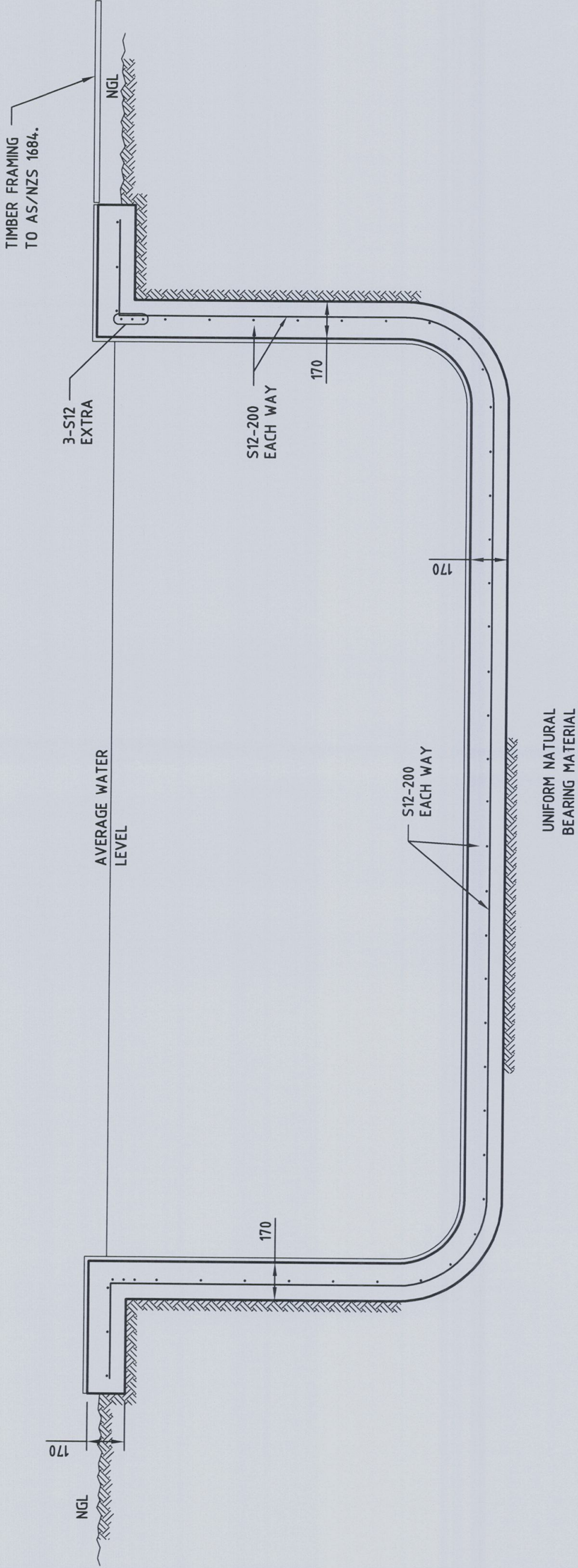
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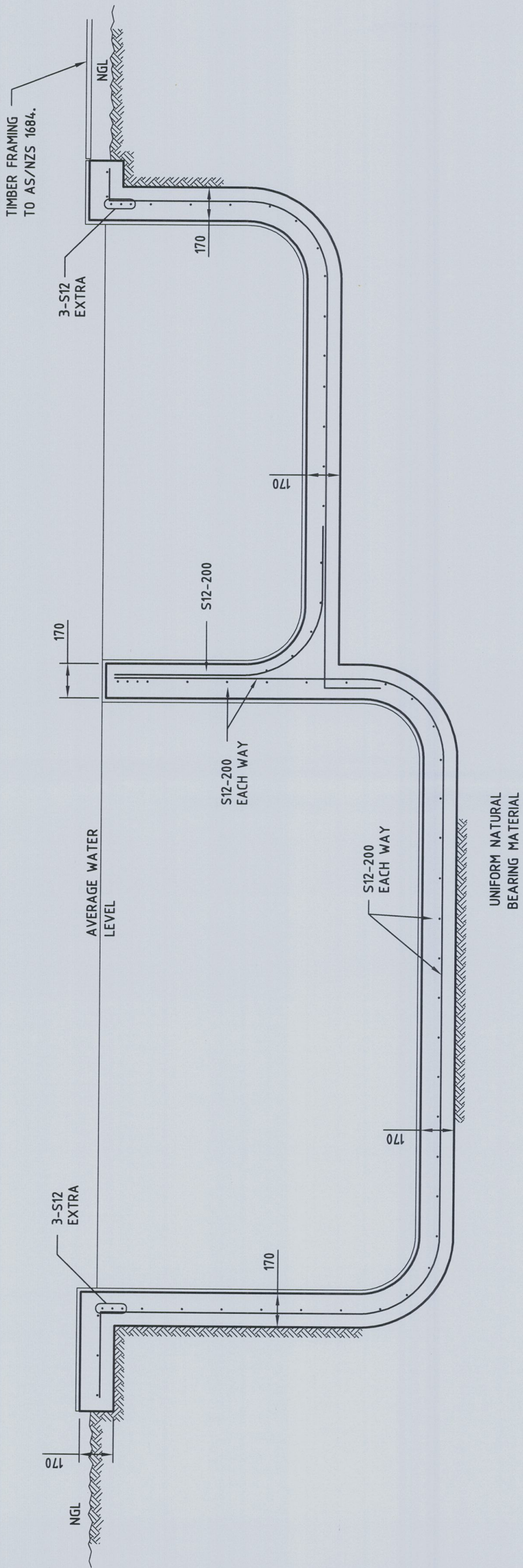
SECTION 1 S5.00

Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasbce@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917	Project : NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS	Drawing : SWIMMING POOL DETAILS SHEET 1	Job No : 120906 THIS DOCUMENT FORMS PART OF BARRENJOEY CONSULTING ENGINEERS CC/CDC CERTIFICATION PER Lucas Molloy MIEA CPEng NPER Director	Drawing No : S5.01
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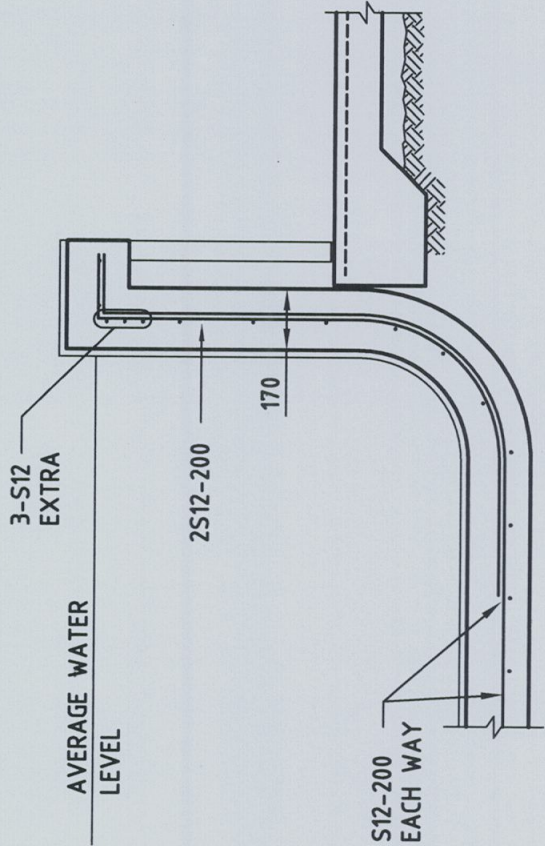
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Project :		Drawing :	
Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasboe@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917		Job No : 120906	
NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS		Drawing No : S5.02	
SWIMMING POOL DETAILS SHEET 2		Document certification Barrenjoey Consulting Engineers Pty Ltd THIS PLAN/DRAWING IS PART OF FORM BUILDING CERTIFIERS CO/CDC Lucas Molloy MIEA CPEng NPER Director	

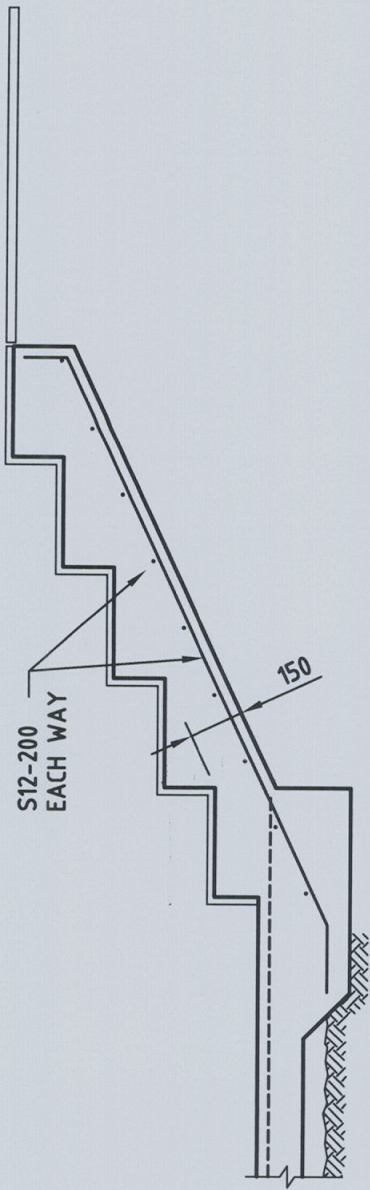


SECTION 3
S5.00

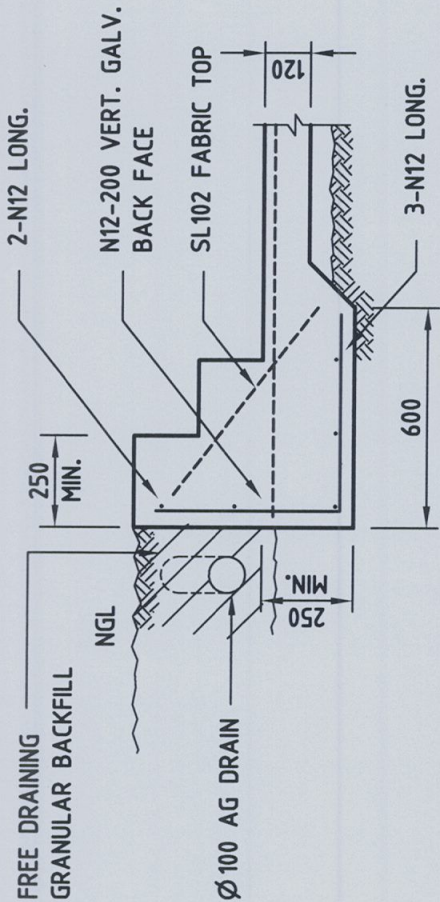
Project :		Drawing :	
Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil		Job No : 120906	
NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS		S5.03	
PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasboe@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917		Document certification Barrenjoey Consulting Engineers Pty Ltd THIS DRAWING IS A PART OF FORM BUILDING CERTIFIERS CC/CDC PER Lucas Molloy MIEA CP Eng NPER Director	



SECTION 4
S5.00



SECTION 5
S5.00



SECTION 6
S5.00
ET3

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Stormwater Structural Civil
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E : lucasbce@bigpond.com
ABN : 13 124 694 917
ACN : 124 694 917

Project :

NEW RESIDENCE
16 NORTH AVALON ROAD
AVALON
for Mr R & Mrs A VALLIS

Drawing :

SWIMMING POOL DETAILS
SHEET 4

Job No :

120906

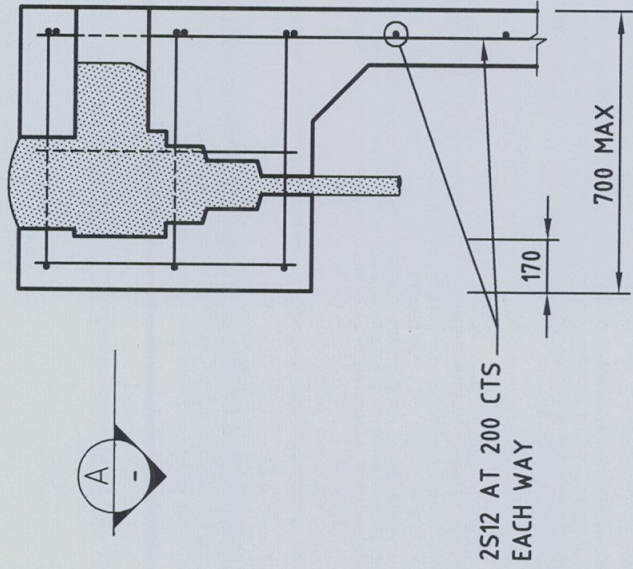
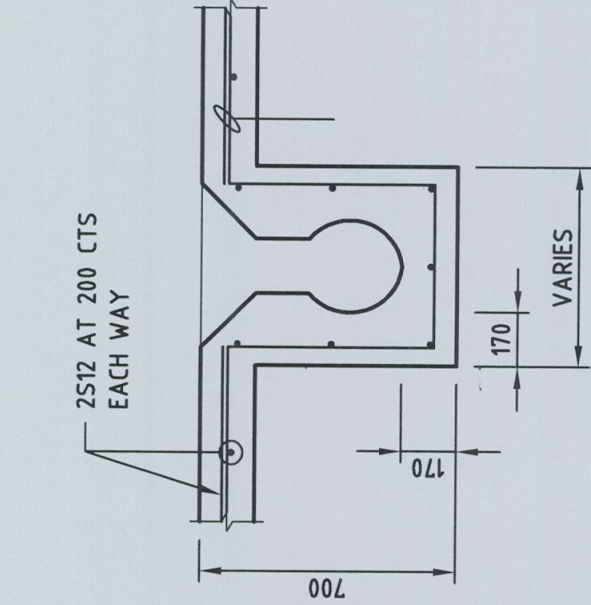
Drawing No :

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Document certification

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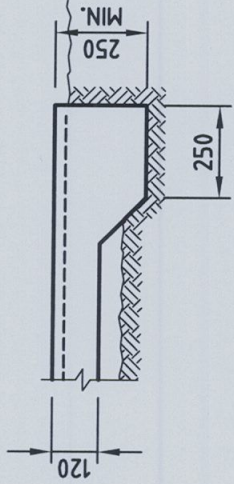
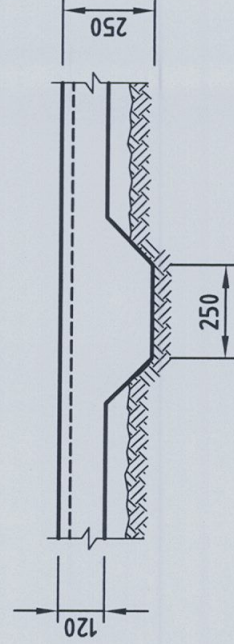
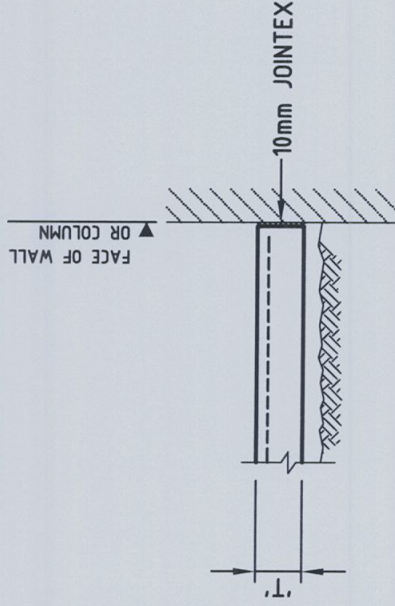
Lucas Molloy MIEA-CPEng-NPER Director



SKIMMER BOX DETAIL
LOCATION TO BE CONFIRMED BY ARCHITECT
AND POOL MANUFACTURER.

MAIN DRAIN DETAIL

SECTION A



ISOLATION JOINT
TYPICAL AT ALL WALLS AND COLUMNS

EDGE BEAM TYPE 'ET2'

EDGE BEAM TYPE 'ET1'

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Stormwater Structural Civil
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ABN : 13 124 694 917
ACN : 124 694 917

Project :
NEW RESIDENCE
16 NORTH AVALON ROAD
AVALON
for Mr R & Mrs A VALLIS

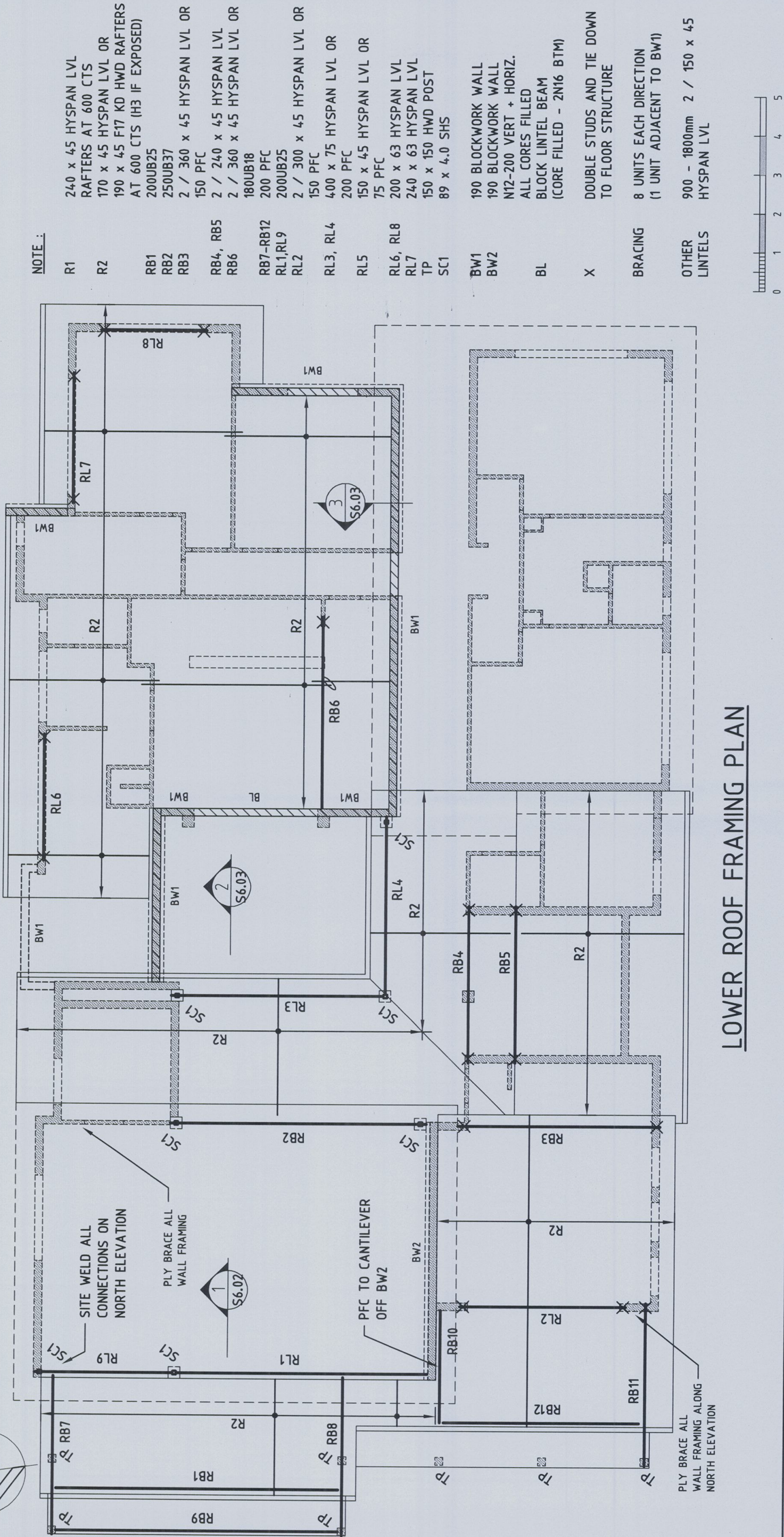
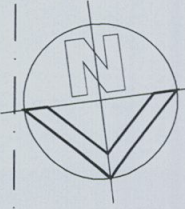
Drawing :

SWIMMING POOL DETAILS
SHEET 5

Job No :
120906

Drawing No :
S5.05

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Lucas Molloy



NOTE :

- | | |
|---------------|--|
| R1 | 240 x 45 HYPAN LVL RAFTERS AT 600 CTS |
| R2 | 170 x 45 HYPAN LVL OR 190 x 45 F17 KD HWD RAFTERS AT 600 CTS (H3 IF EXPOSED) |
| RB1 | 200UB25 |
| RB2 | 250UB37 |
| RB3 | 2 / 360 x 45 HYPAN LVL OR 150 PFC |
| RB4, RB5 | 2 / 240 x 45 HYPAN LVL |
| RB6 | 2 / 360 x 45 HYPAN LVL OR 180UB18 |
| RB7-RB12 | 200 PFC |
| RL1,RL9 | 200UB25 |
| RL2 | 2 / 300 x 45 HYPAN LVL OR 150 PFC |
| RL3, RL4 | 400 x 75 HYPAN LVL OR 200 PFC |
| RL5 | 150 x 45 HYPAN LVL OR 75 PFC |
| RL6, RL8 | 200 x 63 HYPAN LVL |
| RL7 | 240 x 63 HYPAN LVL |
| TP | 150 x 150 HWD POST |
| SC1 | 89 x 4.0 SHS |
| BW1 | 190 BLOCKWORK WALL |
| BW2 | 190 BLOCKWORK WALL N12-200 VERT + HORIZ. ALL CORES FILLED BLOCK LINTEL BEAM (CORE FILLED - 2N16 BTM) |
| BL | DOUBLE STUDS AND TIE DOWN TO FLOOR STRUCTURE |
| X | 8 UNITS EACH DIRECTION (1 UNIT ADJACENT TO BW1) |
| BRACING | 900 - 1800mm 2 / 150 x 45 HYPAN LVL |
| OTHER LINTELS | |

LOWER ROOF FRAMING PLAN

Barrenjoey Consulting Engineers Pty Ltd
Stormwater Structural Civil
PO Box 672
Avalon nsw 2107
P : 9918 6264 F : 9918 5841
M : 0418 620 330
E : lucasboe@bigpond.com
ABN : 13 124 694 917
ACN : 124 694 917

Project :

NEW RESIDENCE
16 NORTH AVALON ROAD
AVALON
for Mr R & Mrs A VALLIS

Drawing :

LOWER ROOF FRAMING PLAN

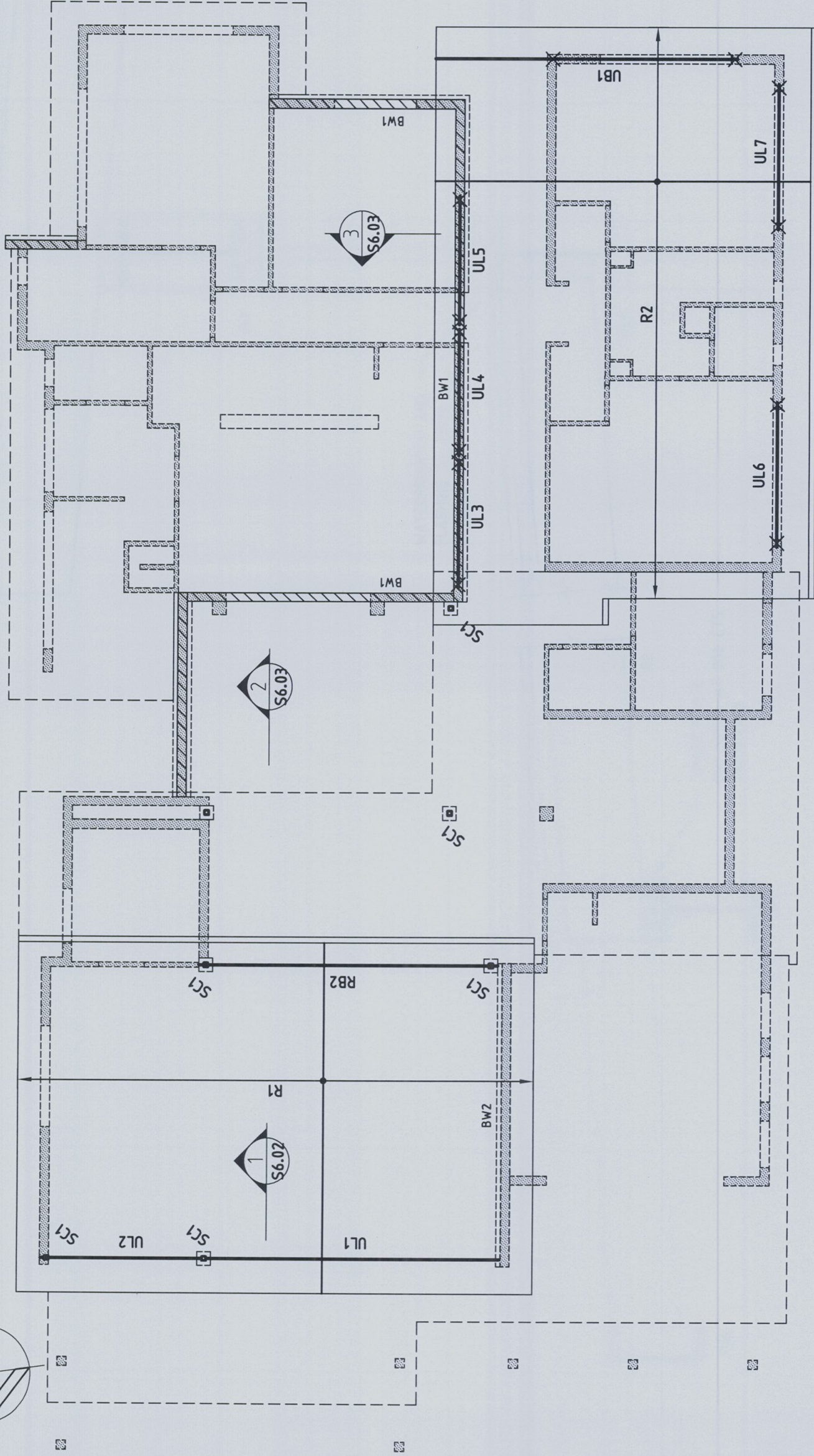
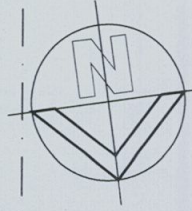
Job No :

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Drawing No :

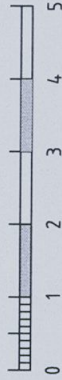
S6.00

Document certification
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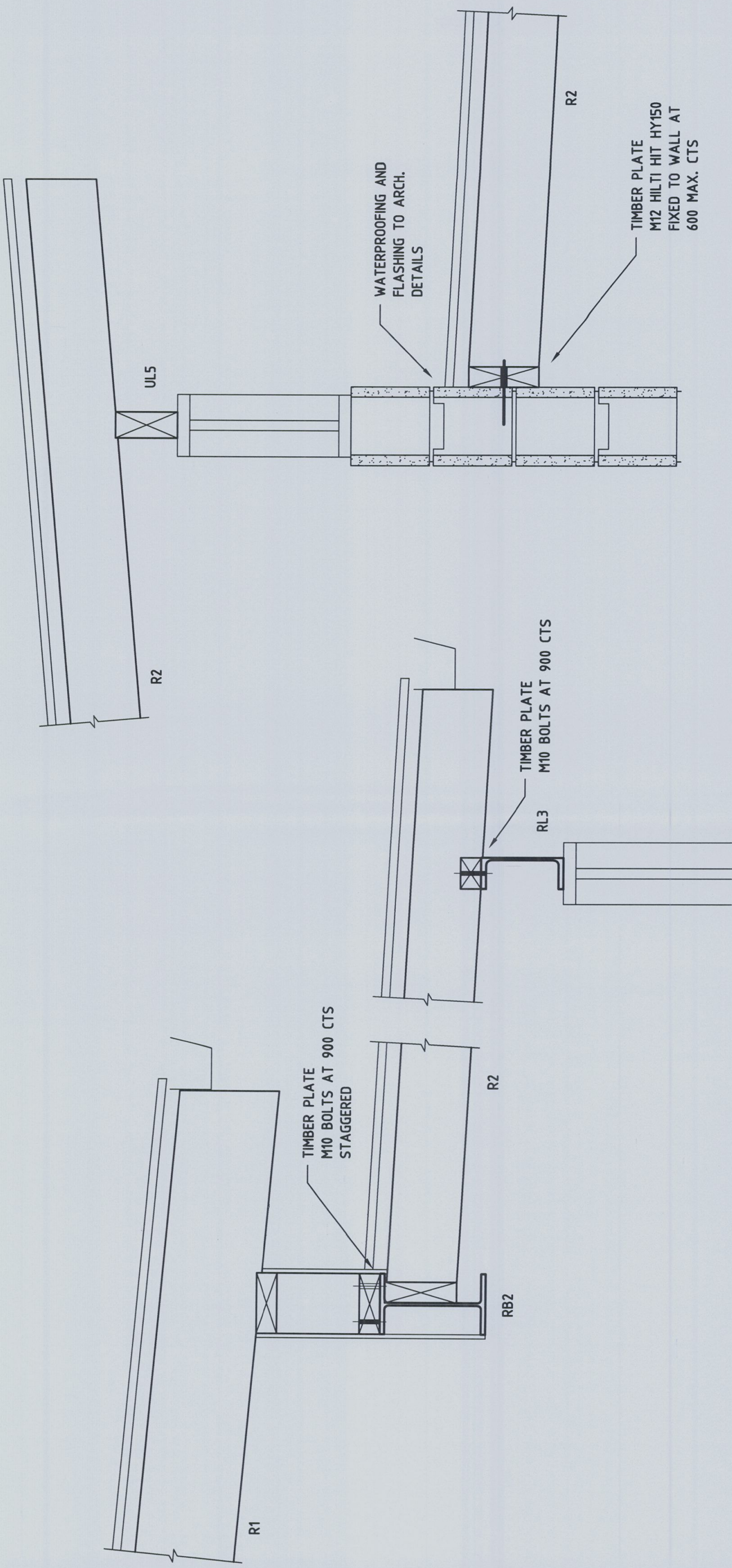
NOTE :

- R1 240 x 45 HYPAN LVL H3
RAFTERS AT 600 CTS + STRAP
BRACING AND 2 ROWS OF
BLOCKING
- R2 170 x 45 HYPAN LVL H3 OR
190 x 45 F17 KD HWD RAFTERS
AT 600 CTS
- RB2 250UB37
UB1 180UB22
UL1, UL2 250UB37 LINTEL
UL3 - UL5 150 x 63 HYPAN LVL
UL6, UL7 200 x 63 HYPAN LVL
TP 150 x 150 HWD POST
SC1 89 x 4.0 SHS
- BW1 190 BLOCKWORK WALL
BW2 190 BLOCKWORK WALL
N12-200 VERT + HORIZ.
ALL CORES FILLED
- X DOUBLE STUDS AND TIE DOWN
TO FLOOR STRUCTURE
- BRACING 6 UNITS EACH DIRECTION TO
BED 3, 4 & BATH
- OTHER LINTELS 900 - 1800mm 2 / 150 x 45
HYPAN LVL



UPPER ROOF FRAMING PLAN

Barrenjoey Consulting Engineers Pty Ltd Stormwater Structural Civil PO Box 672 Avalon nsw 2107 P : 9918 6264 F : 9918 5841 M : 0418 620 330 E : lucasboe@bigpond.com ABN : 13 124 694 917 ACN : 124 694 917	Project : NEW RESIDENCE 16 NORTH AVALON ROAD AVALON for Mr R & Mrs A VALLIS	Drawing : UPPER ROOF FRAMING PLAN	Job No : 120906	Drawing No : S6.01
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SECTION 2
S6.00

SECTION 3
S6.00

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ABN : 13 124 694 917
ACN : 124 694 917

Project :
NEW RESIDENCE
16 NORTH AVALON ROAD
AVALON
for Mr R & Mrs A VALLIS

Drawing :

ROOF DETAILS
SHEET 2

Job No :

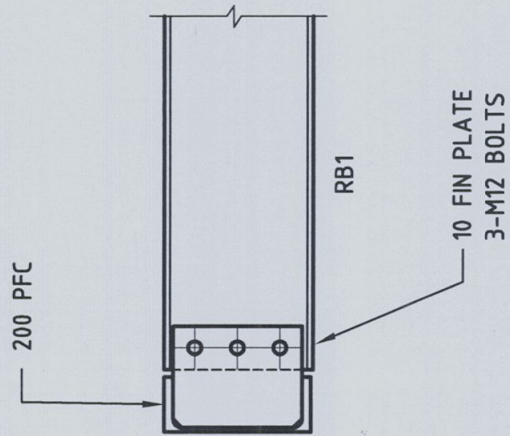
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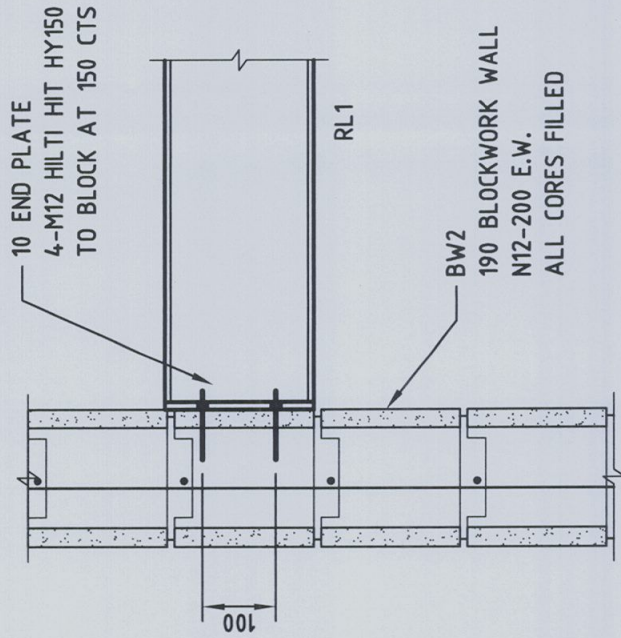
S6.03

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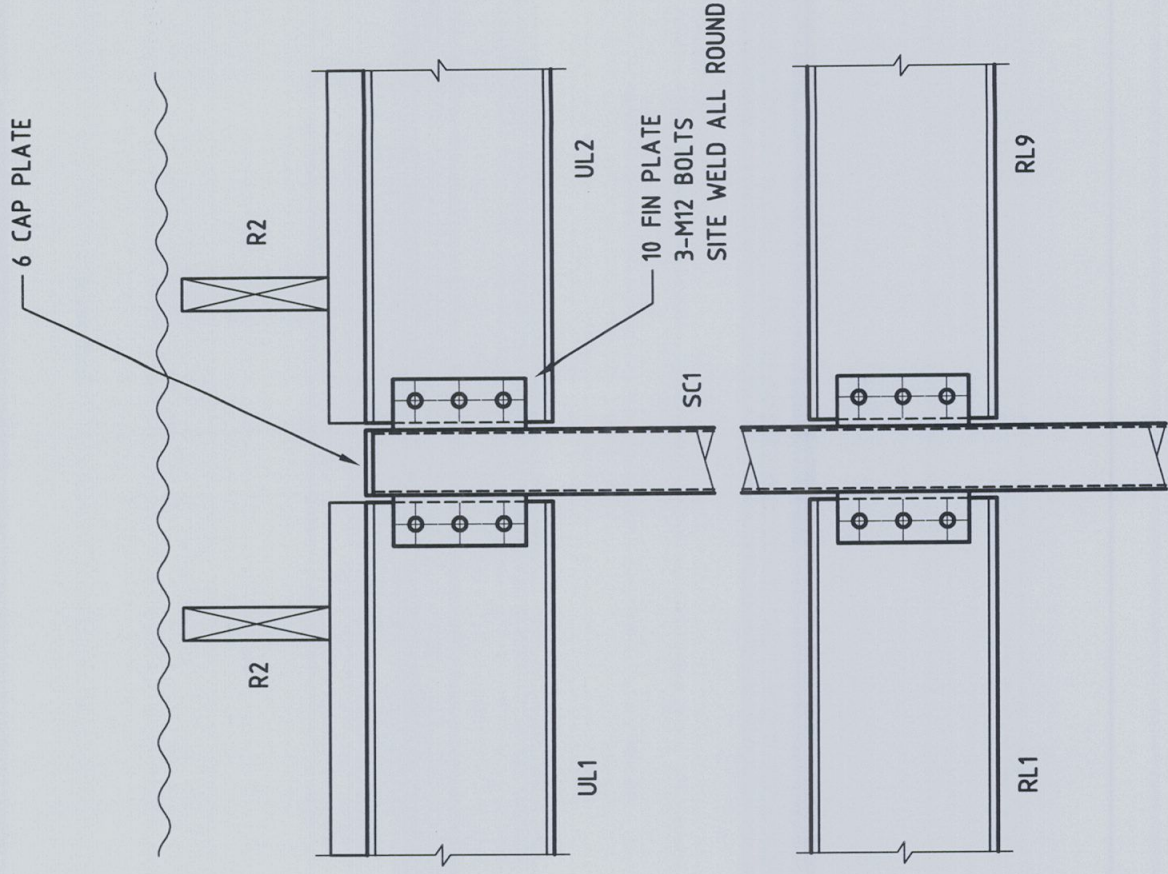
PER Lucas Molloy MIEA CPEng NPER Director



RB1 TO PFC DETAIL



RL1 TO BLOCKWORK DETAIL



TYPICAL COLUMN TO BEAM DETAIL

Barrenjoey Consulting Engineers Pty Ltd
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M : 0418 620 330
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ABN : 13 124 694 917
ACN : 124 694 917

Project :

NEW RESIDENCE
16 NORTH AVALON ROAD
AVALON
for Mr R & Mrs A VALLIS

Drawing :

ROOF DETAILS
SHEET 3

Job No :

120906

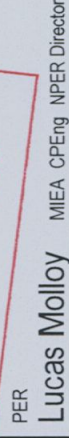
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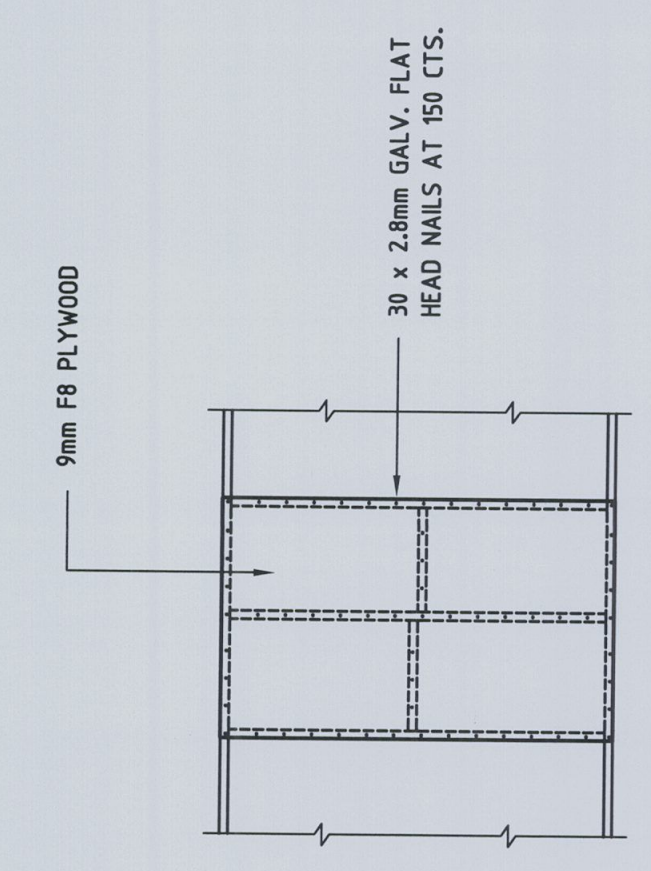
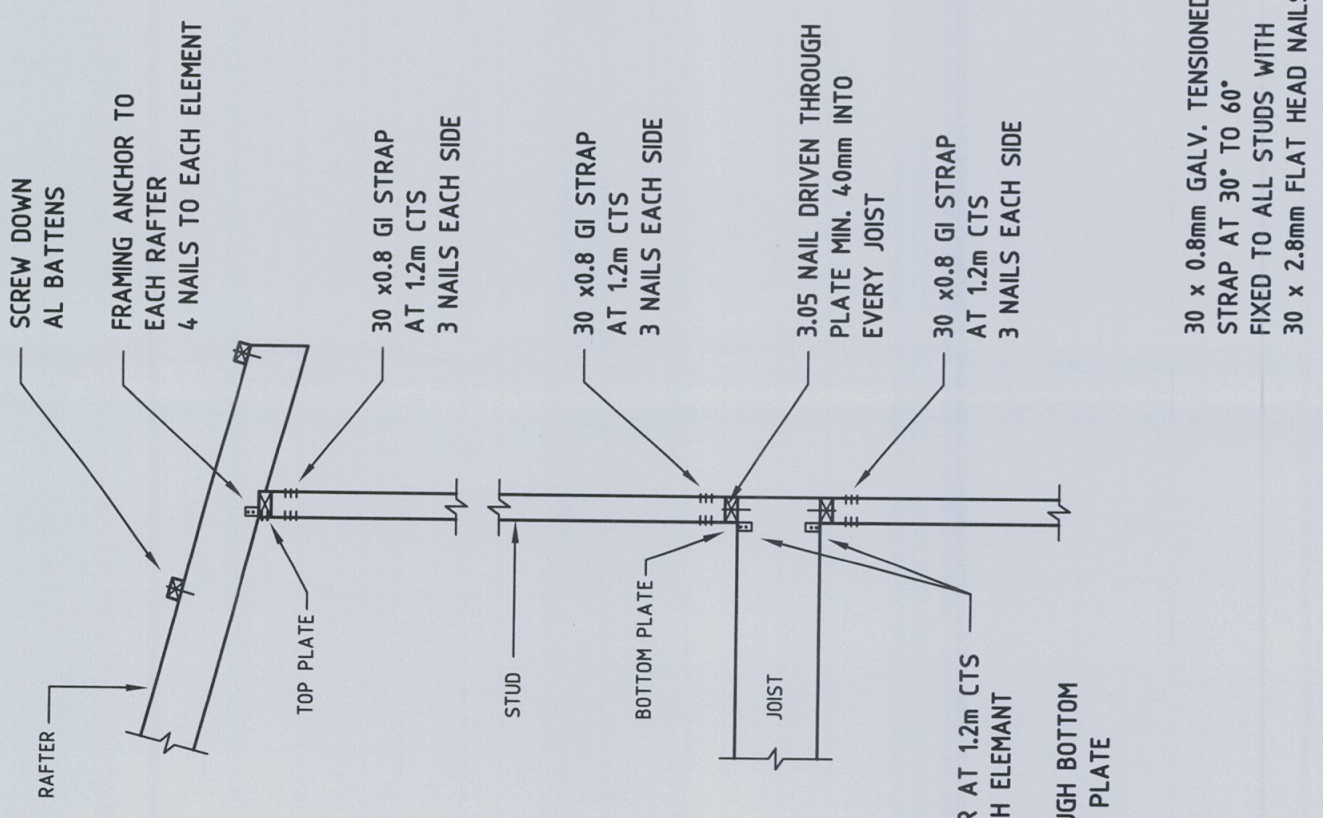
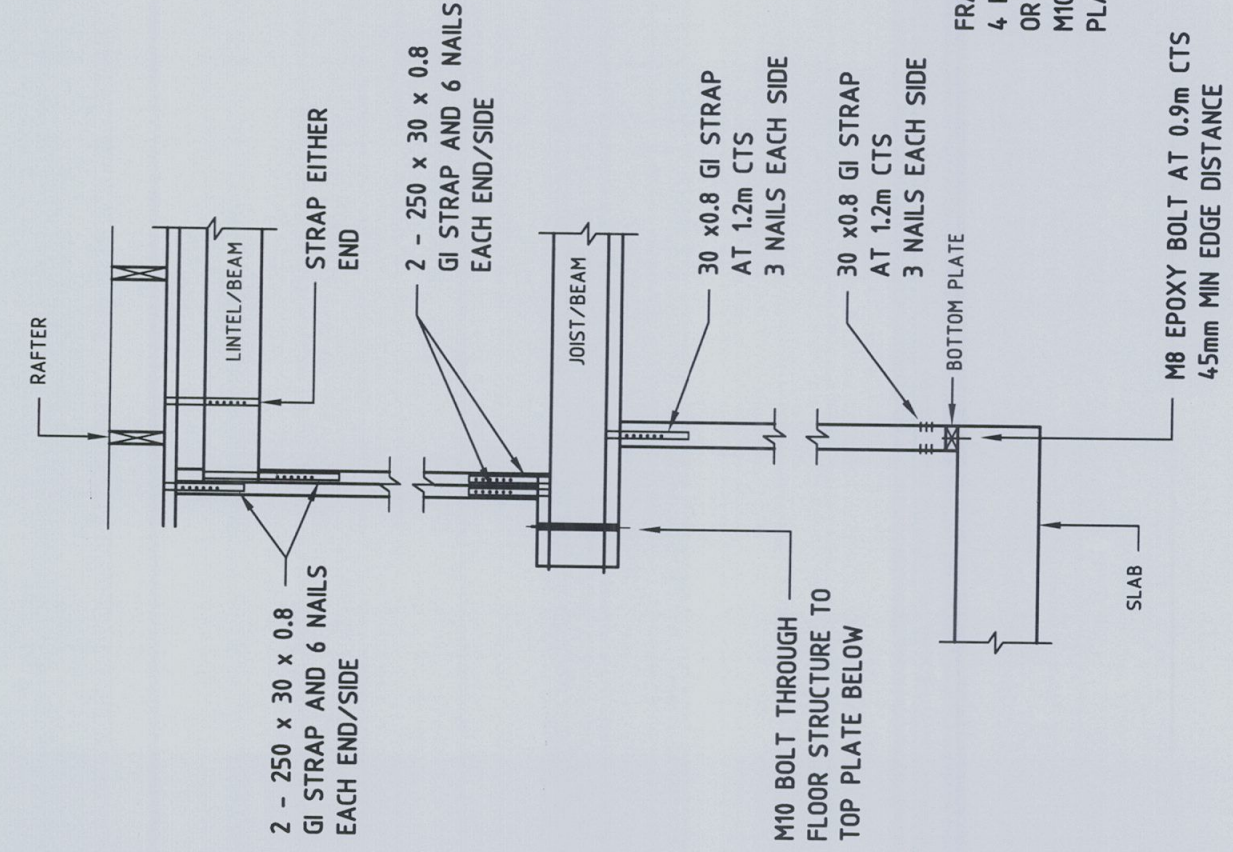
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DOCUMENTATION

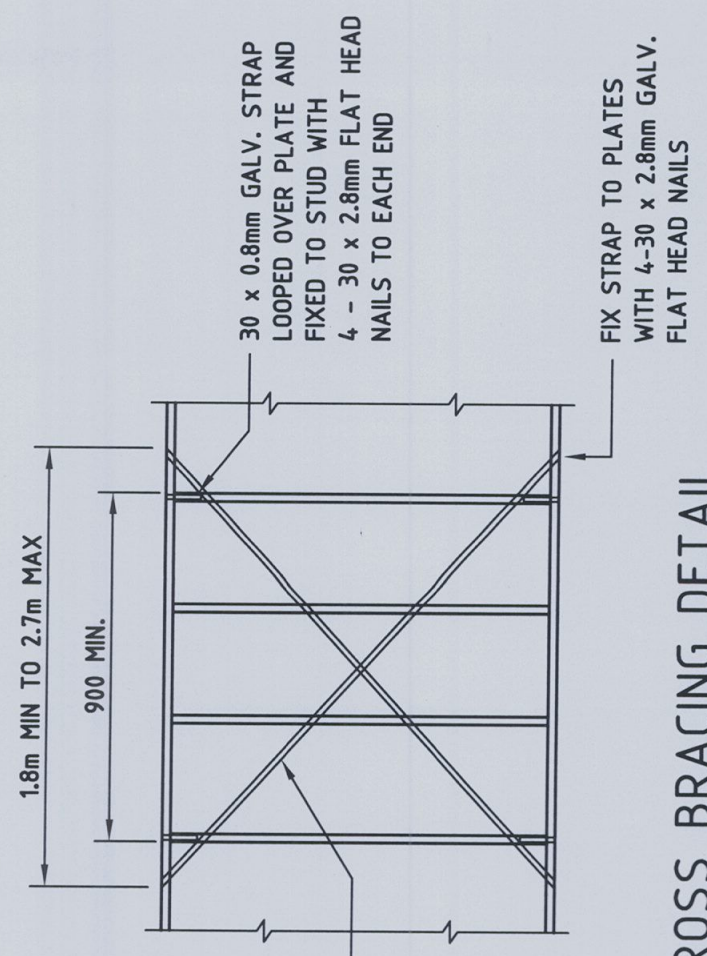
Barrenjoey Consulting Engineers Pty Ltd

PER Lucas Molloy MIEA CPEng NPER Director





PLY BRACING DETAIL



CROSS BRACING DETAIL

SPECIFIC TIE DOWN REQUIREMENTS

ALL NAILS 30x2.8mm GALV FLAT HEAD
REFER TO AS1684 FOR OTHER JOINT GROUP REQUIREMENTS

Barrenjoey Consulting Engineers Pty Ltd
Stormwater Structural Civil
PO Box 672
Avalon nsw 2107
P : 9918 6264 F : 9918 5841
M : 0418 620 330
E : lucasbce@bigpond.com
ABN : 13 124 694 917
ACN : 124 694 917

Project:
NEW RESIDENCE
16 NORTH AVALON ROAD
AVALON
for Mr R & Mrs A VALLIS

Drawing :

ROOF DETAILS
SHEET 5

Job No :
120906
Drawing No :
S6.06

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PART OF THE PROJECT DOCUMENTS
Document Certification
Barrenjoey Consulting Engineers Pty Ltd
PER
Lucas Molloy
MIEA OPEng NPER Director

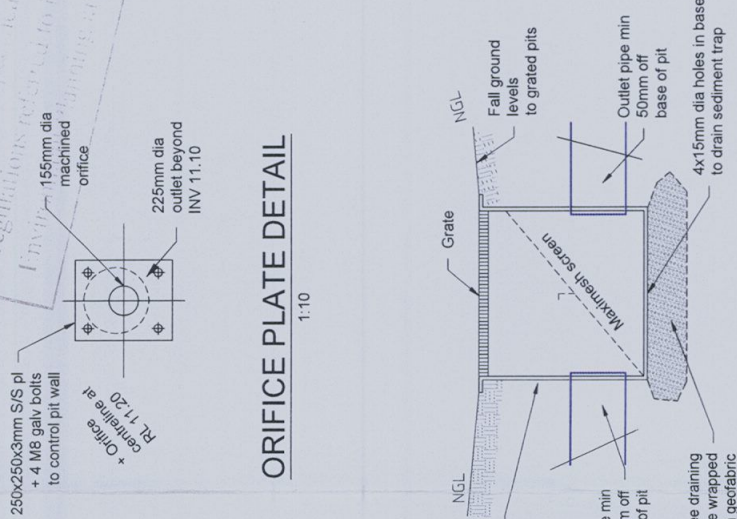
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Variations to layout to be reviewed and approved by Barrenjoey Consulting Engineers before construction.

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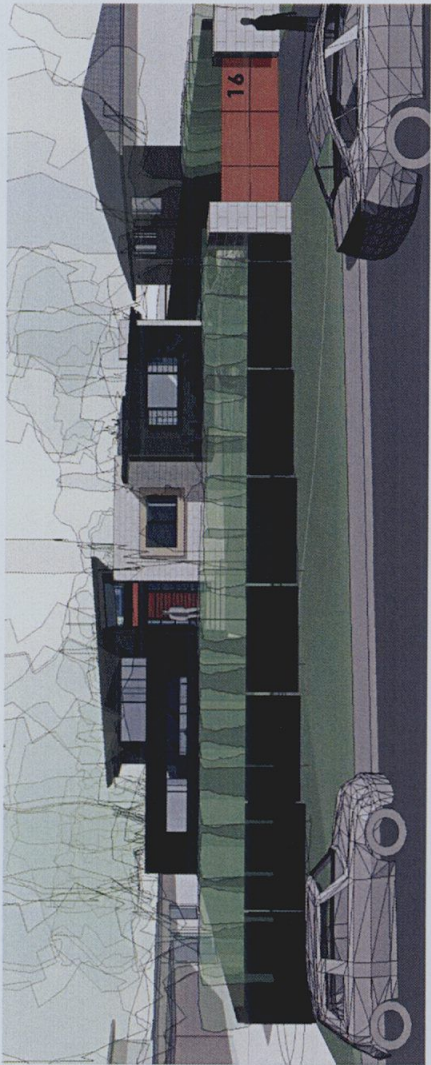
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VIEW FROM DRIVEWAY



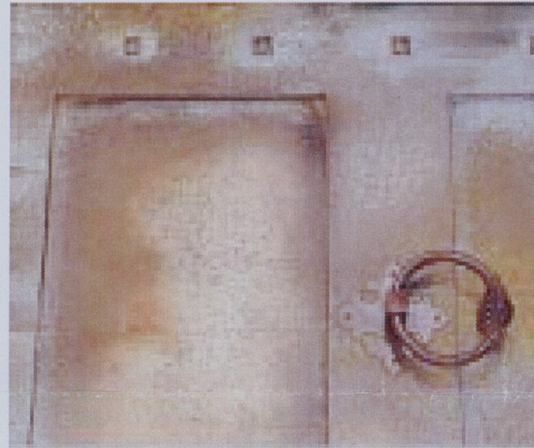
WALL CLADDING



ROOFING



WINDOW FRAMES



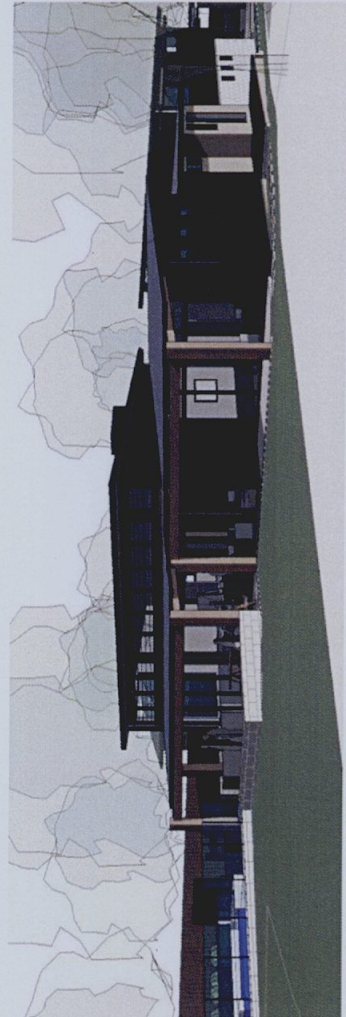
SELECTED FRONT DOOR



SELECTED STONE FINISHES - HOUSE AND GATE



DRIVEWAY GATE / GARAGE DOORS



VIEW FROM REAR OF HOUSE



EXPOSED TIMBER INTERNALLY AND EXTERNALLY



FINISHES BOARD

PROPOSED NEW RESIDENCE AT 16 NORTH AVALON ROAD AVALON

FOR ROSS + ANTHEA VALLIS

PROPOSED FINISHES

SURFACE FINISH
WALL CLADDING RESENE PAINT - BLACKJACK

RENDER FINISH RESENE PAINT - TRIPLE SISAL

STONE TO BE SELECTED

WINDOWS BLACK ANODISED ALUMINIUM

ROOF BLUE STEEL - MONUMENT

FRONT DOOR AND AWNING SELECTED COPPER

EXPOSED TIMBER IRONWOOD RE-CYCLED TIMBER

GARAGE DOOR / FRONT GATE AXOLOTL RUST FINISH
I certify that work completed in accordance with these plans and specifications will comply with the regulations referred to in Section 81A(5) of the Environment Planning and Assessment Act 1979

FRONT FENCE RESENE PAINT - BLACKJACK

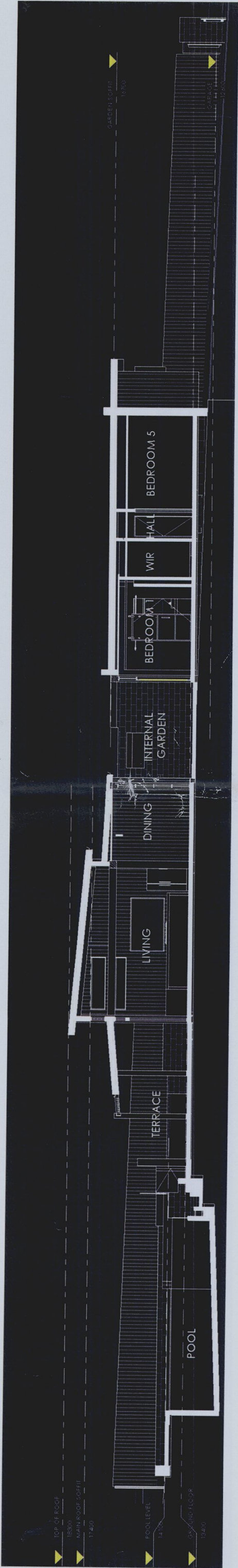
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This is the plan/spec. referred to
in Form Building Certifiers Certificate
Certificate No. CC12013-217
Plan Nos. 120906-SM1
Craig Formosa BPB0124 DATED

map

architecture + interiors

CONSTRUCTION CERTIFICATE FOR NEW RESIDENCE
16 NORTH AVALON ROAD, AVALON
FOR ROSS & ANTHEA VALLIS



This is the plan/spec. referred to
in Form Building Certifiers Certificate
Certificate No. 2013-218
Plan Nos. CC-100, CC-200A, CC-203A, CC-400A, CC-403A
CC-200B, CC-303A, CC-400A, CC-403A
Craig Formosa BPB0124 DATED 20/08/13

I certify that work completed in accordance with
these plans and specifications will comply with the
regulations referred to in Section 81A(5) of the
Environment Planning and Assessment Act 1979

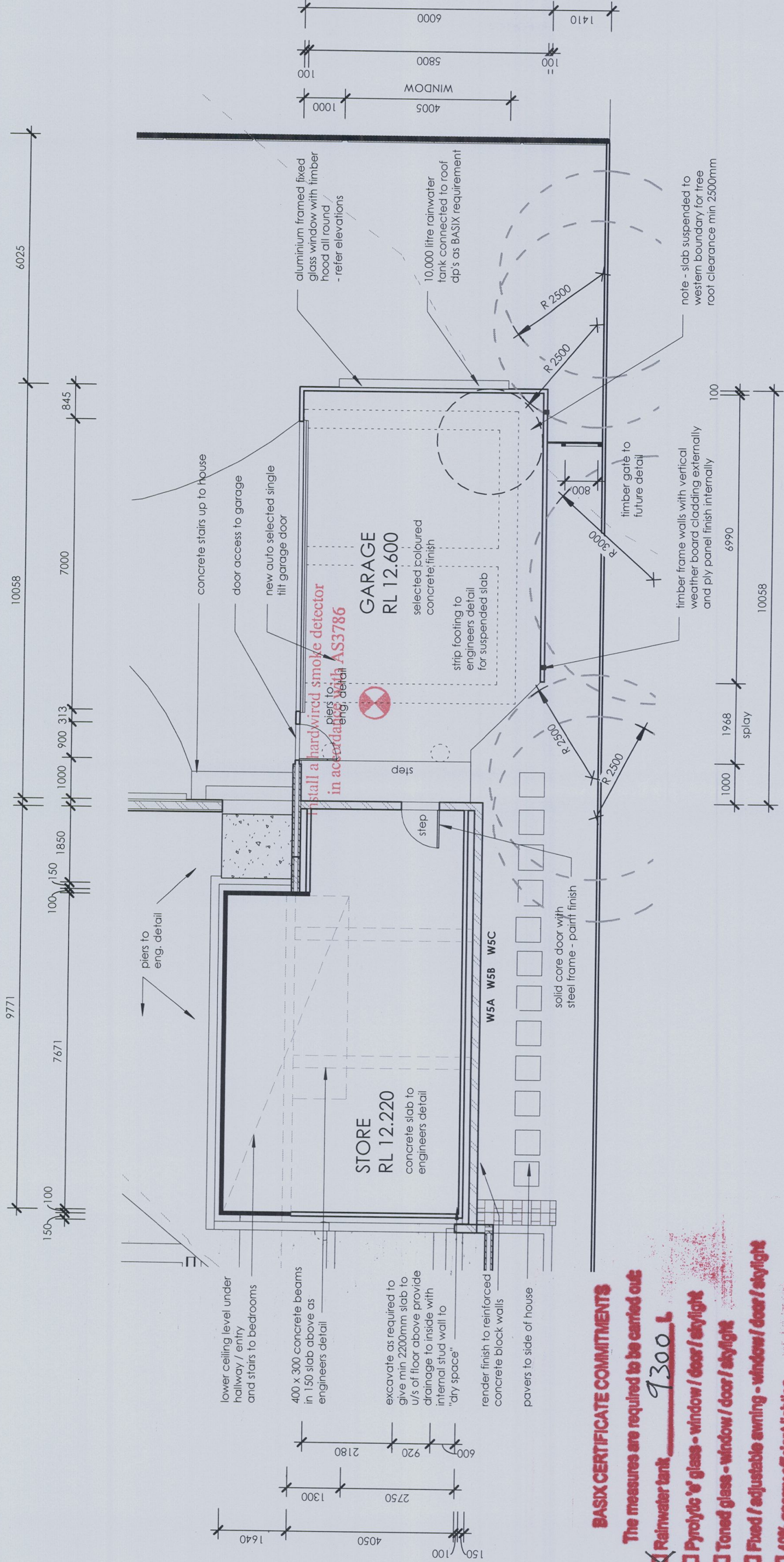
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CERTIFIERS CC/CDC

Sheet List	
Sheet Number	Sheet Name
CC-100 A	COVER PAGE
CC-200 A	SITE / ROOF PLAN
CC-201 A	PLAN - GARAGE AND STORE
CC-202 A	PLAN - GROUND FLOOR
CC-203 A	PLAN - TERRACE AND POOL
CC-300 A	ELEVATIONS - NORTH AND SOUTH
CC-301 A	ELEVATIONS - EAST AND WEST
CC-302 A	ELEVATIONS - GARAGE
CC-303 A	ELEVATIONS - POOL
CC-400 A	SECTIONS - DRIVEWAY / GARAGE AND STORE
CC-401 A	SECTIONS 1 AND 2
CC-402 A	SECTIONS 3 AND 4
CC-403 A	SECTION 5 AND 6

CC-100 A	COVER PAGE	30/08/13
CC-200 A	SITE / ROOF PLAN	30/08/13
CC-201 A	PLAN - GARAGE AND STORE	30/08/13
CC-202 A	PLAN - GROUND FLOOR	30/08/13
CC-203 A	PLAN - TERRACE AND POOL	30/08/13
CC-300 A	ELEVATIONS - NORTH AND SOUTH	30/08/13
CC-301 A	ELEVATIONS - EAST AND WEST	30/08/13
CC-302 A	ELEVATIONS - GARAGE	30/08/13
CC-303 A	ELEVATIONS - POOL	30/08/13
CC-400 A	SECTIONS - DRIVEWAY / GARAGE AND STORE	30/08/13
CC-401 A	SECTIONS 1 AND 2	30/08/13
CC-402 A	SECTIONS 3 AND 4	30/08/13
CC-403 A	SECTION 5 AND 6	30/08/13

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	PROJECT	PROPOSED NEW HOUSE		
	LOCATION	16 NORTH AVALON ROAD AVALON		
255-259 PACIFIC HIGHWAY NORTH SYDNEY NSW 2060 t: (02) 9247 6878 f: (02) 9247 5985 e: info@mapai.com.au	CLIENT	ROSS + ANTHEA VALLIS		
	REVISION	A 04-09-2013 ISSUE FOR CC		
COVER PAGE		DRAWN BY	Author	DATE
		CHECKED BY	Checker	SCALE
		DWG NO.		PROJECT NO.
		CC-100 A		12-005



BASIX CERTIFICATE COMMITMENTS

The measures are required to be carried out

- ☒ Rainwater tank 9300 L
- ☐ Pyrolytic 'w' glass - window / door / skylight
- ☐ Toned glass - window / door / skylight
- ☐ Fixed / adjustable awning - window / door / skylight
- ☐ 40% energy efficient lighting

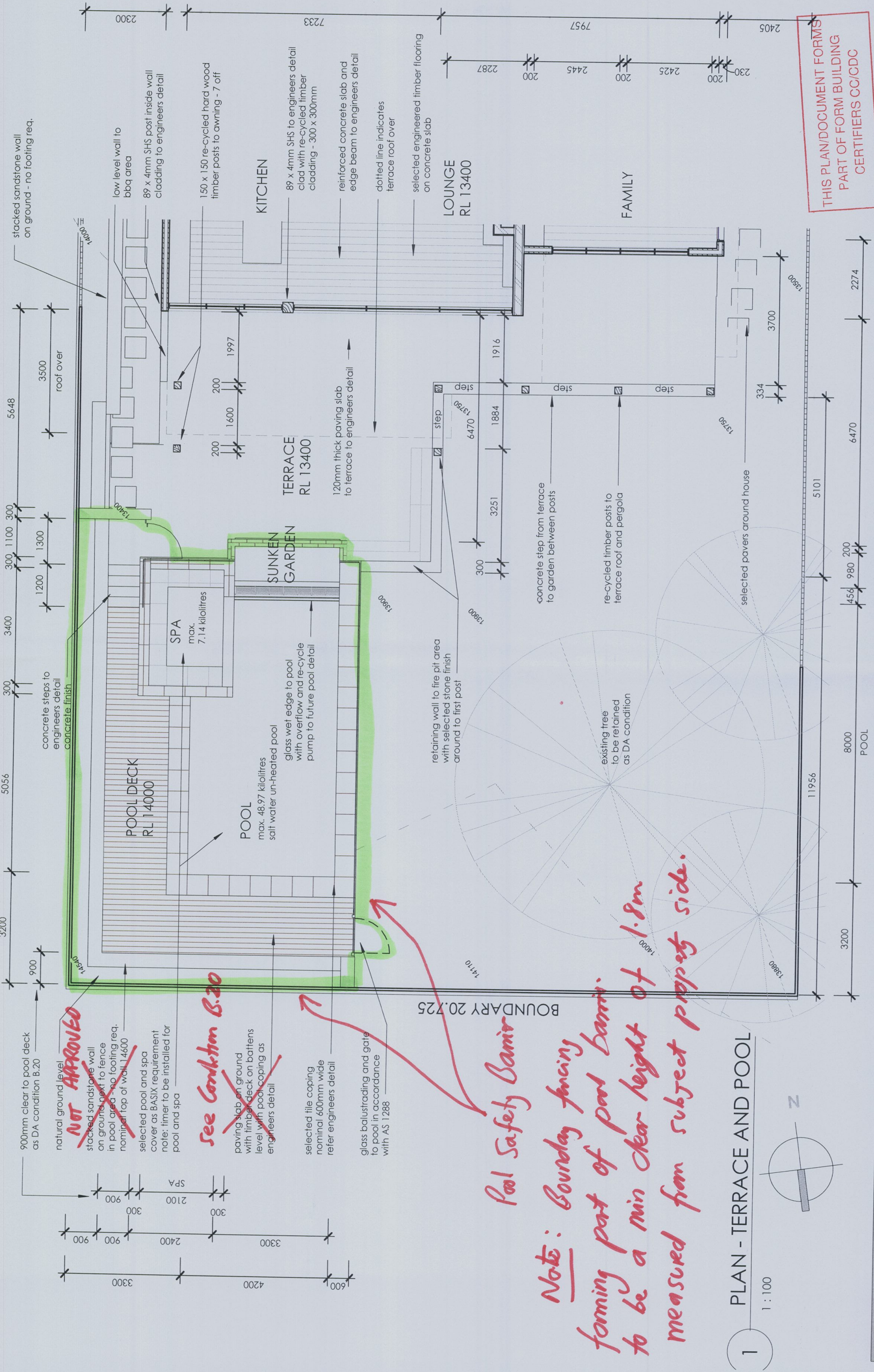
REFER TO BASIX CERT. FOR FULL LIST OF COMMITMENTS

1 : 100

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map architecture+interiors 255-259 PACIFIC HIGHWAY NORTH SYDNEY NSW 2060 t: (02) 9247 6878 f: (02) 9247 5985 e: info@mapai.com.au	PROJECT	PROPOSED NEW HOUSE	REVISION A 04-09-2013 ISSUE FOR CC	PLAN - GARAGE AND STORE				CC-201 A	
	LOCATION	16 NORTH AVALON ROAD AVALON		DRAWN BY	Author	DATE	MARCH 2012		DWG NO.
	CLIENT	ROSS + ANTHEA VALLIS		CHECKED BY	Checker	SCALE			PROJECT NO.
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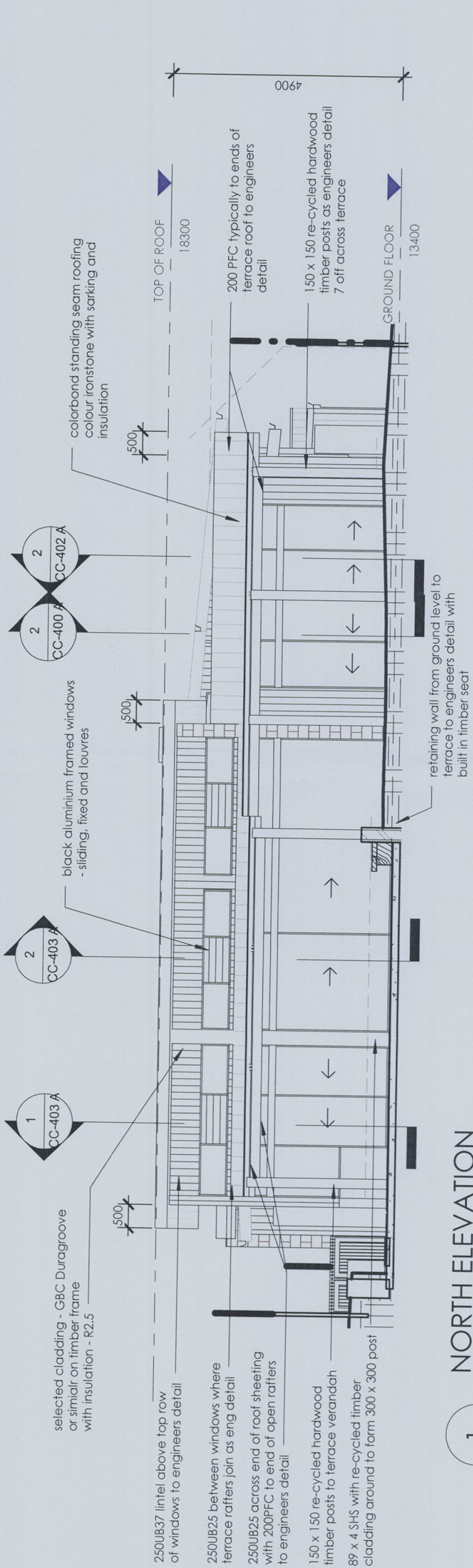
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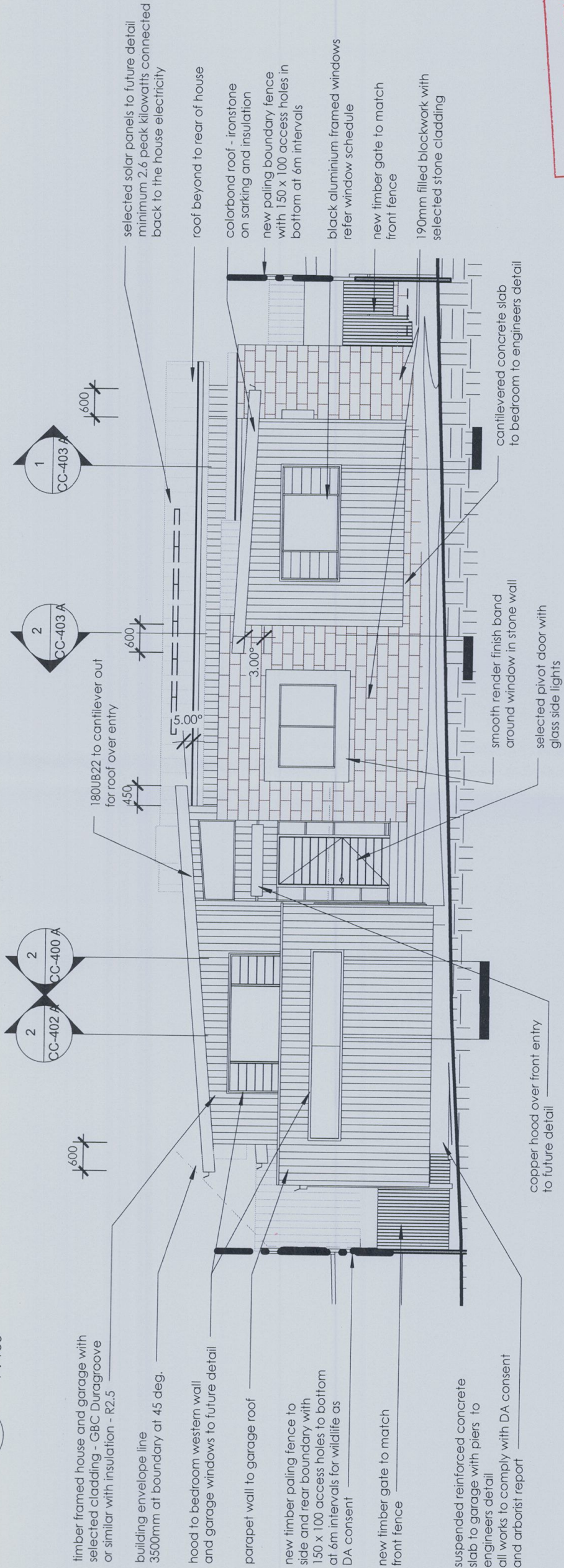
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	CLIENT	ROSS + ANTHEA VALLIS		CHECKED BY		SCALE	1 : 100		
								DWG NO.	
								PROJECT NO.	



1 NORTH ELEVATION

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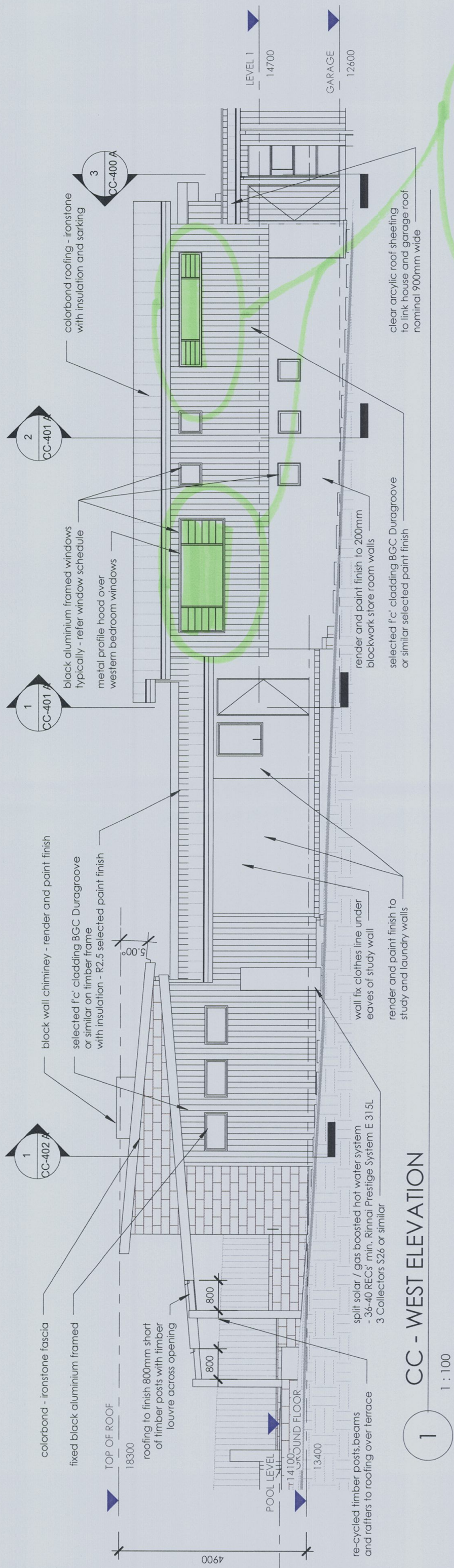


2 SOUTH ELEVATION

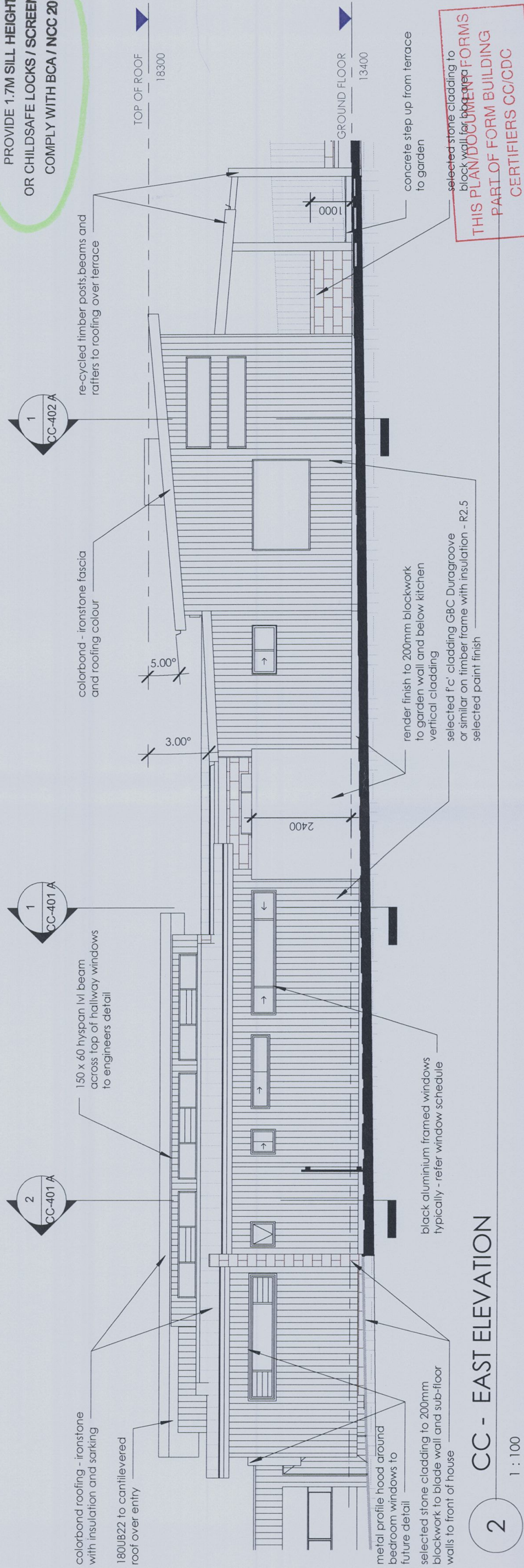
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map 255-259 PACIFIC HIGHWAY NORTH SYDNEY NSW 2060 t: (02) 9247 6878 f: (02) 9247 5985 e: info@mapai.com.au	PROJECT	PROPOSED NEW HOUSE		REVISION A 04-09-2013 ISSUE FOR CC	
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	CLIENT	ROSS + ANTHEA VALLIS		DRAWN BY Author	
architecture+interiors		DWG NO. CC-300 A		DATE MARCH 2012	PROJECT NO.
		CHECKED BY		SCALE 1 : 100	12-005
		Checker			

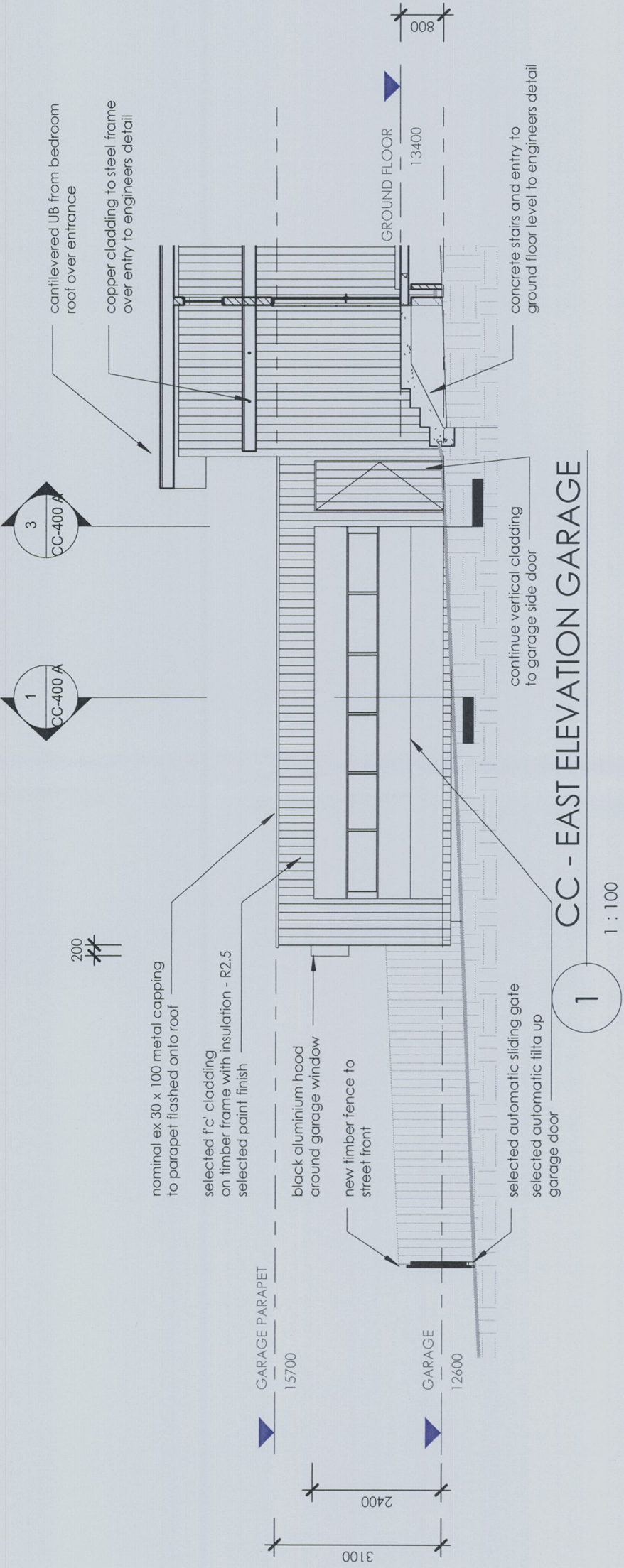


1 CC - WEST ELEVATION
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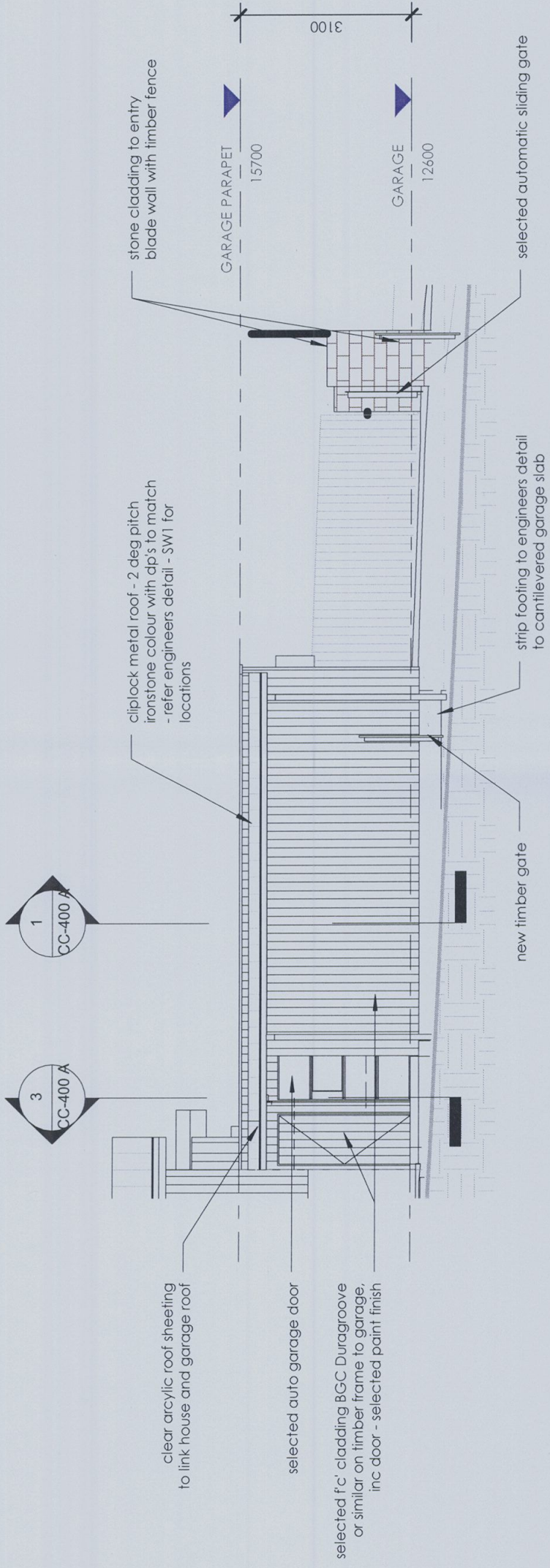
2 CC - EAST ELEVATION
1 : 100

map architecture + interiors		PROPOSED NEW HOUSE		ELEVATIONS - EAST AND WEST	
255-259 PACIFIC HIGHWAY NORTH SYDNEY NSW 2060 t: (02) 9247 6878 f: (02) 9247 5985 e: info@mapai.com.au		LOCATION 16 NORTH AVALON ROAD AVALON		DRAWN BY Author DATE MARCH 2012	
CLIENT ROSS + ANTHEA VALLIS		PROJECT NO. 1 : 100		DWG NO. CC-301 A	
		CHECKED BY		PROJECT NO. 12-005	
		CHECKER			
		REVISION A 04-09-2013 ISSUE FOR CC			



1 CC - EAST ELEVATION GARAGE

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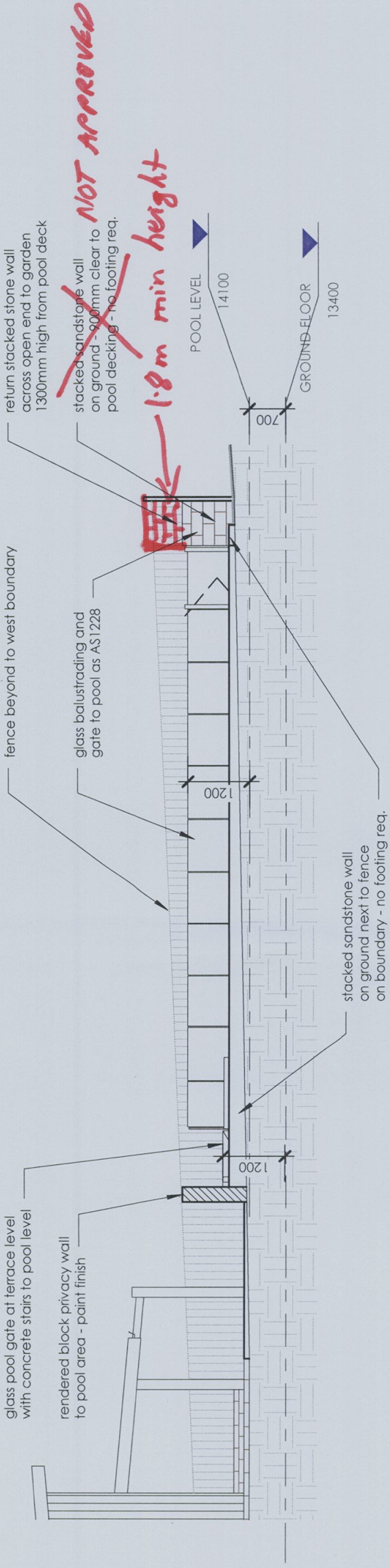
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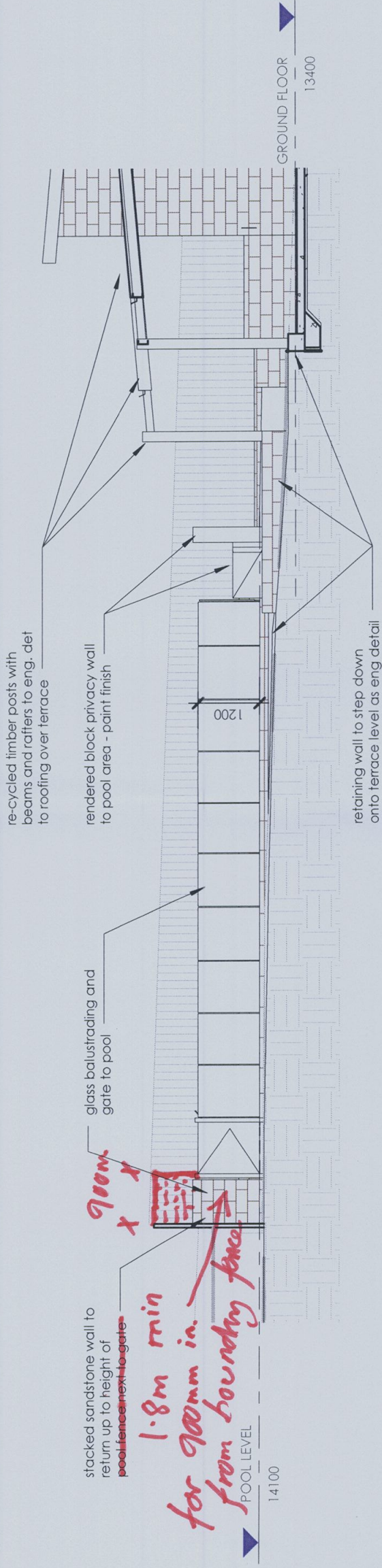
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1 CC - EAST ELEVATION POOL

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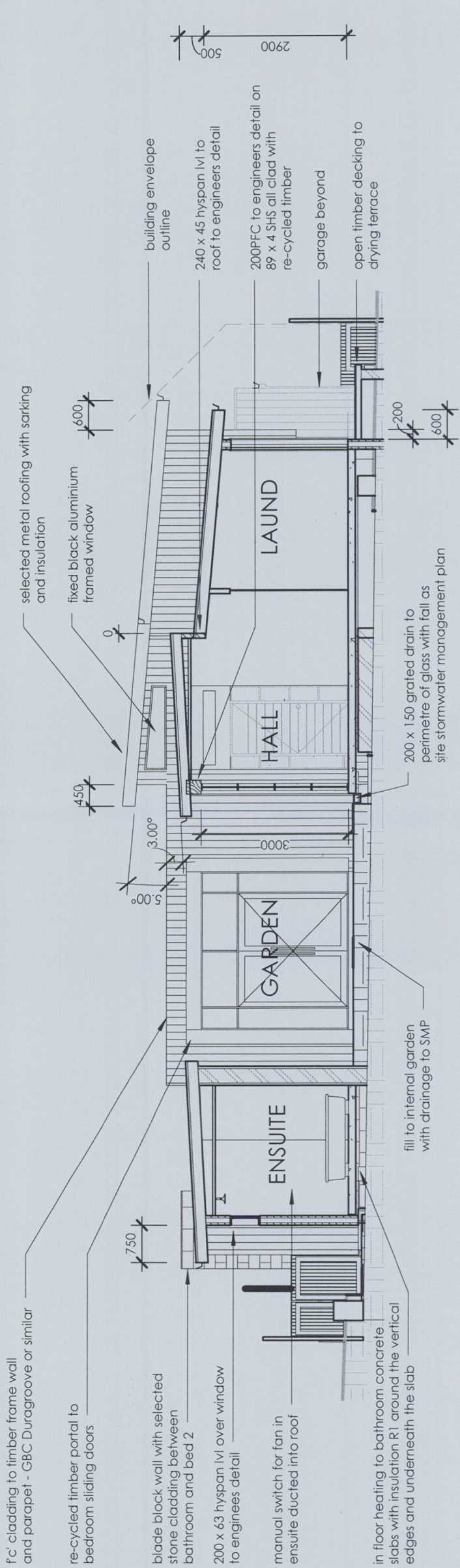


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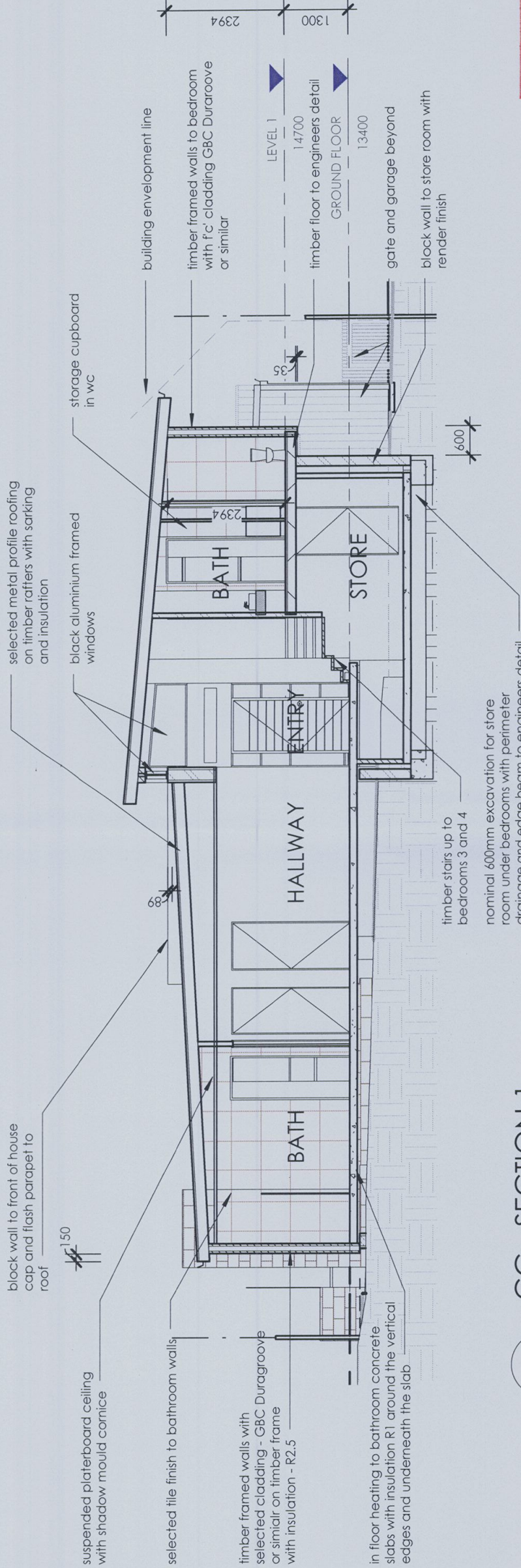
map architecture+interiors 255-259 PACIFIC HIGHWAY NORTH SYDNEY NSW 2060 t: (02) 9247 6878 f: (02) 9247 5985 e: info@mapai.com.au	PROJECT	PROPOSED NEW HOUSE	REVISION	A 04-09-2013 ISSUE FOR CC		
	LOCATION	16 NORTH AVALON ROAD AVALON	DRAWN BY	Author	DATE	MARCH 2012
	CLIENT	ROSS + ANTHEA VALLIS	CHECKED BY	Checker	SCALE	1 : 100
			ELEVATIONS - POOL			
			DWG NO.	CC-303 A		
			PROJECT NO.			

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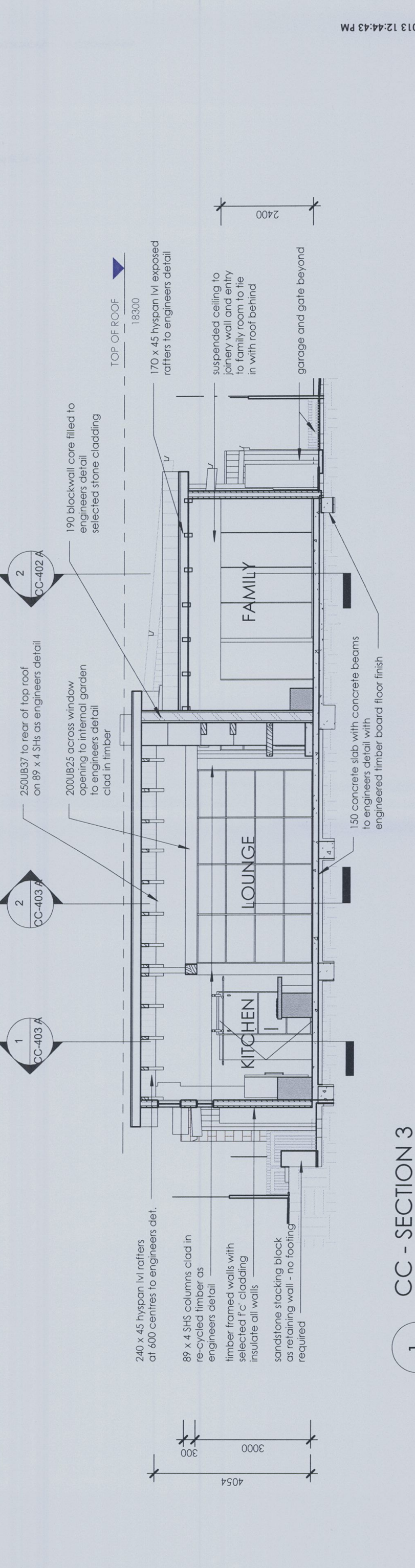
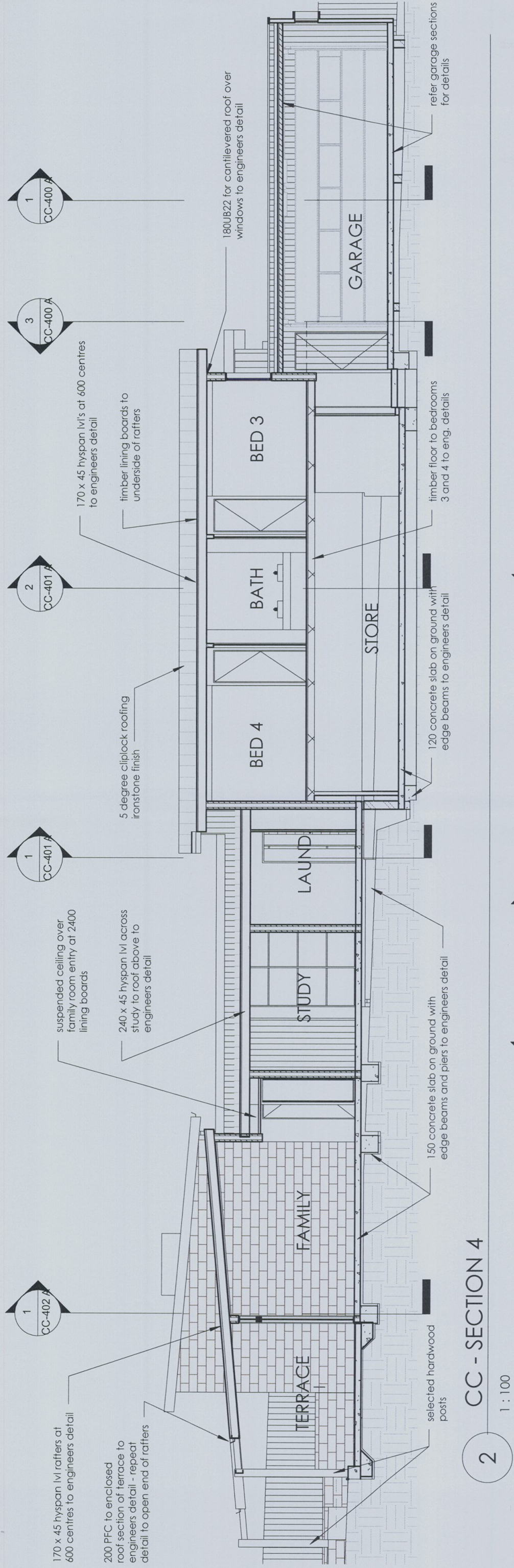
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	LOCATION 16 NORTH AVALON ROAD AVALON		DRAWN BY Author				DATE	
	CLIENT ROSS + ANTHEA VALLIS		CHECKED BY				SCALE	



map

architecture + interiors

255-259 PACIFIC HIGHWAY NORTH SYDNEY NSW 2060

t: (02) 9247 6878 f: (02) 9247 5985 e: info@mapai.com.au

PROJECT

PROPOSED NEW HOUSE

LOCATION

16 NORTH AVALON ROAD AVALON

CLIENT

ROSS + ANTHEA VALLIS

REVISION

A 04-09-2013 ISSUE FOR CC

SECTIONS 3 AND 4

DRAWN BY

AUTHOR

CHECKED BY

CHECKER

DATE

MARCH 2012

SCALE

1 : 100

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DWG NO.

CC-402 A

PROJECT NO.

12-005

rainTree consulting

Arboricultural Management

PO Box 326 AVALON NSW 2107

Mobile 0419 250 248

FEBRUARY 2013

**16 NORTH AVALON ROAD
AVALON BEACH, SYDNEY, NSW**

Under Development Application No: 262/12

ARBORICULTURAL ASSESSMENT TREE ROOT INVESTIGATION REPORT

Prepared for
Ross & Anthea Vallis
16 North Avalon Road
AVALON BEACH,
SYDNEY NSW

Prepared by
Mark A. Kokot
AQF Level 5
Consulting arborist



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DISCLAIMER & LIMITATION ON THE USE OF THIS REPORT

This report is to be utilized in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or copy) is referenced in, and directly to that submission, report or presentation.

Unless stated otherwise: Information contained in this report covers only the tree/s that were examined and reflects the condition of the trees at the time of inspection: and the inspection was limited to visual examination of the subject tree without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject tree/s may not arise in the future. Arborist cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specific period of time. Trees are a living entity and change continuously, they can be managed but not controlled and to be associated near one involves some degree of risk.

INTRODUCTION

This report has been commissioned by Ross & Anthea Vallis for the purpose of providing further information in relation to proposed works located adjacent neighbouring trees. The neighbouring trees are subject to development impacts by construction located within the subject site known as Lot 15 in DP 8394, being 16 North Avalon Road, AVALON BEACH, SYDNEY NSW.

Each tree assessed has been referenced by its accorded tree number that corresponds with Raintree Consulting (RC) Arborist Report dated November 2012.

The trees requested for further information may be located within Appendix C.

Care has been taken to obtain information from reliable sources. All data has been verified as far as possible, however, I can neither guarantee nor be responsible for the accuracy of information provided by others.

METHODOLOGY

- i In preparation for this report tree root investigation trenches were excavated by the client adjacent trees 7, 24, 25 & 34. The exposed trenches were inspected and assessed for root zone impacts by the author on Wednesday 13th February 2013.
- ii Plans and/or documentation received to assist in preparation of this assessment include:
 - Map architecture & interiors
 - Tree 7 East Boundary Retaining Wall Dwg No: FD03 dated March 2012
 - Copy (2) of Site / Roof Plan Dwg No: FD07 dated March 2012
 - Elevations Dwg No: A201 rev/B dated 22.10.12

1.0 DISCUSSIONS OF OBSERVATIONS

1.1 Trees 13 & 14

- 1.1.1 The minor landscape boundary retaining wall adjacent the trees has been deleted from the proposal removing the need for any excavation within the Tree Protection Zones (TPZ). Existing ground levels are to remain indicating a negligible impact.

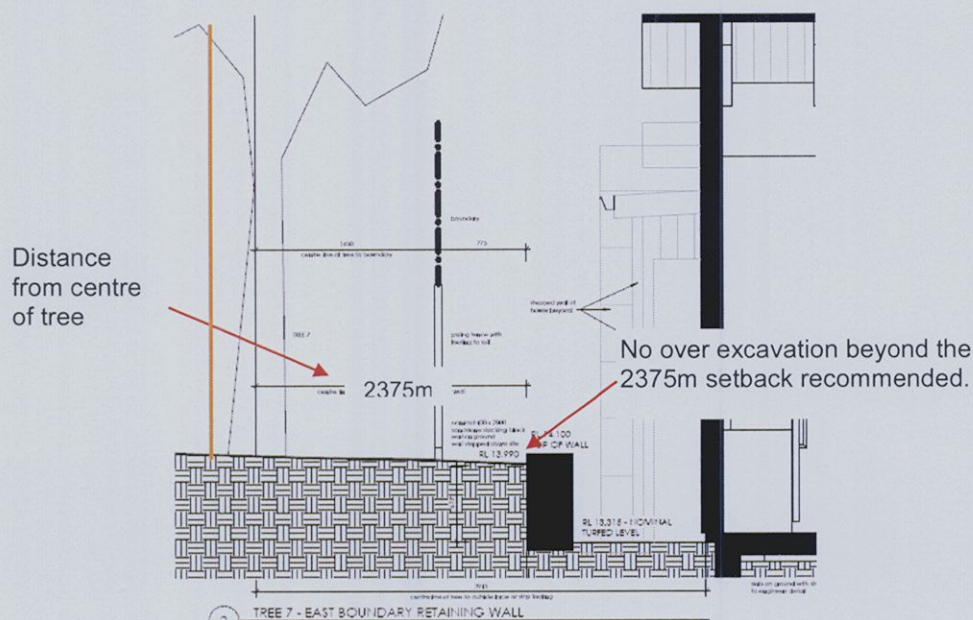
All methodology in tree protection are to be conducted as per Raintree Consulting (RC) Arborist Report November 2012 and the Tree Management Plan (TMP) recommendations.

1.2 Tree 7

- 1.2.1 The tree root investigation revealed that the exposed section of roots can be professionally removed to accommodate construction without adversely affecting the anchoring Structural Root Zone (SRZ), refer Appendices A & B. Loss of finer roots will occur reducing the radial tree protection zone where irrigation and mulching of the remaining boundary strip is recommended prior, during and post construction.

No over excavation beyond the 2375m setback as shown below is recommended. All tree protection works as specified within Raintree Consulting (RC) Arborist Report November 2012 are to be adopted which includes arborist supervision during excavations, root pruning, root protection from exposure and certifications.

Figure 1, showing retaining wall proposal Dwg No: FD03.

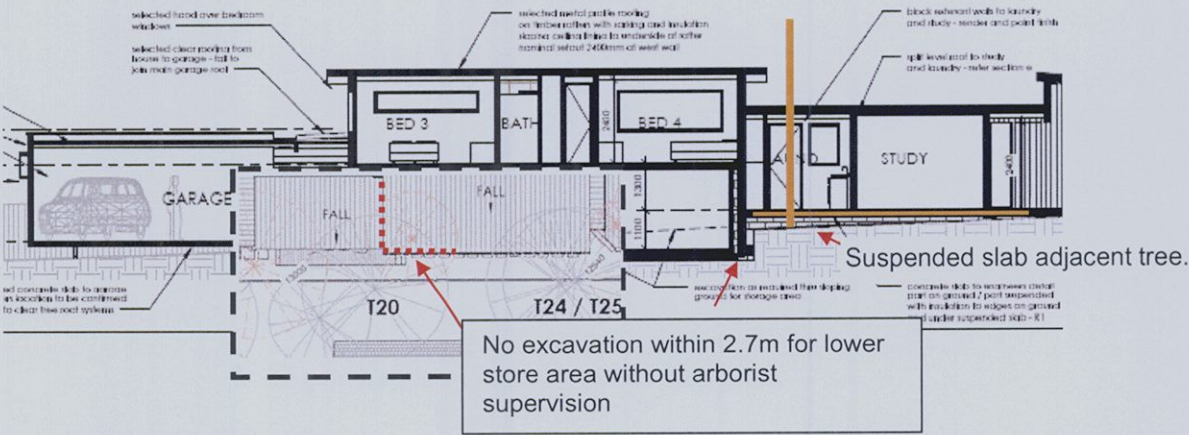


1.3 Tree 20

- 1.3.1 The proposed building is elevated adjacent the tree supported by pier and beam construction minimising excavation impacts. A small section requires to be excavated to accommodate the lower Store area where excavations are to remain at a 2.7m setback from the centre of the tree.

Where over excavation is required works are to be supervised by the appointed site arborist. Permanent irrigation and mulching of the remaining boundry strip is recommended prior, during and post construction. All tree protection works as specified within Raintree Consulting (RC) Arborist Report November 2012 are to be adopted which includes arborist supervision during excavations, root pruning, root protection from exposure and certifications.

Figure 2, showing proposal adjacent tree.

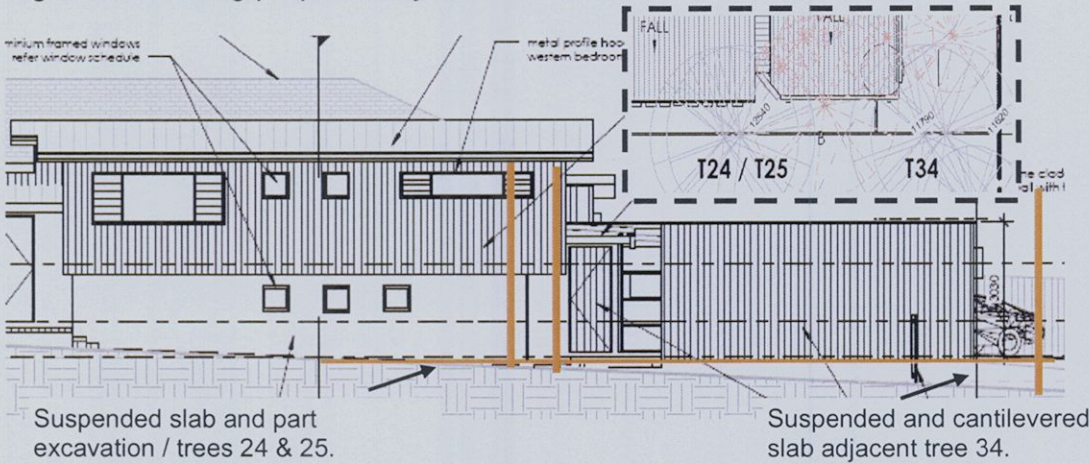


1.4 Trees 24, 25 & 34

1.4.1 The tree root investigation revealed that the minor fibrous roots located can be professionally removed to accommodate construction without adversely affecting the trees anchoring Structural Root Zone's (SRZ), refer Appendices A & B. Loss of finer roots will occur reducing the radial tree protection zone where irrigation and mulching of the remaining boundry strip is recommended prior, during and post construction.

Cantilevering the garage is proposed reducing impacts to tree 34 with the floor slab partly suspended above ground level for the lower store area. All tree protection works as specified within Raintree Consulting (RC) Arborist Report November 2012 are to be adopted which includes arborist supervision during excavations, root pruning, root protection from exposure and certifications.

Figure 3, showing proposal adjacent the trees.

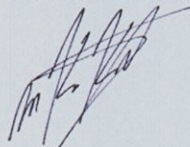


2.0 RECOMMENDATION

- 2.1 This report is to be used in conjunction with all recommendations as specified within Raintree Consulting (RC) Arborist Report dated November 2012 and specific to the Tree Management Plan (TMP) section 4.0.
 - 2.2 Trench excavations revealed no adverse impacts on the anchoring Structural Root Zone (SRZ) of trees assessed. The proposal will cover or reduce the TPZ of extending neighbouring tree roots from trees 7, 20, 24, 25 & 34. Professional drip irrigation is to be installed adjacent the trees prior to building works commencing and is to be certified by the appointed site arborist. The remaining fenced tree protection zone is to be mulched with the drip irrigation to remain functional both during and post construction.
 - 2.3 Competition for soil moisture resources will be reduced where several trees located along the western boundary are to be removed in support of the development proposal. This within itself will help in maintaining the vigour of neighbouring trees 20, 24, 25 & 34 as a greater resource will be made available by their removal.
 - 2.4 All suspended slabs are to remain open and not closed off. The suspended slab areas adjacent the neighbouring trees must remain well ventilated.
-

Should you require further liaisons in this matter please contact me direct on 0419 250 248.

Yours sincerely



Mark. A. Kokot

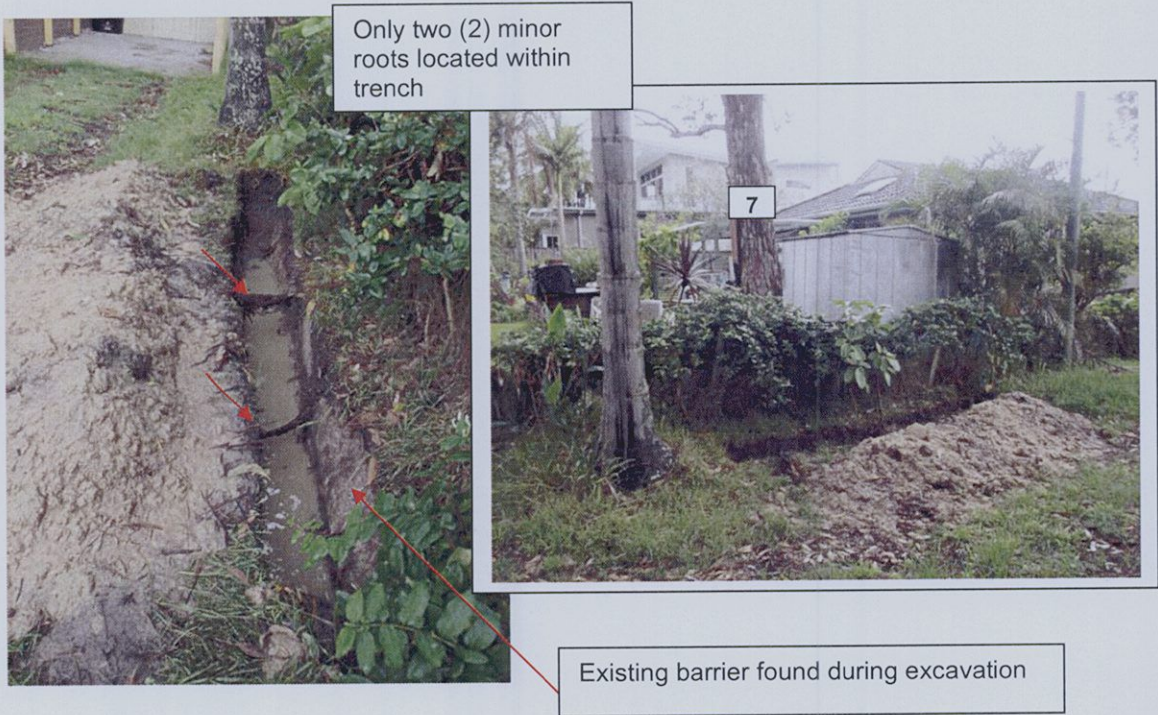
Diploma of Hort/Arboriculture (AQFL5),
Associate Diploma Parks Management (AQFL4)
Certified Arborist / Tree Surgeon (AQFL3),
Registered Consulting Arborist Member:
Arboriculture Australia (AA) No.1292,
Builders Contract Licence No. 43850C

APPENDICES

Appendix A: Site photographs	8
Appendix B: Tree Root Investigation Table	10
Appendix C: Tree & trench location area	11

APPENDIX, A: Site photographs

Tree7



Trees 24 & 25



Trees 34



APPENDIX, B: Tree Root Investigation Table

All trenches excavated by client and inspected at completion by the author
13.2.2013

Tree 7

Trench 1	m / mm	Root size 5 - 15mm	Root size 20 - 40mm	Root size 45 - 60mm	Root size 65 - 80mm	Root size >80mm
Width & Depth	400 x 500mm	several fibrous <10mmØ	1 @ 30mmØ	-	1 @ 70 opposite tree	-
Length	3.7m	Comments				
Distance from tree	2.5m COT (centre of tree)	Many small fibrous roots located, existing root barrier of fibro board located at edge of trench face on southern side restricting root extension. No anchoring trees roots greater than 80mmØ found due to very sandy soil conditions. Tree roots likely to be at depth greater than excavated due to soil sandy structure.				

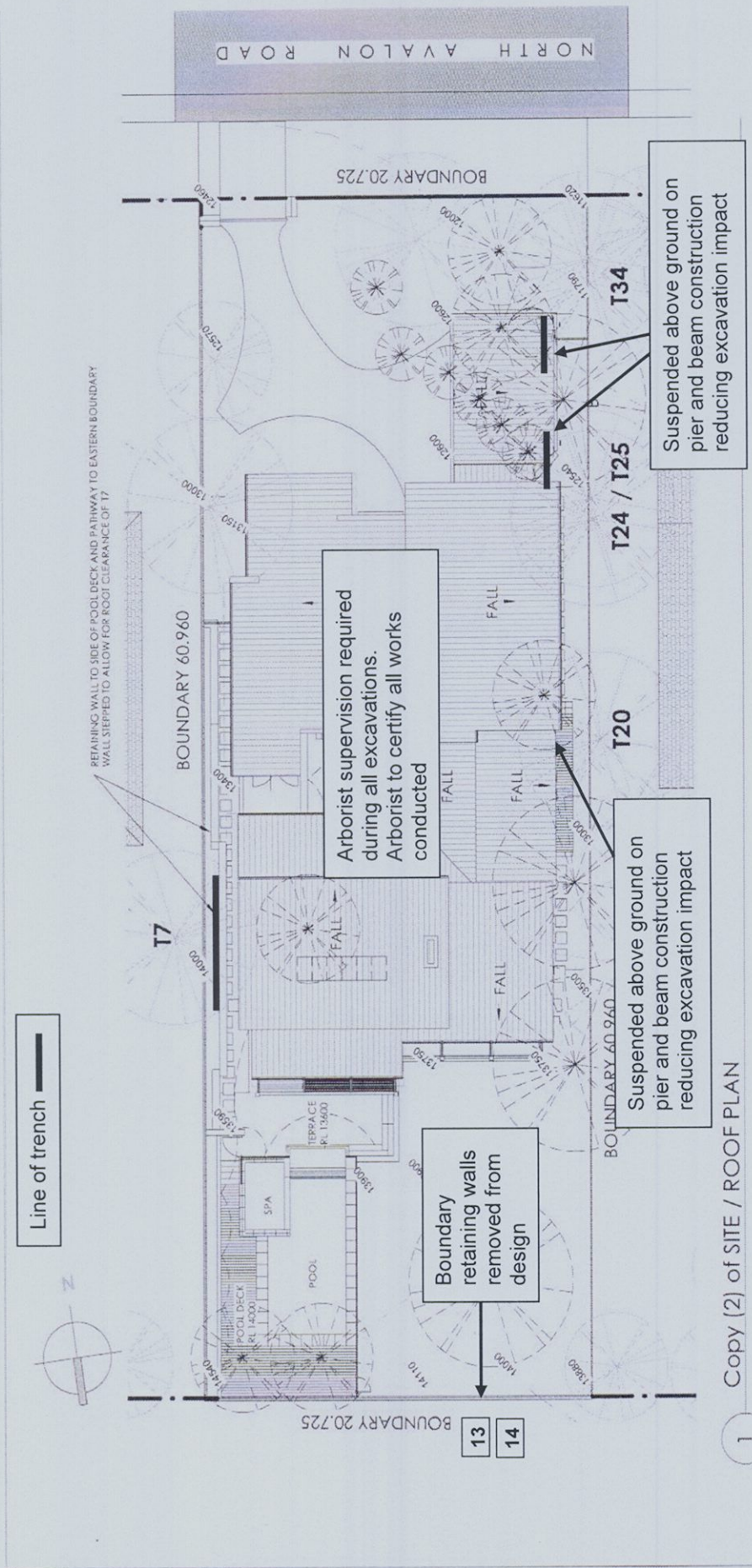
Trees 24 & 25

Trench 2	m / mm	Root size 5 - 15mm	Root size 20 - 40mm	Root size 45 - 60mm	Root size 65 - 80mm	Root size >80mm
Width & Depth	400 x 500mm	Minor fibrous <10mmØ	-	-	-	-
Length	3.4m	Comments				
Distance from tree	2.7m COT (centre of tree)	Mostly very small fibrous roots located at and less than 10mmØ, No anchoring trees found due to very sandy soil conditions. Tree roots likely to be at depth greater than excavated due to soil sandy structure.				

Trees 34

Trench 3	m / mm	Root size 5 - 15mm	Root size 20 - 40mm	Root size 45 - 60mm	Root size 65 - 80mm	Root size >80mm
Width & Depth	400 x 500mm	several fibrous <10mmØ	2 @ 20mmØ	-	-	-
Length	2.7m	Comments				
Distance from tree	2.7m COT (centre of tree)	Mostly very small fibrous roots located at and less than 10mmØ, many roots from adjacent palm trees and potentially from T32 (to be removed). No anchoring trees found due to very sandy soil conditions. Tree roots likely to be at depth greater than excavated due to soil sandy structure.				

APPENDIX, C: Tree & trench location area.



rain Tree consulting

Arboricultural Management

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NOVEMBER 2012

ARBORICULTURAL ASSESSMENT & DEVELOPMENT IMPACT REPORT

**16 NORTH AVALON ROAD
AVALON BEACH, SYDNEY, NSW**

Under Development Application No: 262/12

Prepared for
Ross & Anthea Vallis
16 North Avalon Road
AVALON BEACH,
SYDNEY NSW

Prepared by
Mark A. Kokot
AQF Level 5
Consulting arborist



THIS PLAN/DOCUMENT FORMS
PART OF FORM BUILDING
CERTIFIERS CC/CDC

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INTRODUCTION

This report has been commissioned by Ross & Anthea Vallis to assess the Useful Life Expectancy (U.L.E) and potential impacts that may occur to significant trees in relation to a new development proposal.

The new development proposal consists of demolishing the existing site features to make way for the construction of a new dwelling, swimming pool, landscape design and associated infrastructure within the subject site. The subject site is formally identified as Lot 15 in DP 8394, being 16 North Avalon Road, AVALON BEACH, SYDNEY NSW.

This report has been prepared to aid in the assessment of development impacts and includes information regarding the health and condition of the trees assessed. Recommendations for the retention, remediation or removal of the trees are based on their accorded U.L.E. category, the design proposal and potential impacts under this current development application.

Information contained in this report reflects the condition of the trees at the time of inspection. This report is not a detailed tree risk assessment however, recommendations are made if further investigations are required due faults that can not be quantified under a visual assessment.

This report acknowledges the current Australian Standards 'Protection of Trees on Development Sites' AS 4970 – 2009. A 10% encroachment by development is determined as a minor or negligible encroachment, with greater than 10% considered a major encroachment under the standards.

Where a greater than 10% encroachment occurs the arborist is to take into consideration the schedule of determining impacts as set within AS4970 s) 3.3.4. Encroachments are referred to within this report as major or minor encroachments (AS4970 s). 3.3.2 & 3.3.3).

Each tree is referenced throughout this report by the trees accorded identification number as identified within Gardens with Class landscape Design Plan provided by Bettina Class. Additional trees have been included and are referred to as a, b or c trees against their closest numbered tree i.e. T30, 30a & 30b. Their location has been estimated by taking offsets from existing trees and structures.

The trees may be referenced within the Tree Assessment Schedule and Tree Location Plan Appendices C and D.

Care has been taken to obtain information from reliable sources. All data has been verified as far as possible, however, I can neither guarantee nor be responsible for the accuracy of information provided by others.

DISCLAIMER & LIMITATION ON THE USE OF THIS REPORT

This report is to be utilized in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or copy) is referenced in, and directly to that submission, report or presentation.

Unless stated otherwise: Information contained in this report covers only the tree/s that were examined and reflects the condition of the trees at the time of inspection: and the inspection was limited to visual examination of the subject tree without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject tree/s may not arise in the future. Arborist cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specific period of time. Trees are a living entity and change continuously, they can be managed but not controlled and to be associated near one involves some degree of risk.

1.0 METHODOLOGY

- 1.1 In preparation for this report a limited site and ground level Visual Tree Assessment (VTA) was conducted on Tuesday 9th October 2012 by the author of this report. The principles of VTA were adopted from Mattheck & Breloer 1994 'The Body Language of Trees.' The inspection included assessment of the overall health and vigour of the trees, tree form, structure and structural condition commencing from near the lower trunk to the upper first order branch division.
- 1.2 The inspection was limited to a Visual Tree Assessment (VTA) from within the subject site only. No aerial (climbing) inspections, woody tissue testing or tree root investigation was undertaken as part of this tree assessment. Tree height and canopy spread was estimated and expressed in metres with trunk diameters approximately measured 1.4 metres above ground level, rounded off to the nearest 50mm and expressed as DBH (Diameter at Breast Height).
Unless specified otherwise all distances and development offsets within this report are taken from the centre of the tree.
- 1.3 This report utilises the current Australian Standards 'Protection of Trees on Development Sites' AS 4970 – 2009 with reference to the Tree Protection Zone (TPZ): being a combination of the root and crown area requiring protection. The TPZ takes into consideration the Structural Root Zone (SRZ): The area required for tree stability. Determined by AS4970 - 2009 Figure 1, Table of determining the SRZ, section 3.3.5 of the standards.
No works are permitted within the radial SRZ unless specified within this report.
- 1.4 Plans and/or documentation received to assist in preparation of this assessment include:
- Map architecture & interiors
- Site / Roof Plan Dwg No: 101 rev/B dated 22.10.12
 - Floor Plans Dwg No: 104 rev/B dated 22.10.12
 - Elevations Dwg No: A201 rev/B dated 22.10.12
 - Sections Dwg No: A301 rev/B dated 22.10.12
- Gardens with Class Landscape Design
- Landscape Plan Drawing No: 1 dated 14.11.2012
- Eze Hydraulic Engineers Pty Ltd
- Stormwater Management Plan, Dwg No: D2 issue A dated 20/07/2012
- Adam Clerke Surveyors Pty Ltd
- Survey Plan ref: 5112 dated 21/5/2012
- Costal Care Horticultural Services
- Arborist Report Root Mapping Service dated 31/8/2012

2.0 DISCUSSIONS OF OBSERVATIONS

2.1 General Tree Assessment

2.1.1 Forty six (46) trees have been assessed under this development proposal which consists of eleven (11) trees located within surrounding neighbouring properties and one (1) tree located within the front Council verge.

Of the thirty three (33) trees located on site, fifteen (15) trees are identified as exempt tree species within the Local Government Authority (LGA) Tree Preservation Order (TPO).

Of the eleven trees located within neighbouring properties six (6) are exempt tree species, however, unless specified otherwise are to be considered specimen trees to be retained. Written permission from the tree owners is required to have the trees removed as part of this development proposal.

In total eight (8) trees have been assessed as containing low Useful Life Expectancies (U.L.E.) or safe retention values. These trees are considered declining or faulty specimen trees which should not restrict a new development proposal.

Table 1, Summary value of trees assessed

Trees located on site

No. of trees on site	*Exempt trees	Overall low retention value trees	Medium to high or high risk trees
33	15	8	2
Tree No:	3, 8, 9, 26, 27, 28, 29, 30, 31, 33, 35, 36A, 40, 41 & 47A.	2A, 15, 17, 18, 20A, 32, 37 & 39 With additional Council verge tree, T1	*9 & 39

Total	Protected exotic trees	Native or local native trees
No. of	2	17
Tree No.	17 & 18	2, 2A, 4, 5, 6, 10, 11, 15, 20A, 21, 24, 25, 32, 34, 36, 37 & 39

Adjoining property trees

Total 11	TPO Protected trees	*Exempt species	Council verge trees
No. of	5	6	1
Tree No.	7, 13, 14, 16A & 20	12, 16, 19, 22, 23 & 38	1

2.2 The development proposal

2.2.1 The new development proposal requires the removal of ten (10) protected trees on site and (5) neighbouring trees given written permission from the trees owner/s.

The following Schedule Section 2.3 identifies tree removal or retention methodology with Table 2 p9 summarizing the proposed tree removal.

2.3 Schedule summary of proposed tree works

	Colour identifies tree removal		Neighbouring tree, requires written permission for removal	*denotes TPO exempt tree species
Tree No:	Species type	DA requirement	Specifications	
1 CV	<i>Casuarina glauca</i> Swamp She-Oak	Remove	Council verge tree / refer Landscape Plan	
2	<i>Eucalyptus robusta</i> Swamp Mahogany	Retain	Tree of low retention value / adverse impact / minimise by - maintain driveway on or above ground level / move 100SW & RWT overflow outside of 2.6m SRZ / no root severing at or greater than 30mm(Ø) / refer principals of protection identified within section 4.0. / certification required	
2A	<i>Eucalyptus robusta</i> Swamp Mahogany	Remove	Tree of low retention value / removal recommended	
*3	<i>Howea forsteriana</i> Kentia Palm	Remove	TPO exempt species Clause 8.2 – Undesirable trees	
4	<i>Angophora floribunda</i> Rough Barked Apple	Retain	Adverse SW trenching impact / minimise by - maintain driveway on or above ground level / move SW Pit to outside 2.5m SRZ / hand excavation or underbore within SRZ & TPZ or relocate lines / no root severing at or greater than 30mm(Ø) / arborist consultation & supervision required prior to excavations / refer principals of protection identified within section 4.0. / certification required	
5	<i>Angophora floribunda</i> Rough Barked Apple	Retain	Adverse SW trenching impact / minimise by – relocate lines or - / no root severing at or greater than 30mm(Ø) / arborist consultation & supervision required prior to excavations / refer principals of protection identified within section 4.0. / certification required	
6	<i>Angophora floribunda</i> Rough Barked Apple	Retain	Adverse impact / SW trenching minimise by relocate lines or - hand excavation, underbore or air knife within SRZ & TPZ / no root severing at or greater than 30mm(Ø) / arborist consultation & supervision required prior to dwelling & hydraulic excavations / refer principals of protection identified within section 4.0. / certification required	
7 NT	<i>Eucalyptus robusta</i> Swamp Mahogany	Protect	Neighbouring tree. Adverse impact / further information required – undertake root investigation to determine SRZ impact prior to construction / minimise design impact by – no excavation cut within 2.7m SRZ / hand excavation, underbore or air knife within SRZ & TPZ for 100SW & kitchen hydraulics / no root severing at or greater than 30mm(Ø) / arborist consultation & supervision required prior to any excavation works / refer principals of protection identified within section 4.0. / certification required	
*8	<i>Syagrus romanzofianum</i> Cocos palm	Remove	TPO exempt species Clause 8.2 – Undesirable trees	
*9	<i>Populus nigra</i> cv. "Italica" Poplar	Remove	TPO exempt species Clause 7.1 (d) – Exemptions	
10	<i>Lophostemon confertus</i> Brush Box	Remove	Remove to accommodate pool & surrounds	

Schedule of proposed tree works

	Colour identifies tree removal		Neighbouring tree, requires written permission for removal	*denotes TPO exempt tree species
Tree No:	Species type	DA requirement	Specifications	
11	<i>Lophostemon confertus</i> Brush Box	Remove	Remove to accommodate pool & surrounds	
12 NT	<i>Liquidambar styraciflua</i> Liquidambar	Protect	Neighbouring tree. Negligible pool excavation impact / maintain pool hydraulics to southern end / no root severing at or greater than 30mm(Ø) / cantilever deck towards tree / isolated pier footing only / no strip footings for deck construction / arborist consultation & supervision required prior to any excavation works / refer principals of protection identified within section 4.0. / certification required	
13 NT	<i>Glochidion ferdinandi</i> Cheese Tree	Protect	Neighbouring tree. Negligible impact / refer principals of protection identified within section 4.0	
14 NT	<i>Glochidion ferdinandi</i> Cheese Tree	Protect	Neighbouring tree. Negligible impact / refer principals of protection identified within section 4.0	
15	<i>Melaleuca quinquenervia</i> Paperbark	Remove	Tree of low retention value / negligible impact / remove to accommodate new design proposal	
*16 NT	<i>Ligustrum lucidum</i> Broad Leaved Privet	Remove?	Neighbouring tree property of tree owner / negligible impact / removal = refer to Landscape Plan / requires written permission from tree owner to remove / if to be retained refer principals of protection identified within section 4.0.	
16A NT	<i>Pittosporum undulatum</i> Native Daphne	Remove?	Neighbouring tree property of tree owner / negligible impact / removal = refer to Landscape Plan / requires written permission from tree owner to remove / if to be retained refer principals of protection identified within section 4.0.	
17	<i>Pinus radiata</i> Radiata Pine	Remove	Adverse impact / tree of low retention value / remove to accommodate DA	
18	<i>Pinus radiata</i> Radiata Pine	Remove	Adverse impact / tree of low retention value / remove to accommodate DA	
19 *NT	<i>Phoenix canariensis</i> Phoenix Palm	Protect	Neighbouring palm property of tree owner / negligible impact / extending frond reduction required	
20 NT	<i>Angophora floribunda</i> Rough Barked Apple	Protect	Neighbouring tree. Adverse impact / concrete slab part in ground and suspended / minimise by - no excavation cut within 2.7m SRZ / hand excavation, underbore or air knife within SRZ & TPZ for inground hydraulics / no root severing at or greater than 30mm(Ø) / arborist consultation & supervision required prior to any excavation works / refer principals of protection identified within section 4.0. / certification required	
20A	<i>Angophora floribunda</i> Rough Barked Apple	Remove	Adverse impact / tree of low retention value / remove to accommodate landscape and development proposal	

Schedule of proposed tree works

	Colour identifies tree removal		Neighbouring tree, requires written permission for removal	*denotes TPO exempt tree species
Tree No:	Species type	DA requirement	Specifications	
21	<i>Melaleuca styphelioides</i> Prickly Leaved Paperbark	Remove	Falls Within Building Footprint (WBF)	
22 NT	<i>Ligustrum sinense</i> Small Leaved Privet	Remove?	Neighbouring tree property of tree owner / negligible impact / removal = refer to Landscape Plan / requires written permission from tree owner to remove / if to be retained refer principals of protection identified within section 4.0.	
23 NT	<i>Cinnamomum camphora</i> Camphor Laurel	Remove?	Neighbouring tree property of tree owner / negligible impact / removal = refer to Landscape Plan / requires written permission from tree owner to remove / if to be retained refer principals of protection identified within section 4.0.	
24	<i>Angophora floribunda</i> Rough Barked Apple	Retain	Adverse impact / excavation at 3m outside of SRZ / previous root investigation revealed limited roots in area / no excavation cut within 2.3m SRZ / hand excavation, underbore or air knife within SRZ & TPZ for inground hydraulics / no root severing at or greater than 30mm(Ø) / arborist consultation & supervision required prior to any excavation works / refer principals of protection identified within section 4.0. / certification required	
25	<i>Angophora floribunda</i> Rough Barked Apple	Retain	Adverse impact / excavation at 3m outside of SRZ / previous root investigation revealed limited roots in area / no excavation cut within 2.1m SRZ / hand excavation, underbore or air knife within SRZ & TPZ for inground hydraulics / no root severing at or greater than 30mm(Ø) / arborist consultation & supervision required prior to any excavation works / refer principals of protection identified within section 4.0. / certification required	
*26 - 30	<i>Howea forsteriana</i> Kentia Palm	Remove	TPO exempt species Clause 8.2 – Undesirable trees	
*31	<i>Syagrus romanzofianum</i> Cocos palm	Remove	TPO exempt species Clause 8.2 – Undesirable trees	
32	<i>Casuarina glauca</i> Swamp She-Oak	Remove	Falls Within Building (garage) Footprint (WBF)	
*33	<i>Howea forsteriana</i> Kentia Palm	Remove	TPO exempt species Clause 8.2 – Undesirable trees	
34	<i>Angophora floribunda</i> Rough Barked Apple	Retain	Negligible impact / encroachment minimised by cantilevered & suspended garage concrete slab / refer principals of protection identified within section 4.0. / certification required	
*35	<i>Cinnamomum camphora</i> Camphor Laurel	Remove	Exempt tree species TPO s) 8.2	

Schedule of proposed tree works

	Colour identifies tree removal		Neighbouring tree, requires written permission for removal	*denotes TPO exempt tree species
Tree No:	Species type	DA requirement	Specifications	
36	<i>Angophora floribunda</i> Rough Barked Apple	Retain	Negligible impact / refer principals of protection identified within section 4.0.	
*36A	<i>Nerium oleander</i> Oleander	Remove	Exempt tree species TPO Clause 8.2.	
37	<i>Angophora floribunda</i> Rough Barked Apple	Remove	Tree of low retention value / refer Appendix C / remove to accommodate DA / WBF garage	
38 NT	<i>Phoenix canariensis</i> Phoenix Palm	Retain	Smaller palm appears to be located on fence line / if located within property remove to allow for other to develop / if to be retained refer principals of protection identified within section 4.0.	
39	<i>Casuarina glauca</i> Swamp She-Oak	Remove	Tree of low retention value / refer Appendix C / remove to accommodate DA	
*40	<i>Beaucarnea recurvata</i> Ponytail Palm	Remove	Exempt palm species TPO Clause 8.2.	
*41	<i>Rhapis excelsa</i> Rhapis Palm	Remove / relocate	Exempt palm species TPO Clause 8.2.	
*41A	<i>Howea forsteriana</i> Kentia Palm	Remove	Exempt palm species TPO Clause 8.2.	

Table 2, Summary of site trees to be removed

Total	*Exempt trees	LGA protected trees
No. of	15	11
Tree No.	3, 8, 9, 26, 27, 28, 29, 30, 31, 33, 35, 36A, 40, 41 & 47A.	2A, 10, 11, 15, 17, 18, 20A, 21, 32, 37 & 39

Proposed removal of adjoining property trees

Total	*Exempt trees	LGA protected trees
No. of	4	2
Tree No.	16, 19, 22 & 23	1 & 16A

2.4 Tree removal due to development proposal

Protected trees which fall directly within the development footprint (WBF)

2.4.1 Four (4) protected trees fall directly within the development footprint and require removal to accommodate the proposal. The trees are identified as trees: 21, 32, 37 & 39.

The four subject trees all contain structural faults according the trees with low retention values and are considered trees which should not restrict development, refer Appendix C.

Tree removal to accommodate construction design proposal

- 2.4.2 Seven (7) trees require removal to accommodate the structural features which include the dwelling, infrastructure surrounds of the swimming pool and landscape design. The subject trees are identified as trees: 2A, 10, 11, 15, 17, 18 & 20A.

Of these trees, trees 2A & 20A are the result of epicormic shoots, tree 11 contains a basal fault, tree 15 is a senescing specimen with structural faults and trees 17 & 18 are in decline. The trees are considered trees which should not restrict development due to their condition.

Adjacent property tree removal

- 2.4.3 Five (5) trees located on adjoining properties have been identified for removal. They consist of three (3) exempt tree species and two (2) protected trees. The trees are identified as trees: 1, *16, 16A, *22 & *23.

The trees require written authorization from the trees owner/s to be removed as part of this development proposal.

2.5 Development impacts on remaining trees

Trees located on site

- 2.5.1 Tree 2 contains wood rot fungus indicating a low retention value. Identified to be retained the tree should not restrict development however, in ground hydraulics are recommended to be located outside of the 2.6m SRZ with a greater setback recommended where possible. Tree protection methodology as outlined within the Tree Management Plan (TMP) Section 4.0 requires to be adopted to maintain the tree.

- 2.5.2 Trees 4, 5 & 6 no mechanical excavation for trenching activity is permitted within the SRZ & TPZ areas. All trenching for in ground services are to be conducted by hand such that no tree root at or greater than 30mm(Ø) is severed.
- The SW pit requires to be relocated outside of the 2.5m SRZ of tree 4, with SW lines recommended to be relocated or directionally drilled / underbored beneath the root zones to minimise adverse impacts.
- Tree 6 will require site arborist supervision during any excavation works, and for footing placement to accommodate the suspended slab which design principle minimizes tree and soil impacts.

- 2.5.3 Neighbouring tree 7, no excavation cut is recommended to occur within the 2.7m SRZ. Where cut to accommodate the small retaining wall is required a tree root investigation is recommended prior to any works commencing to determine the impact on tree stability.

At no stage are tree roots at or greater than 30mm(Ø) to be severed under the proposal. On site arborist supervision during any excavation works is required and in particular for footing placement to accommodate the dwelling.

Where an adverse impact will occur on tree retention values redesign to retain the tree is recommended.

- 2.5.4 Neighbouring tree 12, no adverse root zone impact is expected to the tree as new pool surround / decking works are located in the area of trees 10 & 11 which root zones are expected to have reduced the encroachment of tree roots from the neighbouring tree.
Maintaining correct tree protection methodology during works as specified within the TMP Section 4.0 is required.
- 2.5.5 Neighbouring tree 13 & 14, no adverse impacts are expected to occur to the trees given appropriate tree protection as specified within the TMP Section 4.0 of this report.
- 2.5.6 Neighbouring palm 19, no adverse impact by proposal other than a minor frond reduction to reduce overhang within the property.
- 2.5.7 Neighbouring tree 20 and site trees 20A, 23 and 24 no mechanical excavation for trenching activity is permitted within the SRZ & TPZ areas. All trenching for in ground services are to be conducted by hand such that no tree root at or greater than 30mm(Ø) is severed. SW lines are recommended to be relocated against the dwelling or directionally drilled / underbored beneath the root zones to minimise adverse impacts. On site arborist supervision during any excavation works is required and in particular for footing / foundation placement to accommodate the dwelling.
- 2.5.8 Trees 34 & 36, will not be affected by the proposal due to setback of development activities. Maintain correct tree protection methodology as specified within the TMP Section 4.0 to minimise potential impacts.
- 2.5.9 Neighbouring palm 38, negligible impact. Appears to be one of two palms where the closest palm on the boundary can be removed without adverse amenity affect.

3.0 CONCLUSIONS & RECOMMENDATIONS

3.1 Tree removal

- 3.1.1 Eleven (11) LGA protected trees located on site have been identified for removal to accommodate the new development proposal. Given consent from Council the ten trees to be removed are identified as:
- 2A, 10, 11, 15, 17, 18, 20A, 21, 32, 37 & 39
- Of these trees eight (8) trees, trees 2A, 15, 17, 18, 21, 32, 37 & 39 contain low retention values and are considered trees which should not restrict development.
- 3.1.2 The removal of Fifteen (15) exempt trees identified within the current LGA Tree Preservation Order (TPO) is permitted under the Order without consent from Council. The trees are identified as trees:
- 3, 8, 9, 26, 27, 28, 29, 30, 31, 33, 35, 36A, 40, 41 & 47A.

Proposed neighboring tree removal

- 3.1.3 Given written consent from the tree owner/s, and Council, the removal of the following six (6) trees located on adjacent properties has been identified under the proposal, trees 1, 16, 16A 19, 22 & 23.

3.2 Principals of tree protection

- 3.2.1 All trees to be retained require the construction of a fenced Tree Protection Zone (TPZ) prior to the commencement of development activities, which includes any demolition or excavation works, refer TMP Section 4.1.1.

The construction of such fencing shall be certified by an appointed site arborist prior to demolition and any excavation works commencing.

- 3.2.2 In total eight (8) trees located on site have been identified for retention and protection under the current development proposal being trees:

- 2, 4, 5, 6, 24, 25, 34 & 36.

Neighbouring trees identified for protection are identified as trees:

- 7, 12, 13, 14, 19, 20 & 38.

- 3.2.3 Section 2.3 p6 *Schedule of proposed tree works* identifies general recommendations in tree management for both site and adjoining property trees which are also addressed in Section 2.5 *Development Impacts on remaining trees* p10.

To maintain the viability of the trees during construction the principals outlined within the Tree Management Plan (TMP) Section 4.0 are to be adopted at all times.

This includes site supervision and appropriate tree/root protection methodology conducted by a minimum certified, Australian Qualification Framework (AQF) Level 4 arborist when working within the TPZ radius of any tree to be retained.

The SRZ & TPZ setbacks, taken from the centre of the tree, have been provided within Appendix C for referencing. At no stage are works permitted within the SRZ area without prior approval from the appointed site arborist.

Further information

- 3.2.4 Further information is required to determine tree stability impacts where excavation works for the retaining wall adjacent tree 7 is proposed within the 2.7m SRZ.

The root investigation works are to be conducted before any site works commence. If an adverse impact on tree stability is identified, a redesign in the construction proposal will be required to retain the tree.

General

- 3.2.5 The development site superintendant is responsible for familiarizing and maintaining all tree protection measures as specified within this report, with all site contractors being made aware of the tree protection requirements by the development site superintendent.

- 3.2.6 Section 4.0, the Tree Management Plan (TMP), identifies the main principals of protecting trees on development sites. The recommendations provided within the TMP are to be adopted under this proposal so that the trees which require retention remain viable. The TMP is to be referred to as a tree protection and management tool where all site works are to abide by the principals of tree protection.
- 3.2.7 The appointed site arborist shall provide certification to the Principal Certifying Authority (PCA) that all tree protection methodology as specified within this report has been conducted accordingly throughout the course of development works.

4.0 TREE MANAGEMENT PLAN

- 4.1.1 **Tree Protection Fencing (TPF)** is to be constructed prior to any works commencing to ensure no adverse impacts occur to trees requiring retention during the course of development activities.
TPZ fencing is to consist of 1.8m high chain link fencing secured to the ground by 50 x 50mm steel posts. Generally the location of the TPZ is to be constructed outside of the canopy drip line or extent of the TPZ, refer Appendices C, SRZ & TPZ distance column.
If development site constraints exist the location of the TPZ fence may be reduced or altered. Modifications of the TPZ location is to be specified and approved at a pre development site meeting between the appointed site arborist and development site superintendant.
The location of the TPZ is to be constructed as to allow for best tree management practices while providing adequate development work access to finalise the construction proposal.
- 4.1.2 The TPZ is a development exclusion zone, it is an area isolated from construction disturbance so that the tree remains viable. No works or storage of materials are permitted within the TPZ.
Appropriate signage shall be erected on the TPZ fencing identifying the prevention of any unauthorised activity and/or access.
Certification of TPZ modifications and TPF construction before commencement of works is to be provided by the appointed site arborist to the Principal Certifying Authority (PCA).
- 4.1.3 The appointed site arborist is to undertake regular site inspections every six (6) weeks to inspect site conditions, TPF and to provide further recommendations such as additional mulching to maintain soil moisture content within the TPZ.
- 4.2.1 **Appointing a Site Arborist**. Prior to works commencing a qualified arborist with a minimum Australian Qualification Framework (AQF) Level 4 certification is to be appointed as the Site Arborist to address any development impacts that may occur.

The development site superintendant is responsible for enforcing all tree protection methodology, contacting and liaising with the appointed site arborist. The appointed Site Arborist must be consulted at all times when working within the TPZ and specifically be on site during development activities within the SRZ of trees.

- 4.3.1 Hold Points**, unless specified otherwise no works are permitted within the SRZ radius of any tree without prior onsite arborist consultation or direct site involvement.
The SRZ setback is a development exclusion zone. Where works are proposed within the SRZ an air knife root investigation is required to identify the potential impact which is to be assessed by the appointed Site Arborist.
Hand tools are to be used when working within both the SRZ & TPZ with cantilevering or bridging over the SRZ under pier & beam construction recommended.
- 4.4.1 Demolition within the Tree Protection Zone (TPZ)** is to be supervised by the appointed Site Arborist. Rubber tracked excavators must work within the footprint of any hard surface such as pathways and pavements to minimise the radial impact to the TPZ and/or SRZ of trees. Any sub base material located is to be removed by the use of hand tools to avoid damage to underlying tree roots.
- 4.5.1 Excavation within the TPZ**, is to be avoided where possible. Any excavation for footings, foundations or grading (site leveling) and hydraulics is to be supervised by the appointed Site Arborist.
To appropriately protect the root zone Air Knife excavation is recommended to locate and expose any tree roots which may be affected by the proposal to avoid ripping by site machinery.
Any tree root not exceeding 30mm(Ø) in diameter shall be clean cut with sharp clean root pruning tools. Further advice from the Site Arborist is required where larger woody tree roots have been exposed.
- 4.6.1 Landscaping or development within the TPZ** is to complement the long term needs to retain the subject tree. Pervious paving materials are recommended within the TPZ to maintain soil moisture availability.
Unless approved within this report no grade changes being cut or fill is to occur within 80% of the TPZ radius. Maintaining the existing soil levels, moisture and aeration is the key to significant tree preservation. All efforts are to be made in maintaining the TPZ, soil moisture content and soil micro organism activity essential for maintaining good tree vigour.
- 4.7.1 Fill material within the Tree Protection Zone**, fill material within the Tree Protection Zone shall be avoided where possible with the exception of an arborist or horticulturalist approved landscape grade soil for the purpose of minor landscaping requirements only.

- 4.8.1 Site machinery**, demolition, excavations and site construction machinery must ensure that no direct conflicts occur to trees, which may include canopy overhang towards development activities.
- 4.8.2** In the event of tree damage the appointed site arborist is to be notified immediately. The site arborist is to immediately undertake remedial action to minimise any adverse impact.
- 4.9.1 Underground services**, no trenching for underground services is permitted within the SRZ setback without prior arborist approval. Where underground services are required within the SRZ or in line cutting through the TPZ, advice from the appointed site arborist including site supervision is required. Underboring or directional drilling may be recommended where an adverse impact may occur.
- 4.10.1 Root pruning**, All tree roots encountered are to be correctly treated, clean cut by the appointed site arborist abiding to the Australian Standards Pruning of Amenity Trees AS 4373 2007 section 9 *Root pruning* at all times. At no stage are tree roots greater than 30mm in diameter allowed to be cut by site contractors without prior arborist consultation. Where significant woody tree roots are located bridging over or tunneling beneath the root system may be required to ensure the vigour of the tree is not adversely affected.
- 4.11.1 Canopy pruning**, where required tree removal and canopy reductions are to be conducted by a suitably qualified, site and Workcover insured (Code of Practice 'Amenity Tree Industry' 1998) AQF Level 3 Arborist abiding to the Australian Standards Pruning of Amenity Trees AS 4373 2007 at all times.
- 4.12.1 Certifications**, the appointed site arborist is to provide certification to the Principal Certifying Authority (PCA) that all tree protection fencing and methodology as specified within this report has been adequately conducted throughout the course of site activities. Arborist Certification is to consist of timing of events, discussions of attendance, tree root/s encountered and mitigation works conducted to minimise development impacts.
-

Yours sincerely



Mark. A. Kokot – 0419 250 248

Diploma of Hort/Arboriculture (AQFL5), Associate Diploma Parks Management (AQFL4)
Certified Arborist / Tree Surgeon (AQFL3), Registered Consulting Arborist Member: Arboriculture Australia (AA) No.1292, Builders Contract Licence No. 43850C

APPENDICES

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APPENDIX, A: Terminology & references

Age classes: (I) Immature refers to a well established but juvenile tree. (ESM) refers to an early semi mature tree not of juvenile appearance. (SM) Semi-mature refers to a tree at growth stages advancing into maturity and full size. (LSM) Late Semi- Mature, refers to a tree between semi-mature and close to mature. (EM) refers to a tree at the first stages of maturity. (M) Mature refers to a full size tree with some capacity for future growth.

Health: Refers to a trees vigor exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion and the degree of dieback.

Condition: Refers to the tree's form and growth habit, as modified by its environment (aspect, suppression by other trees, soils) and the state of the scaffold (i.e. Trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk / branch junctions. These are not directly connected with health and it is possible for a tree to be healthy but in poor condition.

Decay: (N) – an area of wood that is undergoing decomposition. (V) – decomposition of an area of wood by fungi or bacteria.

Decline: Is the response of a tree to a reduction of energy levels resulting from stress. Recovery from decline is difficult and slow; is usually irreversible.

Defect: A identifiable fault in a tree.

Epicormic Shoots: Shoots that arise from latent or adventitious buds that occur on stems and branches and on suckers produced from the base of the tree. A symptom / result of stress related factors.

Footprint: The area occupied by site structures, including the dwelling driveways and hard surfaces.

Hazard: When a tree failure hazard is present when a tree has potential to cause harm to people or property. (A source of potential harm).

Included Bark: (Inclusion) a genetic weak fault, pattern of development at branch junctions where the bark is turned inwards rather than pushed out, can pose a potential hazard.

Order of branches: First order being those that are the first to extend from the main trunk or codominant limbs, second order branches extend from the first order and third order branches extend from the second order.

Probability: The likelihood of some event happening.

Risk: Is the probability of something adverse happening.

Suppression: Restrained growth pattern from competition of other trees or structures.

Stress: Refers to the response of a tree to the reduction of energy levels resulting from adverse influences such as altered soil conditions (compaction, poor nutrition, reduced oxygen or moisture levels), root damage, toxicity, drought, waterlogging; may be reversible given good arboricultural practices but may lead to decline.

Wound: Damage inflicted upon a tree through injury to its living cells, may continue to develop further weakening of the structure compromising structural integrity.

REFERENCES:

Barrell J. 1993, 'Preplanning Tree Surveys: Safe useful Life expectancy (SULE) is the Natural Progression', *Arboricultural Journal* 17: 1, February 1993, pp. 33-46.

Mattheck, C. & Breloer, H.(1994) *The Body Language of Trees*. Research for Amenity Trees No.4 the Stationary Office, London.

Matheny N. & Clark J. 1998, *Trees & Development 'A Technical Guide to Preservation of Trees During Land Development'* International Society of Arboriculture, Champaign USA.

Standards Australia 2009, *Australian Standards 4970 Protection of Trees on Development Sites* - Standards Australia, Sydney, Australia.

APPENDIX, B: Tree Retention Values

i) Landscape Significance: The significance of a tree in the landscape is a combination of its amenity, environmental and heritage values. The values may be subjective however, offer a visual understanding of the relative importance of the tree to the environment. The Landscape Significance of a tree is described in seven categories to assist in determining the retention value of the tree/s.

1	Significant	3	High	5	Low	7	Insignificant
2	Very High	4	Moderate	6	Very Low		

ii) Risk Values: Determined by degree of defect to tree height & dimensions, tree lean & loading pressures / weight, amount of damage, target area & frequency of occupancy within the target range of tree or tree part failure. Categorised as:

1	High	2	Medium	3	Low
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iii) U.L.E. categories Useful Life Expectancy (modified by the author after Barrell 1996)

In a planning context, the time a tree can expect to be usefully retained is the most important long-term consideration. A trees U.L.E. category is the life expectancy of the tree modified first by its age, health, condition, safety and location. U.L.E. assessments are not static but may be modified as dictated by changes in trees health and environment.

The five categories and their sub-groups are as follows:

- 1. Long ULE** – Tree appeared retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance.
- 2. Medium ULE-** Trees appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance.
- 3. Short ULE-** Trees appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance.
- 4. Very short - Removal-** Trees which should be removed within the next 5 years or as specified within this report.
- 5. Small, young or regularly pruned-** Trees under 5m in height that can be readily moved or replaced.

APPENDIX, C: Tree Assessment Schedule.

Trees requiring immediate removal due to hazardous condition subject to Local Government Authority notification.										Trees with low retention values due to developing defects or being *exempt trees from the LGA Tree Preservation Order (TPO).			
Tree No	Botanical Name COMMON NAME	Height x spread (m)	DBH (mm)	SRZ TPZ	Age	Health	Condition	Significance	Risk	U. L.E.	Comments		
1 CV	Casuarina glauca Swamp She-Oak	3 x 4	250	1.8 3	ESM	Fair / Good	Fair	2	3	3	Council verge tree (CV). Reduced for power line clearance, tree of poor form.		
2	Eucalyptus robusta Swamp Mahogany	14 x 9	550	2.6 6.6	LSM	Good	Fair	2	2	<3	2x Fungal wood decay bracket conks at 5m east, located at main twin stem junction, wound margins increasing, Large diameter deadwood = tree of low retention value		
2A	Eucalyptus robusta Swamp Mahogany	5 x 1.5	100	1.5 2	I	Good	Fair	2	2	<3	Tree result of epicormic shoot extending from past removed stump = tree of low retention value due to poor basal attachment		
*3	Howea forsteriana Kentia Palm	3 x 4	150	- 2	ESM	Good	Good	4	3	3/5	Exempt palm species TPO s) 8.2		
4	Angophora floribunda Rough Barked Apple	12 x 8	500	2.5 6	EM	Fair / Good	Fair / Good	2	2	3	15% fine tip decline, Large diameter deadwood >80mm(0), slight lean north		
5	Angophora floribunda Rough Barked Apple	5 x 4	250	1.8 3	ESM	Fair	Fair / Good	2	2	3	Heavily suppressed tree, low contorted form, 20% die back within canopy		
6	Angophora floribunda Rough Barked Apple	12 x 10	650	2.7 7.8	EM	Fair / Good	Fair / Good	2	2	3>	Typical for species type in age class, slight lean north, 10% decline in canopy, Large diameter deadwood >150mm(0)		
7 NT	Eucalyptus robusta Swamp Mahogany	14 x 11	650	2.7 7.8	EM	Good	Good	2	2/3	3>	Neighboring tree (NT). Appears typical for species type with no significant defects.		
*8	Syagrus romanzofianum Cocos palm	8 x 6	300	- 3	ESM	Good	Good	4/5	3	3	Exempt palm species TPO s) 8.2		
*9	Populus nigra cv. "Italica" Poplar	11 x 25	400	2.3 4.8	ESM	Fair	Fair	5	3/1	4	Exempt tree species TPO s) 7.1 (d) / tree in structural decline		

APPENDIX, C: Tree Assessment Schedule.

Tree No	Botanical Name COMMON NAME	Height x spread (m)	DBH (mm)	Trees requiring removal due to hazardous or dead condition - subject to Local Government Authority notification		Trees with low retention values due to senescence, developing defects or being *exempt trees from the LGA Tree Preservation Order (TPO).				
				SRZ	Age	Health	Condition	Significance	Risk	U. L.E.
				TPZ						
10	<i>Lophostemon confertus</i> Brush Box	13 x 8	750	2.8 9	SM	Good	Fair / Good	4/5	2	2
11	<i>Lophostemon confertus</i> Brush Box	10 x 7	350	2.1 4.2	ESM	Good	Fair / Good	4/5	2	3
12 NT	<i>Liquidambar styraciflua</i> Liquidambar	17 x 14	550	2.6 6.6	ESM	Good?	Fair / Poor	4/3	2	<3
13	<i>Glochidion ferdinandii</i> Cheese Tree	9 x 8	400	2.3 4.8	ESM	Fair / Good	Fair / Good	2	2/3	3
14	<i>Glochidion ferdinandii</i> Cheese Tree	10 x 12	500	2.5 6	EM	Good	Fair / Good	2	2	3
15	<i>Melaleuca quinquenervia</i> Paperbark	18 x 14	1100	3.5 13.2	OM	Fair / Good	Fair	2	2	<3
*16 NT	<i>Ligustrum lucidum</i> Broad Leaved Privet	9 x 7	300, 200	2.4 6	ESM	Good	Fair / Good	5	3	3
16A NT	<i>Pittosporum undulatum</i> Native Daphne	8 x 3	150	1.5 2	ESM	Good	Fair / Good	4/3	3	3
17	<i>Pinus radiata</i> Radiata Pine	13 x 15	750	2.8 9	EM	Fair	Fair	4	2	<3

APPENDIX, C: Tree Assessment Schedule.

Tree No	Botanical Name COMMON NAME	Height x spread (m)	DBH (mm)	Trees requiring removal due to hazardous or dead condition - subject to Local Government Authority notification		Health	Condition	Significance	Risk	U. L.E.	Comments
				SRZ	Age						
				TPZ							
18	<i>Pinus radiata</i> Radiata Pine	13 x 9	650	2.7 7.2	EM	Fair / Poor	Fair	4	2	<3	Significant decline in canopy, very low foliage volume, large diameter deadwood = Low retention value
19 NT	<i>Phoenix canariensis</i> Phoenix Palm	3 x 6	1m	- 3	ESM	Good	Good	4	3	2	Neighbouring palm. Trunk height 3m with no significant defects noted
20 NT	<i>Angophora floribunda</i> Rough Barked Apple	13 x 10	650	2.7 7.8	EM	Fair	Fair / Good	2	2	3	Neighbouring tree. Slight lean west, 15% fine tip decline, slightly low in foliage volume, minor stub wound at 3m west, reaction wood development on lower trunk / small <i>Pittosporum</i> tree at base.
20A	<i>Angophora floribunda</i> Rough Barked Apple	6 x 2.5	250 at base	1.8 3	EWSM	Fair / Good	Fair	2	2	<3	Past topped at 600mm [^] resulting in twin stems of poor attachment
21	<i>Melaleuca styphelioides</i> Leaved Paperbark	9 x 5	200, 200	2.3 4.8	ESM	Good	Fair	4/3	2	<3	Twin stems with sharp angle stem inclusion at basal junction = low retention value tree
22 NT	<i>Ligustrum sinense</i> Small Leaved Privet	6 x 4	100	1.5 2	ESM	Good	Fair / Good	5	3	3	Neighbouring tree. Suppressed canopy with no significant defects noted
23 NT	<i>Cinnamomum camphora</i> Camphor Laurel	11 x 7	400 at base	2.3 4.8	ESM	Good	Fair / Good	4	3	<3	Multi stemmed at base with developing basal stem inclusions = not immediately detrimental
24	<i>Angophora floribunda</i> Rough Barked Apple	12 x 6	400	2.3 4.8	ESM	Fair / Good	Fair / Good	2	2	3	20% decline in canopy, low foliage volume, heavily suppressed canopy bio mass north west
25	<i>Angophora floribunda</i> Rough Barked Apple	11 x 6	350	2.1 4.2	ESM	Fair / Good	Fair / Good	2	2	3	15% decline in canopy, low foliage volume, heavily suppressed with canopy bio mass west & east
*26 - 30	<i>Howea forsteriana</i> Kentia Palm	Average 4 x 3	Av 150	- 1.5	ESM	Good	Good	4/3	3	3/5	Exempt palm species TPO s) 8.2

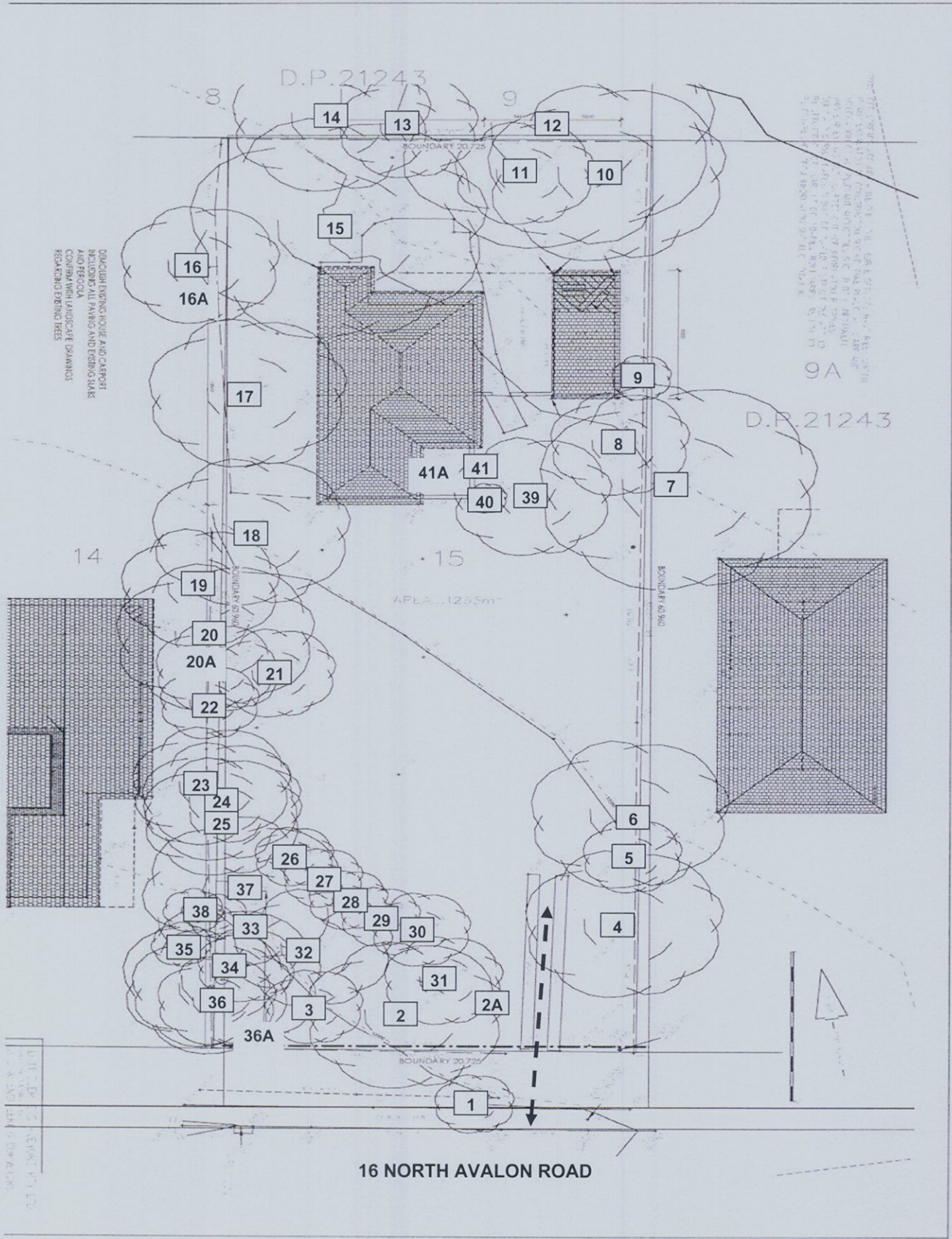
APPENDIX, C: Tree Assessment Schedule.

Tree No	Botanical Name COMMON NAME	Height x spread (m)	DBH (mm)	Trees requiring removal due to hazardous or dead condition - subject to Local Government Authority notification		Trees with low retention values due to senescence, developing defects or being *exempt trees from the LGA Tree Preservation Order (TPO).				
				SRZ	Age	Health	Condition	Significance	Risk	U. L.E.
				TPZ						
*31	<i>Syagrus romanzoffianum</i> Cocos palm	8 x 4	300	-	ESM	Fair / Good	Good	4	3	3
32	<i>Casuarina glauca</i> Swamp She-Oak	16 x 13	500	2	EM	Good	Fair / Good	2	2	<3
				6						
*33	<i>Howea forsteriana</i> Kentia Palm	4 x 5	150	-	ESM	Good	Good	4/3	3	3/5
				2.5						
34	<i>Angophora floribunda</i> Rough Barked Apple	13 x 9	550	2.6	SM	Fair / Good	Good	2	2	3
				6.6						
*35	<i>Cinnamomum camphora</i> Camphor Laurel	7 x 5	200	1.6	ESM	Good	Fair / Good	4	3	3
				2.4						
36	<i>Angophora floribunda</i> Rough Barked Apple	9 x 5	250	1.8	ESM	Fair	Fair / Good	2	2	3
				3						
*36A	<i>Nerium oleander</i> Oleander	4 x 5	Multi 400 at base	-	ESM	Good	Fair / Good	4/3	2/3	3
				4.8?						
37	<i>Angophora floribunda</i> Rough Barked Apple	20 x 13	550	2.6	EM	Fair	Fair	2	2	<3
				6.6						

APPENDIX, C: Tree Assessment Schedule.

Tree No	Botanical/ Name COMMON NAME	Height x spread (m)	DBH (mm)	Trees requiring removal due to hazardous or dead condition - subject to Local Government Authority notification			Trees with low retention values due to senescence, developing defects or being *exempt trees from the LGA Tree Preservation Order (TPO).				
				SRZ	Age	Health	Condition	Signific ance	Risk	U. L.E.	Comments
38 NT	Phoenix canariensis Phoenix Palm	1.5 x 5	550	TPZ		Good	Good	4	3	3/5	Neighbouring palm. Small palm located on boundary recommended for removal to allow adjacent palm west to develop
				-	I						
39	Casuarina glauca Swamp She-Oak	16 x 10	550	2.6	EM	Good	Fair / Poor	2	2/1	<3	Twin stemmed at 2.5m, south stem defective stem inclusion, 2 nd inclusion @ 3m above, lower trunk twisting = low safe retention value.
				6.6							
*40	Beaucarnea recurvata Ponytail Palm	2.5 x 1.5	1m at base	-	SM	Good	Good	4	3	5	Exempt palm species TPO s) 8.2
				1.5							
*41	Rhapis excelsa Rhapis Palm	2.5 x 1	-	-	SM	Good	Good	4/3	3	5	Exempt palm species TPO s) 8.2
				1							
*41A	Howea forsteriana Kentia Palm	6 x 2.5	150	-	ESM	Good	Good	4	2	3	Exempt palm species TPO s) 8.2
				1.25							

APPENDIX D: Tree Location Plan



BASIX®Certificate

Building Sustainability Index www.basix.nsw.gov.au

Single Dwelling

Certificate number: 438303S

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 29/06/2009 published by the Department of Planning. This document is available at www.basix.nsw.gov.au

Director-General

Date of issue: Tuesday, 04 September 2012

To be valid, this certificate must be lodged within 3 months of the date of issue.



Planning &
Infrastructure

Project summary	
Project name	B1365
Street address	16 North Avalon Road Avalon 2107
Local Government Area	Pittwater Council
Plan type and plan number	deposited 8394
Lot no.	15
Section no.	-
Project type	separate dwelling house
No. of bedrooms	5
Project score	
Water	✓ 40 Target 40
Thermal Comfort	✓ Pass Target Pass
Energy	✓ 40 Target 40

THIS PLAN/DOCUMENT FORMS
PART OF FORM BUILDING
CERTIFIERS CC/CDC

Certificate Prepared by	
Name / Company Name:	Gat & Associates
ABN (if applicable):	86 107 515 917

Description of project

Project address	
Project name	B1365
Street address	16 North Avalon Road Avalon 2107
Local Government Area	Pittwater Council
Plan type and plan number	Deposited Plan 8394
Lot no.	15
Section no.	-
Project type	
Project type	separate dwelling house
No. of bedrooms	5
Site details	
Site area (m²)	1263
Roof area (m²)	325
Conditioned floor area (m2)	277
Unconditioned floor area (m2)	26
Total area of garden and lawn (m2)	631

Assessor details and thermal loads	
Assessor number	60501
Certificate number	40304498
Climate zone	56
Area adjusted cooling load (MJ/m².year)	40
Area adjusted heating load (MJ/m².year)	45
Other	
none	n/a
Project score	
Water	✓ 40 Target 40
Thermal Comfort	✓ Pass Target Pass
Energy	✓ 40 Target 40

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 3 star (> 6 but <= 7.5 L/min) in all showers in the development.		✓	✓
The applicant must install a toilet flushing system with a minimum rating of 3 star in each toilet in the development.		✓	✓
The applicant must install taps with a minimum rating of 3 star in the kitchen in the development.		✓	
The applicant must install basin taps with a minimum rating of 3 star in each bathroom in the development.		✓	
Alternative water			
Rainwater tank			
The applicant must install a rainwater tank of at least 9300 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 325.1 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.)		✓ ✓ ✓	✓ ✓ ✓
Swimming pool			
The swimming pool must not have a volume greater than 48.97 kilolitres.	✓	✓	
The swimming pool must have a pool cover.		✓	
The swimming pool must be outdoors.	✓	✓	

Water Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Outdoor Spa			
The spa must not have a volume greater than 7.14 kilolitres.	✓	✓	
The spa must have a spa cover.		✓	

Thermal Comfort Commitments

Simulation Method

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.

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.

Where there is an in-slab heating or cooling system, the applicant must install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab, and underneath the slab if it is a suspended floor.

The applicant must construct the floors and walls of the dwelling in accordance with the specifications listed in the table below.

Floor and wall construction

floor - concrete slab on ground

Area

All or part of floor area square metres

Show on DA plans

Show on CC/CDC plans & specs

Certifier check

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: solar (gas boosted) with a performance of 36 to 40 RECs 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; Energy rating: EER 3.5 - 4.0			✓	✓
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 bedroom: 1-phase airconditioning; Energy rating: EER 3.5 - 4.0			✓	✓
The cooling system must provide for day/night zoning between living areas and bedrooms.			✓	✓
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; 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; Energy rating: EER 3.5 - 4.0			✓	✓
The heating system must provide for day/night zoning between living areas and bedrooms.			✓	✓
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, ducted to façade or roof; Operation control: manual switch on/off			✓	✓
Laundry: natural ventilation only, or no laundry; Operation control: n/a			✓	✓
Artificial lighting				
The applicant must ensure that the "primary type of artificial lighting" is fluorescent or light emitting diode (LED) lighting in each of the following rooms, and where the word "dedicated" appears, the fittings for those lights must only be capable of accepting fluorescent or light emitting diode (LED) lamps:				
• at least 6 of the bedrooms / study;			✓	✓
• at least 3 of the living / dining rooms;			✓	✓

Energy Commitments		Show on DA plans	Show on CC/CDC plans & specs	Certifier check
- the kitchen; - all bathrooms/toilets; - the laundry; - all hallways;			✓	✓
			✓	✓
			✓	✓
			✓	✓
Natural lighting				
The applicant must install a window and/or skylight in the kitchen of the dwelling for natural lighting.		✓	✓	✓
The applicant must install a window and/or skylight in 5 bathroom(s)/toilet(s) in the development for natural lighting.		✓	✓	✓
Swimming pool				
The applicant must install the following heating system for the swimming pool in the development (or alternatively must not install any heating system for the swimming pool): solar (gas boosted)			✓	
The applicant must install a timer for the swimming pool pump in the development.			✓	
Outdoor spa				
The applicant must install the following heating system for the spa in the development (or alternatively must not install any heating system for the spa): gas			✓	
The applicant must install a timer for the spa pump in the development.			✓	
Alternative energy				
The applicant must install a photovoltaic system with the capacity to generate at least 2.6 peak kilowatts of electricity as part of the development. The applicant must connect this system to the development's electrical system.		✓	✓	✓
Other				
The applicant must install a gas cooktop & electric oven in the kitchen of the dwelling.			✓	
The applicant must construct each refrigerator space in the development so that it is "well ventilated", as defined in the BASIX definitions.			✓	
The applicant must install a fixed outdoor clothes drying line as part of the development.			✓	

Energy Commitments				Certifier check
The applicant must install a fixed indoor or sheltered clothes drying line as part of the development.				✓

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.

Levy Online Payment Receipt

Building and Construction

ANTHEA VALLIS
68 MARINE PARADE
AVALON NSW 2107

THIS PLAN / DOCUMENT FORMS
PART OF FORM BUILDING
CERTIFIERS CC / CDC



Long Service
CORPORATION

Long Service Corporation
Level 1
19-21 Watt Street
Gosford NSW 2250
Locked Bag 3000
Central Coast MC NSW 2252
Tel: 13 14 41
Fax: (02) 9287 5685
Email: info@longservice.nsw.gov.au
www.longservice.nsw.gov.au
ABN 93 646 090 808

Application Details:

Applicant Name:	ANTHEA VALLIS
Levy Number:	5057591
Application Type:	DA
Application Number:	NO2612-12
Approving Authority:	PITTWATER COUNCIL

Work Details:

Site Address:	16 NORTH AVALON ROAD AVALON NSW 2107
Value of work:	\$850,000
Levy Due:	\$2,975.00

Payment Details:

LSC Receipt Number:	155239
Payment Date:	8/01/2014 10:36:20 AM
Bank Payment Reference:	733697409
Levy Paid:	\$2,975.00
Credit card surcharge:	\$11.90
Total Payment Received:	\$2,986.90



Fair
Trading

Tel 13 32 20
TTY 02 9338 4943
ABN 81 913 830 179
www.fairtrading.nsw.gov.au

Anthea Vallis
68 Marine Pde
AVALON BEACH NSW 2107

HOME BUILDING ACT 1989

OWNER BUILDER PERMIT

Permit : 408172P
Receipt: 10000025216-01

Issued : 08/01/2014
Amount: \$163.00

THIS PLAN / DOCUMENT FORMS
PART OF FORM BUILDING
CERTIFIERS CC / CDC

BUILDING SITE

16 North Avalon Rd, AVALON BEACH, NSW 2107 AUSTRALIA

AUTHORISED BUILDING WORK

Development application for demolition of the existing dwelling and construction of a new dwelling and swimming pool as DA approval

Authority No : DA-N0262/12
Council Area : COUNCIL

Should the property be sold within 6 years of completion of the work it will be necessary to obtain home warranty building insurance from approved insurers if the value of the work was greater than \$20,000. A certificate of insurance must be attached to any contract of sale.

You should obtain professional advice from general insurers regarding public liability and property damage cover, etc.

Note: This permit is only valid when an official receipt has been imprinted.
If payment is made by cheque, the permit is conditional on the cheque being met on presentation. *GST amount included in total fee: \$0.00

Rod Stowe
Commissioner for Fair Trading



Issuing officer

***** END OF PERMIT *****

A division of the Department of Finance and Services

Application for Access Driveway Profiles

PLEASE PRINT

Applicant / Owner : ANTHEA VALLISCompany Name : (if applicable): -Postal Address : 68 MARINE PARADE, AVALON Postcode: 2107Phone (Work) : 9918 7655 Phone (Mobile): 0414 407 947

Applicant

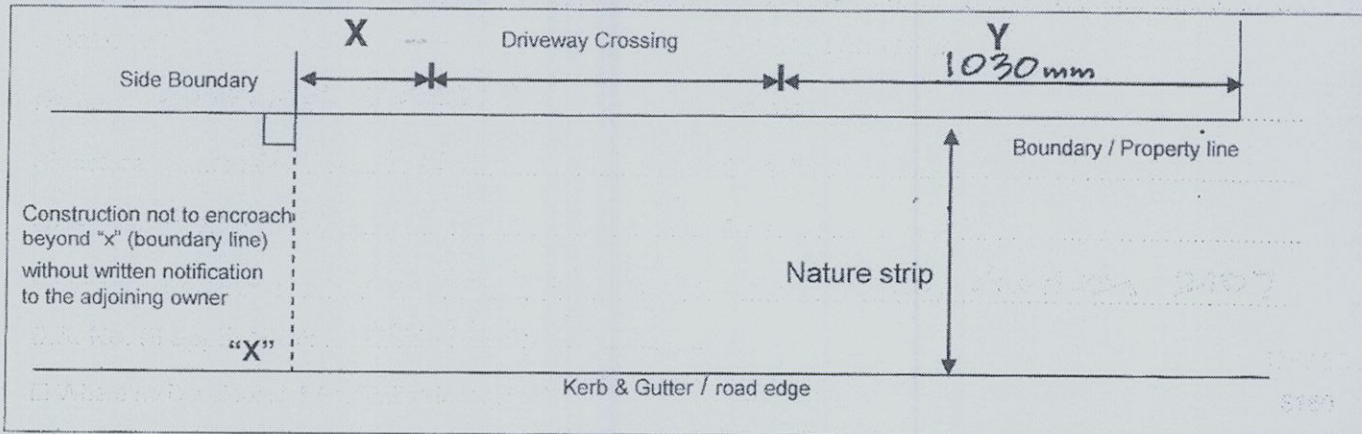
Owners consent

Name: ANTHEA VALLIS Name: _____Signature: [Signature] Signature: _____Date: 27.11.13 Date: _____Property Address: 16 NORTH AVALON ROAD, AVALON 2107D.A. No. (if applicable): No 262/12☐ Where no Development Application is required**☒ Residential - single dwelling, dual occupancy development only** (in assoc. with a Development Consent)☐ All development other than residential - single dwelling, dual occupancy** (in assoc. with a Development Consent)

I hereby apply for driveway profiles at the above address.

Note: Indicate significant trees on nature strip. If removal of trees is proposed, applicant will need approval of Tree Preservation Officer.

Insert either X or Y distance from boundary to proposed driveway:

**Notes:**

1. The application WILL NOT be considered until the required fees have been paid.
2. This application does NOT constitute an approval to proceed with any work.
3. An Application for 139 Consent to Work in the Public Road Reserve (Form No. UEA311) must be completed and approved by Council prior to works commencing.
4. ** Special treatment includes any of: retaining structures, stairs or landscape treatment
5. Applicants must check whether they need to lodge a Development Application in respect of this application. Please refer to Pittwater 21 DCP, Exempt and Complying Development.

Office Use Only: (1.7.13 – 30.6.14)

Fees: No D.A. \$160.00

D.A. \$215.00

All Other D.A. \$370

CODE: ESTR Application

Late Fee: \$770 when work commenced prior to obtaining Consent

FEE: \$215.00

RECEIPT NO: R/354832

ISSUED BY:

DATE: 15/1/2013

Incoming application updated

Referred to Compliance Admin Assistant

Proclaim updated

Profile letter issued and changed to OUTCORW

Enquiries: Please contact Boondah Works Depot. Ph: (02) 9970 1180

PITTWATER COUNCIL

THIS PLAN / DOCUMENT FORMS
PART OF FORM BUILDING
CERTIFIERS CC / CDC

UEA311

Application for Section 139 Consent to Work in a Public Road Reserve (including Driveways)

PLEASE PRINT

Applicant / Owner: ANTHEA VALLIS

Company Name (if applicable): N/A

Postal Address: 68 MARINE PARADE, AVALON Postcode: 2107

Phone (Work): 9918 7655 Phone (Mobile): 0414 407 947

Applicant Name: ANTHEA + ROSS VALLIS Owners consent Name: ANTHEA VALLIS

Signature: [Signature] Signature: [Signature]

Date: 13.11.13 Date: 13.11.13

Property Address: 16 NORTH AVALON RD, AVALON NSW 2107

Development Application (DA) No. (where applicable): NO 262/12

Nature of Work: ☒ Driveway ☐ Retaining wall (specify type)
 ☐ Road pavement ☐ Stairs ☐ Footpath paving ☐ Landscape treatment
 ☐ Kerb and gutter ☐ Other (please specify) _____

Plans are to be attached Yes / No

Description of works: DEMOLITION OF EXISTING DWELLING + CONSTRUCTION OF NEW DWELLING AND SWIMMING POOL.

Note A: Residential - single dwelling & dual occupancy in association with a Development Consent

Note B: Other than residential - single dwelling and dual occupancy in association with a Development Consent

FEES

	No DA required	DA (see Note A)	DA (see Note B)
Access Driveway only across road reserve (boundary to pavement edge) and Landscape Treatment (includes 2 site inspections) per allotment.	\$270	<u>\$320</u>	\$370
Access Driveway and/or retaining structures / stair structures / special landscape treatment (includes 2 site inspections) per allotment	\$430	\$430	\$640
Fee per additional site inspection	\$270	\$270	\$270

Notes:

1. **This application will not be considered until the required fees have been paid.**
2. This application does **NOT** constitute an approval to commence or proceed with any work.
3. A Section 139 Consent is required under the Roads Act 1993.
4. Following payment of the required fees, the application will be assessed by Council's Urban Infrastructure Business Unit. If the application is approved, a written consent, including conditions, will be issued by the Road Authority (Council).
5. **WORK MAY ONLY COMMENCE FOLLOWING RECEIPT OF THE WRITTEN CONSENT FROM COUNCIL. THE CONSENT MUST BE KEPT ON SITE AT ALL TIMES DURING THE WORKS.**

Office Use Only: (1.7.2013 – 30.6.2014)

CODE: EREC

Late Fee: \$770 when work commenced prior to issue of Section 139 Consent

FEE: \$320.00 RECEIPT NO: 351618 ISSUED BY: [Signature] DATE: 14/11/13

Enquiries: - please contact Boondah Works Depot Ph: (02) 9970 1180

NOTE TO CUSTOMER SERVICE:

PHOTOCOPY APPLICATION FORM AND STAPLE WITH RECEIPT FOR CUSTOMER'S RECORD