



Council
Copy

ABN: 92 161 548 625
PO Box 80, Thornleigh NSW 2120
ph: 9473 5488 fax: 9980 2166

CONSTRUCTION CERTIFICATE No:

X2014-/01797

RECEIVED

27 FEB 2015

PITTWATER COUNCIL

Signature:  Dom Di Matteo
I certify that work completed in accordance with documentation accompanying the application for the Certificate (with such modifications verified by the certifying authority as may be shown on that documentation) will comply with the requirements of this Regulation as are referred to in Section 81A(5) of the Act. Issued in accordance with the provisions of the Environmental & Assessment Act of 1979 under Sections 109C(1)(b) and 109F

Approval Date: 25/02/2015

Date Application Received: 07/01/2015

Application Date: 18/02/2015

Council: Pittwater Council

Development Consent No: N0430/14

Approval Date: 19/12/2014

Name of Certifying Authority:

Dom Di Matteo

Accreditation No:

1869

Accreditation Body:

BUILDING PROFESSIONALS BOARD

Applicant: Tim Rutherford
Address: 135 Rickard Road North Narrabeen NSW 2101
Contact Number: 0424 672 332

Owner: Tim Rutherford & Charlotte McManus
Address: 135 Rickard Road Narrabeen NSW 2101
Contact Number: 0424 672 332

Site Address: Lot 74 DP 16212 - 135 Rickard Road North Narrabeen NSW 2101

Description of Development: Additions to the Dwelling involving internal renovations, proposed decks and reduction in bulk

Building Code of Australia Classification: 1a & 10a

Value of Work: \$81950.00

Builder Details

Name: Timothy Rutherford
Licence / Permit Number: 418755P
Address: 135 Rickard Rd North Narrabeen 2101
Contact Number: 0424 672 332

Approved Plans and Documents

Plans Prepared By	Drawing Nos.	Dated
Inner Living Pty Ltd	Ref RA1014, Sheet 1 - 6, Issue A	Oct 2014
KC Trojan Plumbing - Compliance Certificate & Drainage Plan	Page 1 - 2	19/02/2015
Schedule of Finishes	Page 1 - 1	Undated
BASIX Certificate	A203527	27/10/2014

Engineer Details	Drawing Nos.	Dated
Gilcon Structural Engineers	Job 15056, Sheet S01 - S03, Issue A	18/02/2015
Jack Hodgson Consultants Pty Limited - Geotechnical Risk Management Report	Page 1 - 15	14/11/2014
Gilcon Structural Engineers - Form 2 Geotechnical Risk Management Policy for Pittwater	Page 1 - 2	20/02/2015

836 REC: 375133 27/2/15



Notice to council of determination of application for a certificate

Council
Copy

NOTICE TO (Insert council's details and address)

Council name

Pittwater Council

SECTION A. NOTICE

As required by clause 142(2) of the EP&A Regulation 2000 (the Regulation), notice is hereby given of the determination of the following application:

Applicants name

Tim Rutherford

Development address

Lot 74 DP 16212 - 135 Rickard Road North Narrabeen NSW 2101

Date received

07/01/2015

Date determined

25/02/2015

SECTION B. Attachments (tick appropriate box(es))

☒ Application for construction certificate

☒ Determination of application

☒ Construction Certificate

☒ Record of inspection made under clause 143B of the Regulation

☒ Other endorsed documents lodged with the application for the certificate or received under clause 140 of the Regulation

SECTION C. Certifying Authority

Name

Domenic Di Matteo

Signature

Accreditation No.

1869

Date 25/02/2015



Fair
Trading

Council
Copy

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

OWNER BUILDER PERMIT

HOME BUILDING ACT 1989

Timothy Rutherford
135 Rickard Rd
NORTH NARRABEEN NSW 2101

Permit: 418755P
Issued: 12/02/2015

Receipt: 10000231364-01
Amount: \$168.00

BUILDING SITE: 135 Rickard Rd, NORTH NARRABEEN, NSW 2101
AUSTRALIA

AUTHORISED BUILDING WORK Additions to the dwelling involving internal renovations, proposed decks and reduction in bulk.

AUTHORITY NUMBER: DC-N0430/14

COUNCIL AREA: PITTWATER (S) COUNCIL

PERSONS WITH A PRESCRIBED INTEREST IN THE LAND:

MS CHARLOTTE ANN MCMANUS
MR TIMOTHY JAMES RUTHERFORD

Rod Stowe
Commissioner for Fair Trading

Issuing officer

CAUTION: AS THE HOLDER OF AN OWNER-BUILDER PERMIT YOU MUST NOW ADVISE YOUR CERTIFYING AUTHORITY (COUNCIL OR PRIVATE CERTIFIER) OF YOUR OWNER-BUILDER PERMIT NUMBER AND DATE OF ISSUE.

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

	1	3	3	3	none	
NW						standard aluminum, angle lined (or black, 7.5, SHQC-0.75)
NE	4.2	0	0		sew/Venturi/pergulfactory ≤600 mm	improved aluminum, single clear (U-value: 6.44, SHQC-0.75)
SE	1.08	4.3	2.4		none	standard aluminum, single clear (U-value: 7.63, SHQC-0.75)
SE	1.8	0	0		none	standard aluminum, single clear (U-value: 6.9, SHQC-0.75)
SW	1.62	0	0		sew/Venturi/pergulfactory ≤600 mm	standard aluminum, single clear (U-value: 6.83, SHQC-0.75)
NE	8.48	0	0		sew/Venturi/pergulfactory ≤600 mm	improved aluminum, single clear (U-value: 6.44, SHQC-0.75)
SE	1.05	0	0		sew/Venturi/pergulfactory ≤600 mm	improved aluminum, single clear (U-value: 6.44, SHQC-0.75)
SW	5.04	0	11.3		sew/Venturi/pergulfactory ≤650 mm	improved aluminum, single clear (U-value: 6.44, SHQC-0.75)
SW	2.16	0	11.5		sew/Venturi/pergulfactory ≤650 mm	improved aluminum, single clear (U-value: 6.44, SHQC-0.75)
NW	0.72	1.95	4.47		sew/Venturi/pergulfactory ≤650 mm	improved aluminum, single clear (U-value: 6.44, SHQC-0.75)
NW	1	1.95	4.47		sew/Venturi/pergulfactory ≤650 mm	improved aluminum, single clear (U-value: 6.44, SHQC-0.75)
NE	12	0	0		finning (fixed) ≤800 mm	improved aluminum, single clear (U-value: 6.44, SHQC-0.75)

WT	SW	1	3	9	none	
W1	WE	4.2	0	0	0	standard aluminum, single clear, (1-wave)
W2	WE	4.2	0	0	0	improved aluminum, single clear, (1-wave)
W3	SE	1.08	4.3	2.4	0	standard aluminum, single clear, (1-wave)
W4	SE	1.8	0	0	0	improved aluminum, single clear, (1-wave)
W5	SW	1.21	0	0	0	standard aluminum, single clear, (1-wave)
W6	SW	8.08	0	0	0	improved aluminum, single clear, (1-wave)
W7	WE	1.05	0	0	0	standard aluminum, single clear, (1-wave)
W8	SW	5.04	10	1.3	0	improved aluminum, single clear, (1-wave)
W9	SW	2.16	0	11.5	0	standard aluminum, single clear, (1-wave)
W10	NW	0.72	1.95	4.47	0	improved aluminum, single clear, (1-wave)
W11	NW	1	1.95	4.47	0	standard aluminum, single clear, (1-wave)
W12	NE	12	0	0	0	improved aluminum, single clear, (1-wave)

PROPOSED TIMBER
STAIRS AND RAISED
RAMP FOR ACCESS TO
REAR YARD

SNAKE DETECTOR TO BE
INTERCONNECTED AS PER
PART 3.7.2.2 VOL 2 SBCA

This plan/document forms part of the
Approved Construction Certificate

2014/01797

Issued by DM Certifiers P/L SPB 1869

APPROVED DEVELOPMENT
CONSENT PLANS

NOTE: THESE PLANS MUST BE READ IN CONJUNCTION WITH THE CONDITIONS OF DEVELOPMENT CONSENT.

THIS APPROVAL DOES NOT AUTHORISE ANY
WORKS ON THE ADJACENT ROAD RESERVE
OR ANY COUNCIL RESERVE.

**SUB-FLOOR
PLAN 1:100**

900 DEEP SHADING AS
PER BASIS

GROUND FLOOR PLAN 1:100

PROPOSED RENOVATIONS & DECKS
at 135 RICKARD ROAD,
NORTH NARRABEEN for
T. RUTHERFORD & C. McMANUS.

Designed by: Inner Living Pty Ltd
P. O. Box 455, Wahroonga NSW 2076.

Date: October 2014

Reference: RA1014

Issue: 'A'

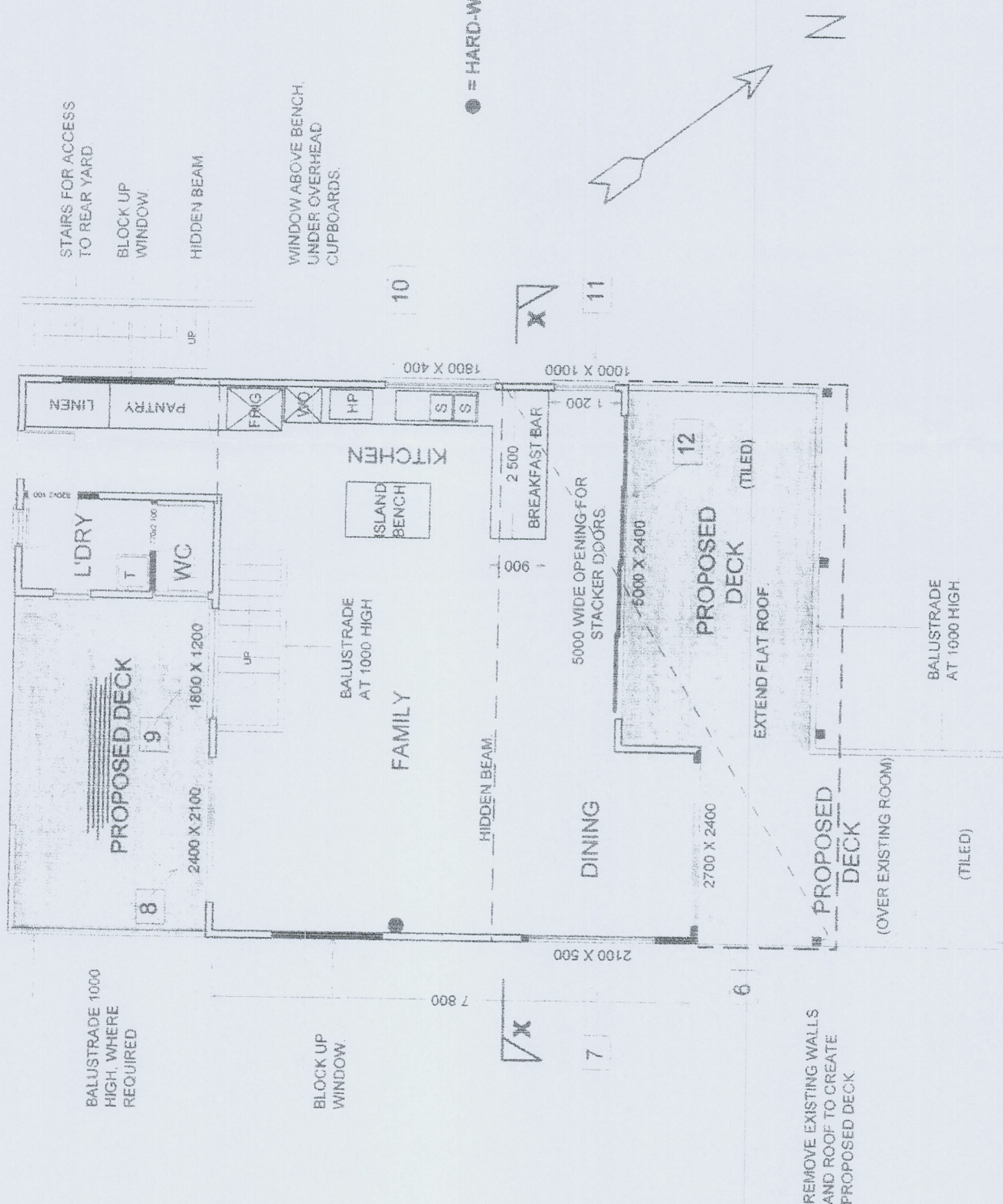
Sheet no. of 6.

Issued by DM Certifiers P/L BPB 1869

THIS APPROVAL DOES NOT AUTHORISE ANY
WORKS ON THE ADJACENT ROAD RESERVE
OR ANY COUNCIL RESERVE.

Sheet 2 of 6.

FIRST FLOOR PLAN 1:100



Issued by DM Certifiers P/L BPB1869

● = HARD-WIRED SMOKE DETECTORS.

PLTWATER COOLC

APPROVED DEVELOPMENT
CONSENT PLANS

NOTE: THESE PLANS MUST BE READ IN CONJUNCTION WITH THE CONDITIONS OF DEVELOPMENT CONSENT.

THIS APPROVAL DOES NOT AUTHORISE ANY
WORKS ON THE ADJACENT ROAD RESERVE
OR ANY COUNCIL RESERVE.

PROPOSED RENOVATIONS & DECKS
at 135 RICKARD ROAD,
NORTH NARRABEEN for
T. RUTHERFORD & C. McMANUS.

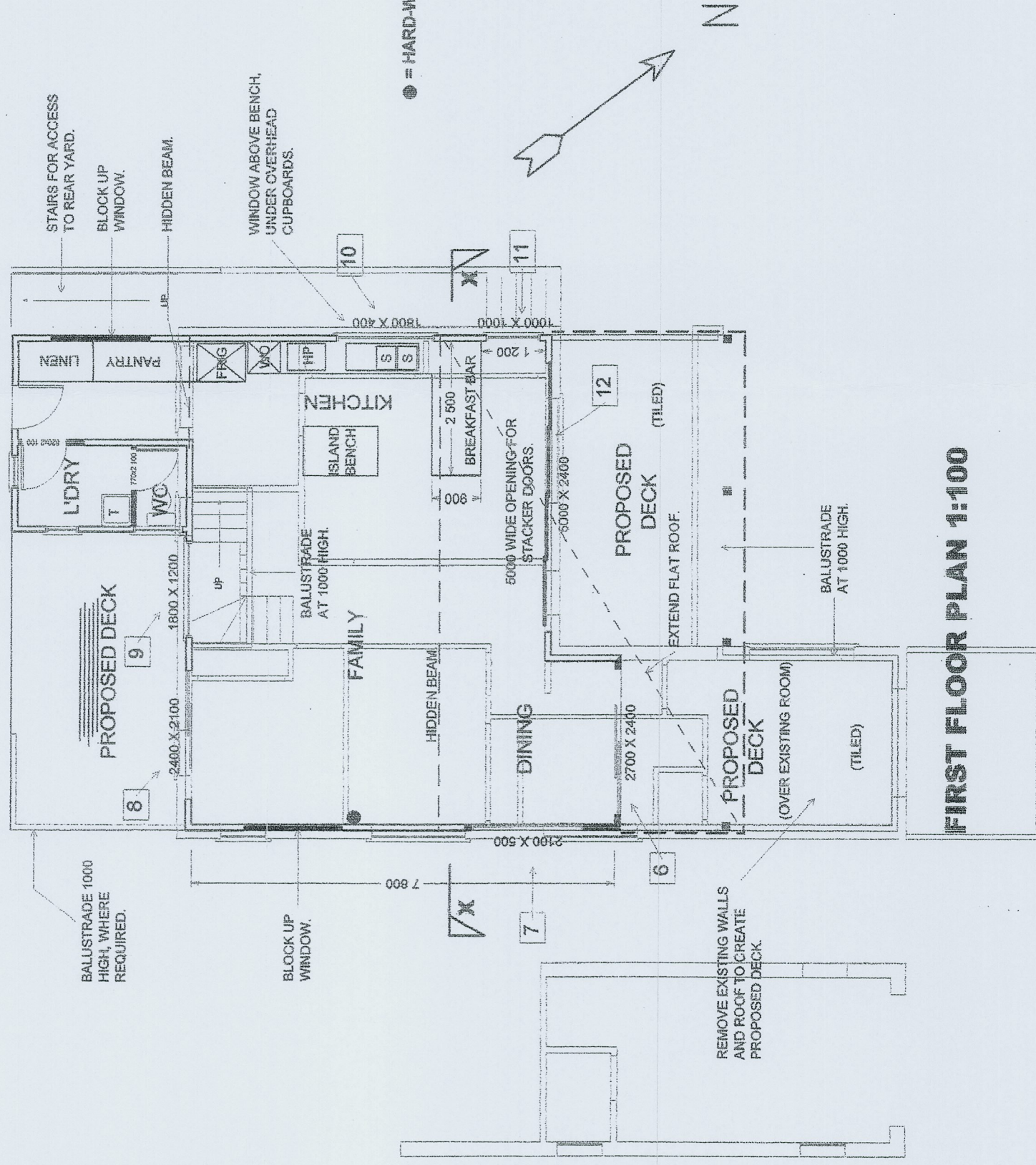
Designed by: Inner Living Pty Ltd
P. O. Box 455, Wahroonga NSW 2076.

Date: October 2014

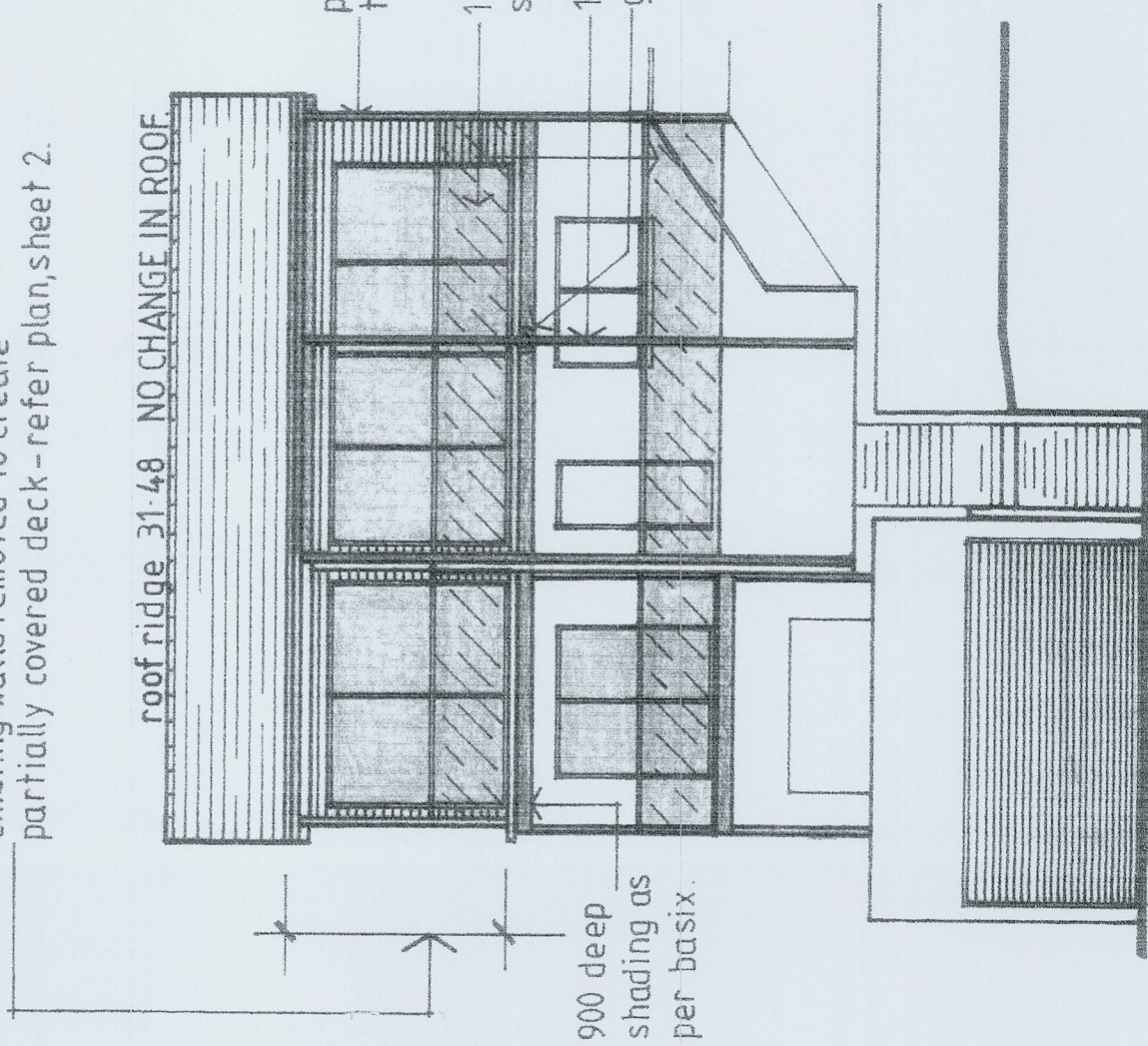
Reference: RA1014

Issue: 'A'

Sheet 3 of 6.



existing walls removed to create partially covered deck - refer plan, sheet 2.



posts and beams to upper deck to engineer's details.

1.0m high selected clear safety glass balustrades.

100x75 d.p. gutter connected to d.p.

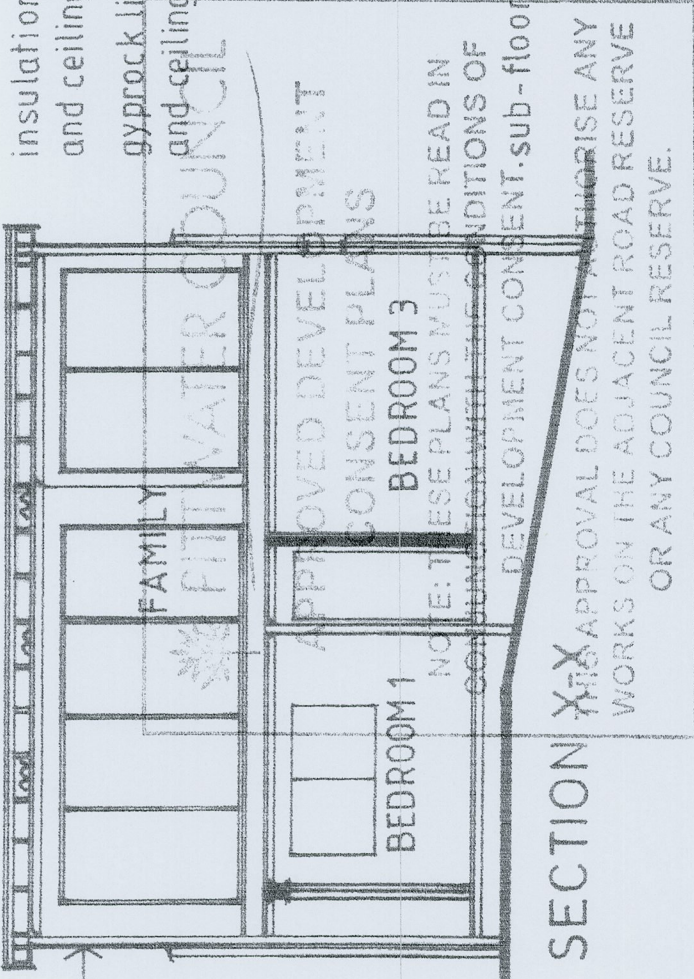
weathertex lining.

2700
existing

2700
existing

insulation to walls and ceilings as per basix.

gyprock lining to walls and ceilings.



SECTION XX

APPROVAL DOES NOT AUTHORISE ANY WORKS ON THE ADJACENT ROAD RESERVE OR ANY COUNCIL RESERVE.

PROPOSED RENOVATIONS & DECKS
at 135 RICKARD ROAD,
NORTH NARRABEEN for
T. RUTHERFORD & C. McMANUS.

Designed by: Inner Living Pty Ltd
P. O. Box 455, Wairoonga NSW 2076.

Date: October 2014

Reference: RA1014

Issue: 'A'

Sheet 4 of 6.

ISSUE ON REQUIREMENTS

The applicant must construct the new or altered construction (floors), walls, and ceilings/roofs in accordance with the specifications listed in the table below, except that an additional insulation is not required where the area of new construction is less than 2m². In insulation specified it not required for parts of altered construction where insulation already exists.

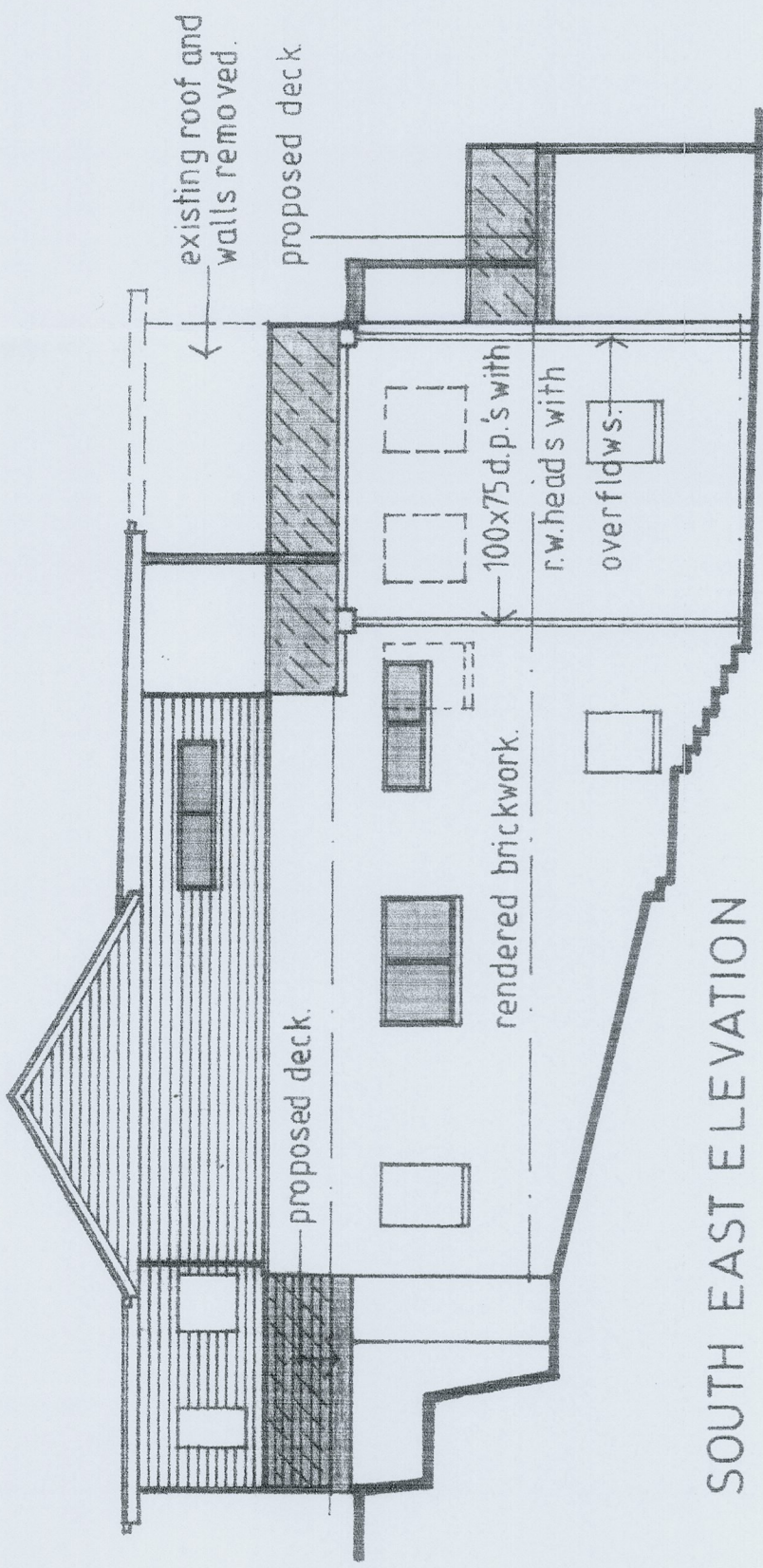
superficial floor with enclosed subfloor (R6.0)	R10.0 (Down) (or R1.30 including construction)	ceiling: R6.0 (Up), roof: full backed batten (75 mm)	light (air) resistance < 0.475
for existing pitched roof			

This plan/document forms part of the
Approved Construction Certificate

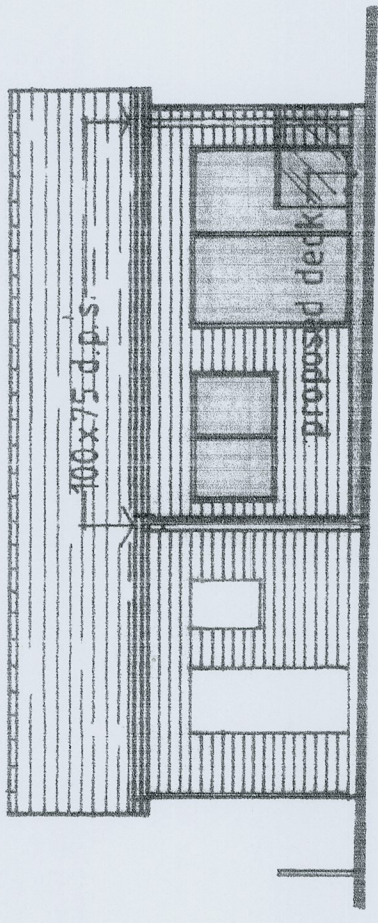
2014/01797

Issued by DM Certifiers P/L BPB 1869

selected colorbond fixed as per manufacturer's specification on rafters at 600 ctrs all to engineer's details.



SOUTH EAST ELEVATION



SOUTH WEST ELEVATION

This plan/document forms part of the
Approved Construction Certificate

2014/01797

Issued by DM Certifiers P/L BPB 1869

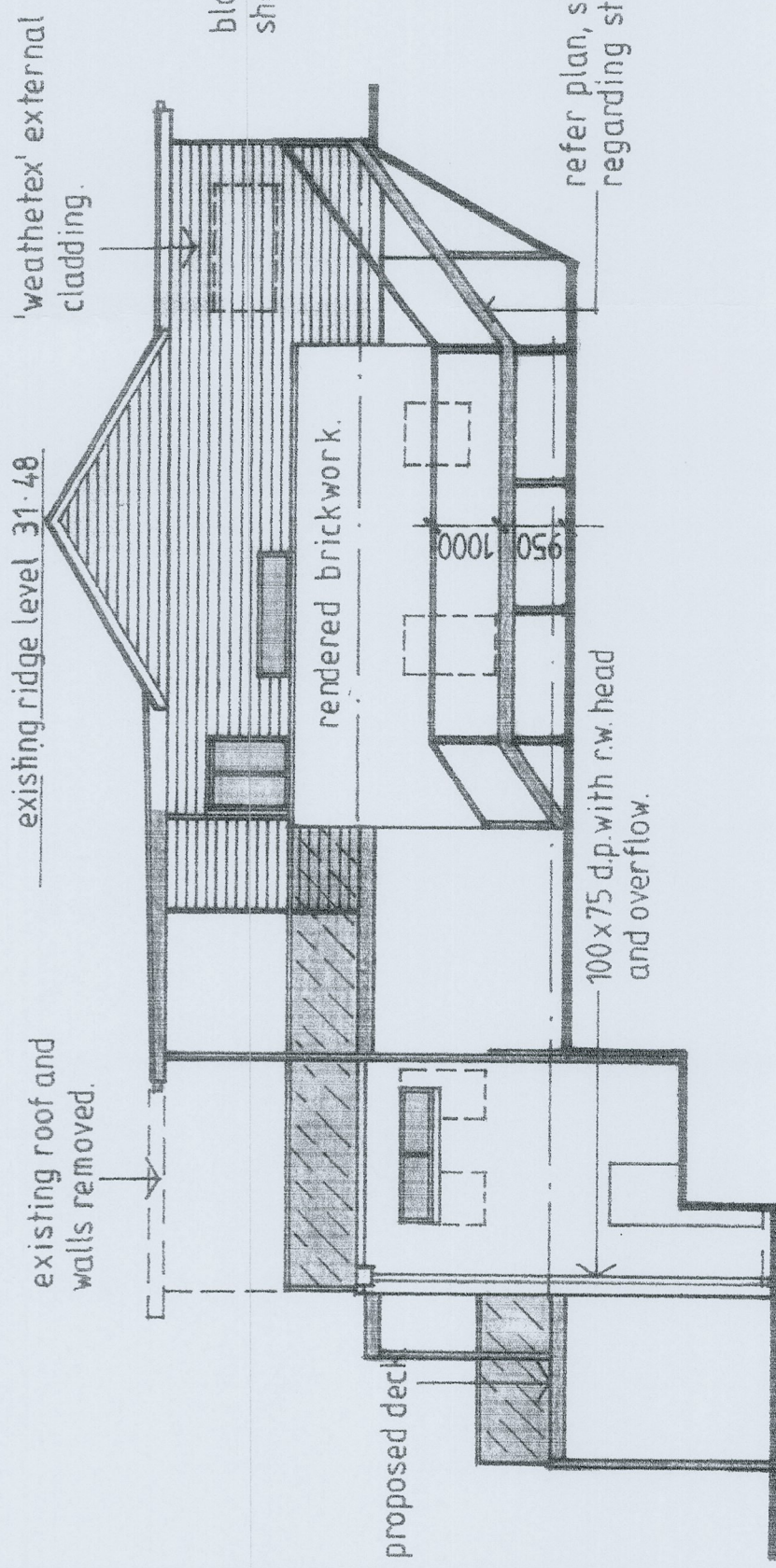


APPROVED DEVELOPMENT CONSENT PLANS

NOTE: THESE PLANS MUST BE READ IN
CONJUNCTION WITH THE CONDITIONS OF
DEVELOPMENT CONSENT.

THIS APPROVAL DOES NOT AUTHORISE ANY
WORKS ON THE ADJACENT ROAD RESERVE
OR ANY COUNCIL RESERVE.

blocked up windows
shown dotted.



NORTH WEST ELEVATION 1:100

PROPOSED RENOVATIONS & DECKS
at 135 RICKARD ROAD,
NORTH NARRABEEN for
T. RUTHERFORD & C. McMANUS.

Designed by: Inner Living Pty Ltd
P.O. Box 455, Wahroonga NSW 2076.

Date: October 2014

Reference: RA1014

Issue: 'A'

Sheet 5 of 6.



proposed upper
level decks.

proposed stairs.

proposed
lower deck.

This plan/document forms part of the
Approved Construction Certificate
2014/01797

Issued by DM Certifiers P/L BPB 1869

PITTSWATER COUNCIL

APPROVED DEVELOPMENT
CONSENT PLANS

NOTE: THESE PLANS MUST BE READ IN
CONJUNCTION WITH THE CONDITIONS OF
DEVELOPMENT CONSENT.

THIS APPROVAL DOES NOT AUTHORISE ANY
WORKS ON THE ADJACENT ROAD RESERVE
OR ANY COUNCIL RESERVE.

RICKARD ROAD

CONCRETE DRIVEWAY

LOT 75
DP 16212

LOT 74
DP 16212

DOUBLE STOREY
BRICK RESIDENCE
No.137

DOUBLE STOREY
BRICK RESIDENCE
No.135

DOUBLE STOREY
BRICK RESIDENCE
No.133

LOT A
DP 375049

SITE PLAN 1:200 AHD
STORMWATER CONNECTED TO EXISTING
SYSTEM AND TAKEN TO STREET KERB.

PROPOSED RENOVATIONS & DECKS
at **135 RICKARD ROAD,**
NORTH NARRABEEN for
T. RUTHERFORD & C. McMANUS.

Designed by: Inner Living Pty Ltd
P. O. Box 455, Wahrenga NSW 2076.

Date: October 2014

Reference: RA1014

Issue: 'A'

Sheet 6 of 6.

ALTERATIONS AND ADDITIONS AT 135 RICKARD ROAD, NORTH NARRABEEN

GENERAL:

- These drawings shall be read in conjunction with all architectural and other consultants drawings and specifications and with such other written instruction as may be issued during the course of the contract. Any discrepancy shall be referred to the superintendent before proceeding with the work.
- All materials and workmanship shall be in accordance with the relevant and current Australian Standards and the building code of Australia except where varied by the project specification
- All dimensions shown shall be verified by the builder on site. Engineers drawings shall NOT be scaled for dimensions.
- During construction the structure shall be maintained in a stable condition and no part shall be overstressed. Temporary bracing shall be provided by the builder to keep the works and excavations stable at all times.
- The builder shall locate all existing services prior to commencement of construction.

FOOTINGS AND FOUNDATIONS:

- Refer to drawing S3 for design allowable bearing pressure. Foundation material shall be approved to this pressure before placing concrete footing.
- Footing shall placed centrally under walls & columns unless otherwise noted.
- Site is to be stripped of all organic matter & associated top soil.
- Fill used in the construction of slab on ground shall consists of a controlled fill or rolled fill in accordance with AS 2870.
 - Rollled fill consists of material compacted in layers by repeated rolling with an excavator, rolled fill shall NOT exceed 600mm compacted in layers not more than 300mm for stand material 400mm compacted in layers.
 - Controlled fill consists of well graded sand fill up to 800mm deep, well compacted in not more than 200mm layers by vibrating plate or vibrating rolled, no stand fill up to 400mm deep well compacted is not more than 150 layers by a material roller, clay fill should be moist during compaction.

FRAMING AND BRACING

- Roof - Diagonal speed bracing throughout roof, screw fix to each purlin and securely fasten to top plate/beam at ends.
- Stud walls - Strap top & bottom plate to a minimum of every second stud secure floor plate to slab below with m16 anchors or secure every second stud to floor bearers below
- Masonry walls - Fasten top plate to brickwork using roof straps similar to brunswick mfa22 at a minimum of 1200mm spacing anchored 10 courses down. Provide straps each side of all openings provide additional hold downs as detailed
- Vertical bracing - Provide vertical bracing in accordance with AS1684, provide additional vertical bracing where shown and as detailed on these drawings.

TIMBER NOTES:

- All timber design, construction and material to be to AS1720.1 and AS1720.2.
- AS1684 shall be applied to domestic construction in sheltered locations
- Softwood to be minimum grade F7 or MG10 U.N.O. Hardwood to be minimum grade F11.
- All bolts in timber construction to be minimum M16 U.N.O. Bolt holes to be drilled exact size. Washers under heads and nuts to be at least 2.5 times bolt diameter.
- Timber dimensions on the finished width and thickness to be:
Seasoned Softwood +5, -0mm
Unseasoned Softwood >F7+3, -3mm
less than or equal to F7+2, -4mm
Seasoned Softwood +2, -0mm
Unseasoned Softwood +3, -3mm (see also clause 1.6.2. in AS2082)
- All timber joint and notches are to be 100mm minimum away from loose knots, severe sloping grain, gum veins or other minor defects.

STRUCTURAL STEELWORK NOTES:

- All Work and Materials to be in accordance with AS 4100.
- Unless noted otherwise
 - Use 10mm thick gusset, fin & end plates welded all round.
 - All welds 6mm continuous fillet.
 - All bolts 20 mm dia. UNO
 - All bolts including holding down bolts are to be hot dip galvanised.
 - All fillet welds to be category GP UNO
 - Butt weld all flanges at end plates and at all mitre cuts. Butt weld all stiffener plates to flanges only.
 - All connections to have a minimum of 2 bolts.
 - Studs fabricated to AS1554.2.
- All shear studs (composite slab to steel) grade 410 MPa.
- All threaded studs (steel to steel) grade 380 MPa.

- Bolting categories are identified on the drawings in the following manner.
 - 4.6/S Commercial bolts of grade 4.6 snug tightened.
 - 8.8/S high strength bolts of grade 8.8 snug tightened.
 - 8.8/TB high strength bolts of grade 8.8 fully tensioned to AS4100 as a bearing type joint.
 - 8.8/TF high strength bolts of grade 8.8 fully tensioned to AS4100 as a friction type joint with faying surfaces left uncoated.
- Note: Grade 8.8 bolts are NOT to be welded.
- Chip all welds free of slag.
- Contractor is to confirm with Architect as to where exposed welds are to be ground flush / smooth.
- Provide temporary bracing to maintain stability of steelwork during construction.
- Do not grout under base plates until first level steelwork is plumb and fixed by welding or bolting.
- All Structural Steel shall have a surface treatment in accordance with AS2312:2002. Generally internal steel should be wire brush cleaned and painted with a suitable paint. External steel should be galvanised or applied with a suitable paint in accordance with manufacturers specification (usually sand blast clean surface treatment) and guaranteed for a minimum of 10 years

TERMITE PROTECTION:

- All works to be in accordance with AS 3660. 1-1995.
- All concrete to be mechanically vibrated during pour.
- 75mm clear smooth concrete to be exposed around entire perimeter af slab.
- Crushed granite or stainless steel mesh to be used around all pipe penetrations in accordance with the manufacturer's Specifications.
- Inspections of the residence and immediate surrounds to be carried out by a qualified pest expert on an annual basis.
- Any future cracking occurring in the slab is to be assessed by a qualified pest expert and where directed be sealed by epoxy injection.
- Site maintenance is the responsibility of the home owner.

All recommendations outlined by the C.S.I.R.O. in sheet 10-91 to be carried out.

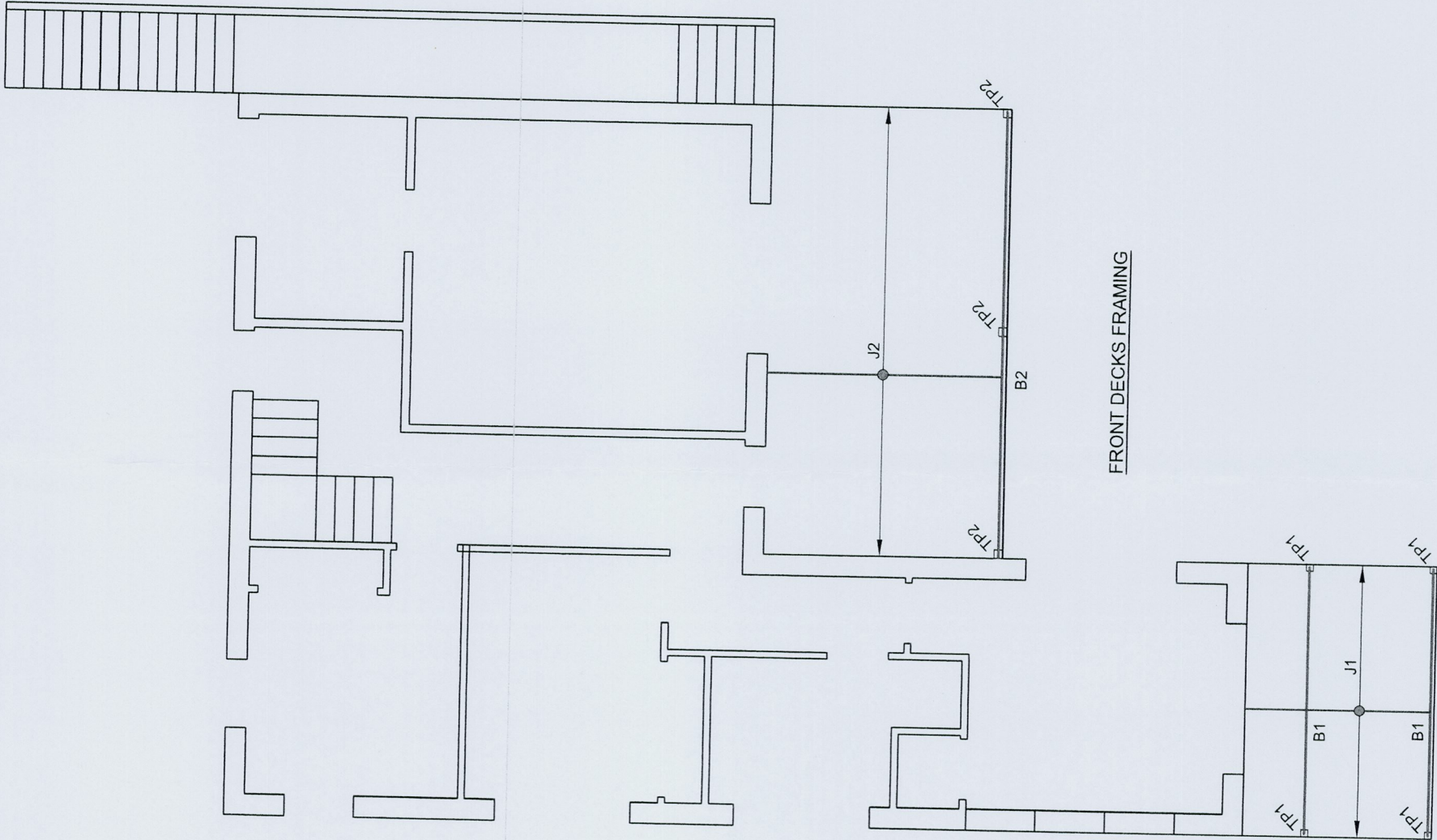
This plan/document forms part of the
Approved Construction Certificate

2014/01797

Issued by DM Certifiers P/L BPB 1869

A	18/02/2015	CONSTRUCTION			
ISSUE:	DATE:	REVISIONS:			
TITLE: GENERAL NOTES SHEET 1			DRAWN: MM		
			DATE: 18 FEBRUARY 2015		
			SCALE: NTS		
			JOB NO:15056		
			S01		

CLIENT: TIM RUTHERFORD	APPROVED: 	PO BOX 7426, MOUNT ANNAN, NSW, 2567 M: 0405 187 663 E: Gilconeng@internode.on.net W: gilconeng.com ABN: 89 443 536 234
PROJECT: 135 RICKARD ROAD, NORTH NARRABEEN	ADAM GILLETT B.ENG (Hons), M.I.E. AUST.	



COLUMN & BEAM SCHEDULE	
B1:-	BEARER TO AS 1684 TREATED
B2:-	240x65 LOSP
TP1:-	90x90 TREATED MGP10 POST SLAB WITH STEEL SHOE
TP2:-	112x112 LOSP POST
J1:-	JOIST TO AS1684 TREATED
J2:-	JOISTS TO AS1684 (SUGGEST 190x45 MGP10 TREATED)

NOTE
ALL POSTS SUPPORTED ON EXISTING SLABS

FRONT DECKS FRAMING

This plan/document forms part of the
Approved Construction Certificate

2014/01797

Issued by DM Certifiers P/L BPB 1869

A	18/02/2015	CONSTRUCTION	
ISSUE:	DATE:	REVISIONS:	
TITLE: FRONT DECKS FRAMING		DRAWN: MM	
		DATE: 18 FEBRUARY 2015	
		SCALE: 1:75	
		JOB NO: 15056	S02

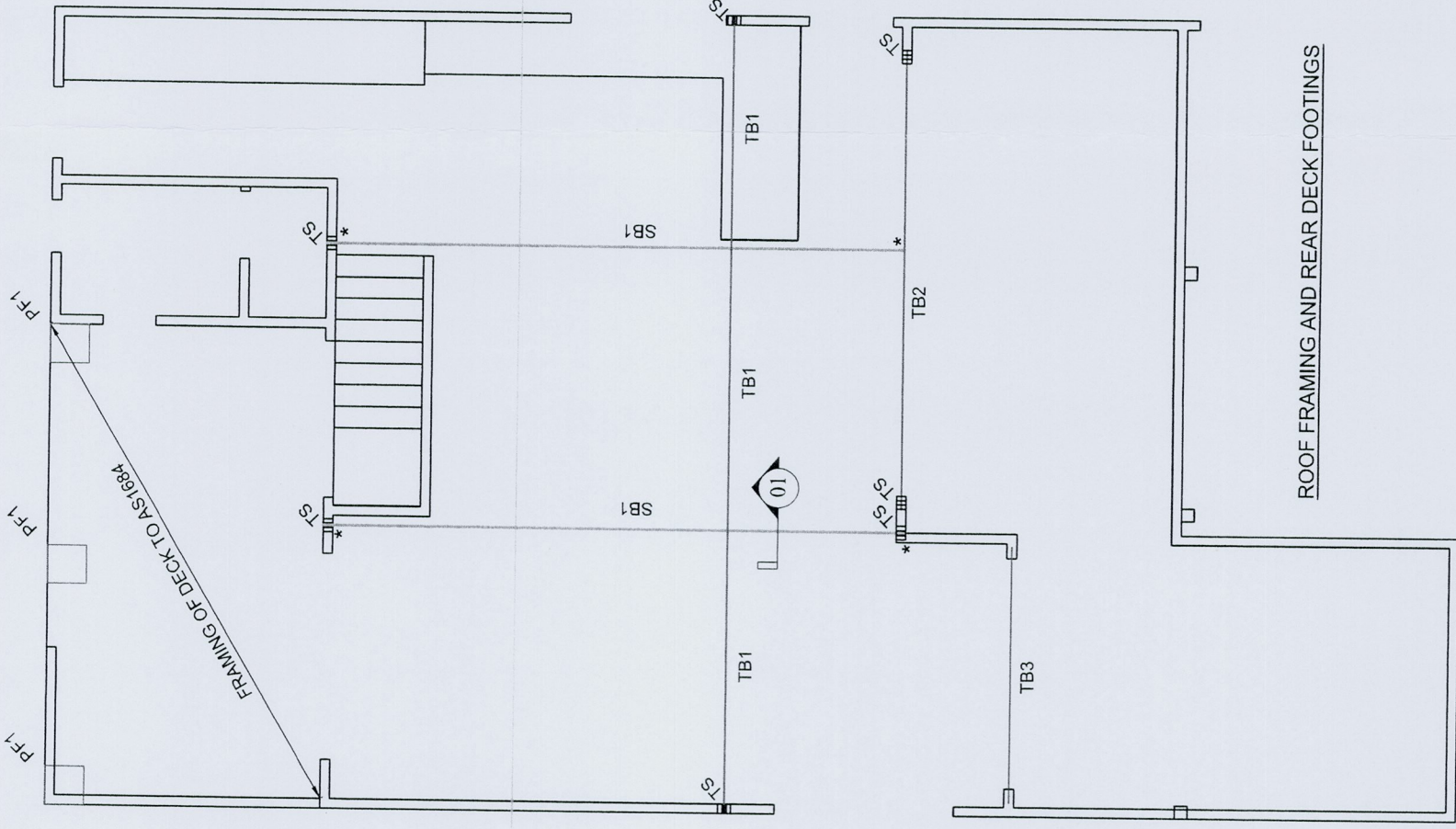
PO BOX 7426, MOUNT ANNAN, NSW, 2567
M: 0405 187 663 E: Gilconeng@intermode.on.net
W: gilconeng.com ABN: 89 443 536 234



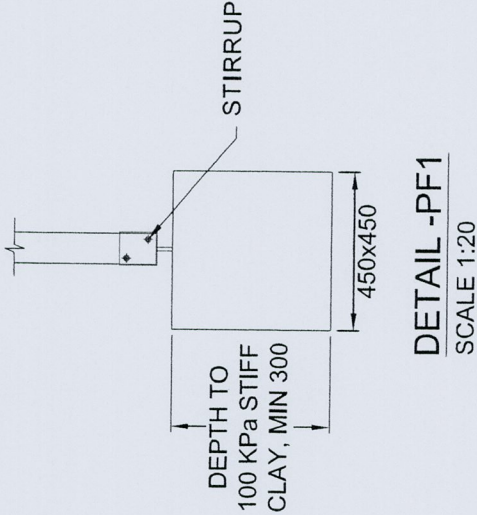
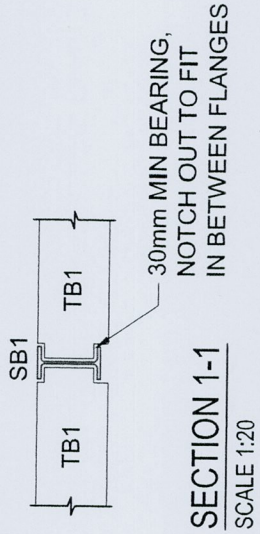
APPROVED:

ADAM GILLETT
B.ENG (Hons), M.I.E. AUST.

CLIENT: TIM RUTHERFORD
PROJECT: 135 RICKARD ROAD,
NORTH NARRABEEN



COLUMN & BEAM SCHEDULE	
SB1:-	180 UB 18
TB1:-	200x63 LVL
TB2:-	2/290x45 LVL NAIL LAMINATED
TB3:-	2/140x45 LVL OR 150x63 LVL
TS:-	TRIPLE STUD
*HOOP LINE OVER STEEL BEAM AND STRAPPED DOWN TO STUDS OR SUPPORTING BEAM	



This plan/document forms part of the
Approved Construction Certificate

2014/01797

Issued by DM Certifiers P/L BPB 1869

A	18/02/2015	CONSTRUCTION	
ISSUE:	DATE:	REVISIONS:	
TITLE: ROOF FRAMING AND REAR DECK FOOTINGS & DETAILS		DRAWN: MM	
		DATE: 18 FEBRUARY 2015	
		SCALE: 1:75 & 1:20	
		JOB NO:15056	S03

PO BOX 7426, MOUNT ANNAN, NSW, 2567
M: 0405 187 663 E: Gilconeng@intermode.on.net
W: gilconeng.com ABN: 89 443 536 234



APPROVED:

ADAM GILLETT
B.ENG (Hons), M.I.E. AUST.

CLIENT: TIM RUTHERFORD

PROJECT: 135 RICKARD ROAD,
NORTH NARRABEEN

52 Mile End Rd
Rouse Hill
NSW 2155
M:0402773007
E:ketrojanplumbing@bigpond.com.au

KC Trojan Plumbing

LIC: 208777c

19/02/15
To whom It may concern

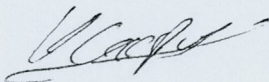
Re: 135 Rickard Rd North Narrabeen 2101

I am writing to confirm that the drainage plan for the job listed above complies with the Building Code Of Australia Housing Provisions and AS/NZS/ 3500 .3.2 Stormwater Drainage. It also complies with the Geotechnical Risk Management Policy report produced by Jack Hodgson Consultants Pty Ltd.

New storm water is to be joined into the existing storm water line with downpipes running into 100mm PVC pipe.

Please see Drainage plan for drainage points and details.

Kind Regards



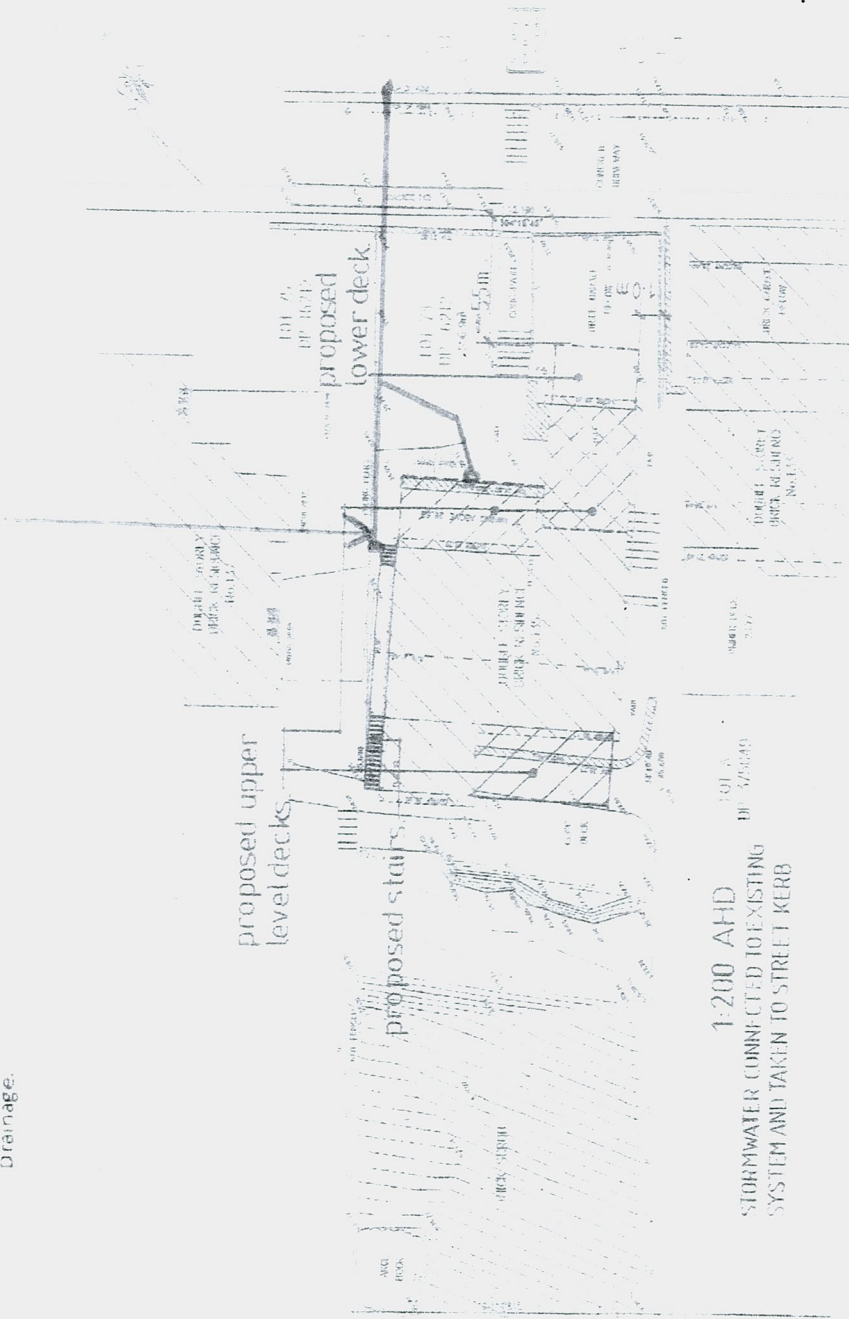
Kyle Cooper
Licensed Plumber

This plan/document forms part of the
Approved Construction Certificate

2014/01797

Issued by DM Certifiers P/L BPB 1869

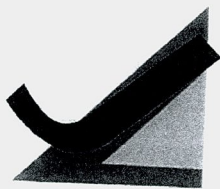
New 100mm DWC pipe to connect to existing stormwater line and to comply with Building code of Australia Housing and AS/NZS 3500.3.2 Stormwater Drainage.



1:200 AHD
STORMWATER CONNECTED TO EXISTING
SYSTEM AND TAKEN TO STREET KERB

DRAINAGE PLAN

CLIENT: TIM RUTHERFORD
ADDRESS: 135 RICKARD RD NTH NARRABEEN 2201
DATE: 19/2/15
DESIGN: JC TROIAN PLUMBING - KYLE COOPER



Jack Hodgson Consultants Pty Limited

CONSULTING CIVIL, GEOTECHNICAL AND STRUCTURAL ENGINEERS

ABN: 94 053 405 011

MP 29763.

14th November, 2014.

Page 1.

RISK ANALYSIS & MANAGEMENT FOR PROPOSED ALTERATIONS AND ADDITIONS AT 135 RICKARD ROAD, NORTH NARRABEEN

1. INTRODUCTION.

1.1 This assessment has been prepared to accompany an application for development approval. The requirements of the Geotechnical Risk Management Policy for Pittwater, 2009 have been met.

1.2 The definitions used in this Report are those used in the Geotechnical Risk Management Policy for Pittwater, 2009.

1.3 The methods used in this Assessment are based on those described in Landslide Risk Management March 2007, published by the Australian Geomechanics Society and as modified by the Geotechnical Risk Management Policy for Pittwater, 2009.

1.4 The experience of Jack Hodgson Consultants spans some 40 years in the Pittwater area and the wider Sydney region.

2. PROPOSED DEVELOPMENT.

2.1 Construct new decks to southern and northern sides of existing residence.

2.2 Various internal alterations.

2.3 Details of the proposed development are shown on six drawings prepared by Inner Living Pty Ltd, reference number RA1014, sheet number 1-6.

3. DESCRIPTION OF SITE & SURROUNDING AREA.

3.1 The site was inspected on the 13th November, 2014.

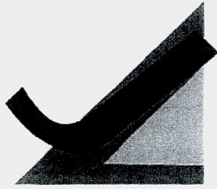
3.2 This property has a north easterly aspect and is on the high side of the road. It is located at the northern toe of a south-east trending ridge. At the road frontage the slope rises at angles of some 10 degrees before the gradient increases up the slope to angles of some 20 degrees. Just above the upper boundary a sandstone face extends across the slope.

DIRECTOR: N. J. HODGSON
67 Darley Street, Mona Vale NSW 2103
PO Box 389 Mona Vale NSW 1660
Telephone: 9979 6733 Facsimile: 9979 6926
www.jackhodgson.com.au

This plan/document forms part of the
Approved Construction Certificate

2014/01797

Issued by DM Certifiers P/L BPB 1869



Jack Hodgson Consultants Pty Limited

CONSULTING CIVIL, GEOTECHNICAL AND STRUCTURAL ENGINEERS

ABN: 94 053 405 011

MP 29763.

14th November, 2014.

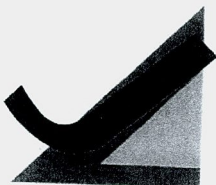
Page 2.

3.3 From the road frontage a short dilapidated concrete paved driveway provides access to a double garage (Photo 1). The road reserve is supported by a low mortared sandstone stack rock wall and a concrete slab (Photo 1). Concrete stairs rise up the centre of the block and provide pedestrian access to the block (Photo 1). A brick retaining wall supports a lawn covered fill situate above the road reserve (Photos 1 & 2). Access around the house is via a corridor that extends along the south-eastern boundary (Photo 3). A large terraced and battered sandstone stack rock wall supports the cut batter immediately upslope of the house (Photo 4). This wall is currently considered stable and has very likely been standing in this condition for a considerable length of time, though we would recommend the area be periodically monitored for evidence of dilapidation or movement. Portion of this cut batter, situated under a lightweight upper-story extension, is unsupported (Photo 5). While considered stable in its current condition, we would recommend the area be stabilised by battering the slope materials back or adding engineered support in the form of a retaining wall. We would also recommend that a structural engineer be engaged to inspect and approve the supporting brick walls before any additional loads are added internally to this portion of the house. A concrete slab is situated directly above the upper terrace of the cut (Photo 6 & 7). The slope above the developed area is sparsely lawn covered with abundant floaters exposed imbedded in stable positions, and rises to an exposed sandstone cliff face (Photo 8). The sandstone face is comprised of massive horizontal bedded quartz Hawkesbury Sandstones segmented with normal jointing. No significant geological defects were identified at the time of our inspection.

3.4 The two level brick house is in average condition for its age. It is supported on brick walls and piers that show no significant signs of ground movement.

4. GEOLOGY OF THE SITE.

4.1 The site is situated on or near the transition between the Hawkesbury Sandstones and the underlying Narrabeen Formation. The sandstone outcrops above the house are either Lower Hawkesbury Sandstones or Upper Narrabeen Group sandstones. The house is underlain by interbedded sandstones, siltstones and shales of the Upper Narrabeen Group which do not outcrop. The Narrabeen Group Rocks are Late Permian to Middle Triassic in age with the early rocks not outcropping in the area under discussion. The materials from which the rocks were formed consist of gravels, coarse to fine sands, silts and clays. They were deposited in a riverine type environment with larger floods causing fans of finer materials. The direction of deposition changed during the period of formation. The lower beds are very variable with the variations decreasing as the junction with the Hawkesbury Sandstones is approached. This is marked by the highest of persistent shale beds over thicker sandstone beds which are similar in composition to the Hawkesbury Sandstones.



Jack Hodgson Consultants Pty Limited

CONSULTING CIVIL, GEOTECHNICAL AND STRUCTURAL ENGINEERS

ABN: 94 053 405 011

MP 29763.

14th November, 2014.

Page 3.

4.2 The slope materials are colluvial at the surface and residual at depth. They consist of sandy loam sands over sandy clays and clays with rock fragments and some floaters through out the profile. The sandy clays and clays merge into the weathered zone of the under lying rocks at depths expected to be in the range 0.2 to 1.5 metres.

5. SUBSURFACE INVESTIGATION.

Five Dynamic Cone Penetrometer (DCP) tests were put down to determine the nature of the ground materials. The locations are shown on the site plan and the results of these tests are as follows:

DCP TESTING

DEPTH (m)	NUMBER OF BLOWS - conducted with Pointed Tip				
	DCP1	DCP2	DCP3	DCP4	DCP5
0.0 to 0.3	8	8	9	10	4
0.3 to 0.6	14	12	11	11	11
0.6 to 0.9	12	15-	9	12	18
0.9 to 1.2	2-		12-	15-	4-
	Refusal @ 0.90m	Refusal @ 0.80m	Refusal @ 0.50m	Refusal @ 0.60m	Refusal @ 0.50m

Notes:

DCP1 – Refusal on rock or floater @ 0.90m. Clean and dry tip.

DCP2 – Refusal on rock or floater @ 0.80m. Clean and dry tip

DCP3 – Refusal on rock or floater @ 0.50m. Clean and dry tip

DCP4 – Refusal on rock or floater @ 0.60m. Clean and dry tip

DCP5 – Refusal on rock or floater @ 0.50m. Clean and dry tip

6. DRAINAGE OF THE SITE.

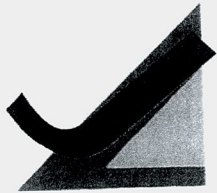
6.1 ON THE SITE.

The site is naturally well drained with no water courses.

6.2 SURROUNDING AREA.

Overland stormwater flow entering the site from the adjoining properties was not evident. Normal overland runoff could enter the site from above during heavy or extended rainfall.

DIRECTOR: N. J. HODGSON
67 Darley Street, Mona Vale NSW 2103
PO Box 389 Mona Vale NSW 1660
Telephone: 9979 6733 Facsimile: 9979 6926
www.jackhodgson.com.au



Jack Hodgson Consultants Pty Limited

CONSULTING CIVIL, GEOTECHNICAL AND STRUCTURAL ENGINEERS

ABN: 94 053 405 011

MP 29763.

14th November, 2014.

Page 4.

7. GEOTECHNICAL HAZARDS.

7.1 ABOVE THE SITE.

The slope that extends above is considered as part of Hazard One .

7.2 ON THE SITE.

7.2.1 The slope of the land that rises across the site is considered a potential hazard (**HAZARD ONE**).

7.3 BELOW THE SITE.

No geotechnical hazards likely to adversely affect the subject property were observed below the site.

7.4 BESIDE THE SITE.

The properties beside the site have similar elevations and geomorphology to the subject property. No geotechnical hazards likely to adversely affect the subject property were observed beside the site.

8. RISK ASSESSMENT.

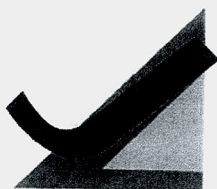
8.1 ABOVE THE SITE.

The slope that extends above is considered as part of Hazard One.

8.2 ON THE SITE.

8.2.1 HAZARD ONE Qualitative Risk Assessment on Property

The slope of the land surface rises across the property at angles up to 20 degrees from the north-east to the south-west. No evidence of significant slope instability was identified during our inspection. The slope materials are supported by stable sandstone stack rock walls that have likely been in situ since the house was constructed. Sandstone floaters and the cliff face above the house are considered stable and are free of significant geological defects. The likelihood of the slope failing and impacting on the house is assessed as 'Unlikely' (10^{-4}). The consequences to property of such a failure are assessed as 'Minor' (5%). The risk to property is 'Low' (5×10^{-6}).



Jack Hodgson Consultants Pty Limited

CONSULTING CIVIL, GEOTECHNICAL AND STRUCTURAL ENGINEERS

ABN: 94 053 405 011

MP 29763.

14th November, 2014.

Page 5.

8.2.2 HAZARD ONE Quantitative Risk Assessment on Life

For loss of life risk can be calculated as follows:

$$R_{(Lol)} = P_{(H)} \times P_{(SH)} \times P_{(TS)} \times V_{(DT)} \text{ (See Appendix for full explanation of terms)}$$

8.2.2.1 Annual Probability

No evidence of significant movement was observed on the site.

$$P_{(H)} = 0.0001/\text{annum}$$

8.2.2.2 Probability of Spatial Impact

The house is near the middle of a moderate slope.

$$P_{(SH)} = 0.3$$

8.2.2.3 Possibility of the Location Being Occupied During Failure

The average household is taken to be occupied by 4 people. It is estimated that 1 person is in the house for 20 hours a day, 7 days a week. It is estimated 3 people are in the house 12 hours a day, 5 days a week.

For the person most at risk:

$$\frac{20}{24} \times \frac{7}{7} = 0.83$$

$$P_{(TS)} = 0.83$$

8.2.2.4 Probability of Loss of Life on Impact of Failure

Based on the volume of land sliding and its likely velocity when it hits the house, it is estimated that the vulnerability of a person to being killed in the house when a landslide hits is 0.01

$$V_{(DT)} = 0.01$$

8.2.2.5 Risk Estimation

$$R_{(Lol)} = 0.0001 \times 0.3 \times 0.83 \times 0.01$$

$$= 0.000000249$$

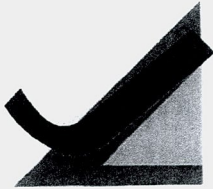
$$R_{(Lol)} = 2.49 \times 10^{-7}/\text{annum} \text{ NOTE: This level of risk is 'ACCEPTABLE'}$$

8.3 BELOW THE SITE.

As no geotechnical hazards likely to adversely impact upon the subject site were observed below the site, no risk analysis is required.

8.4 BESIDE THE SITE.

As no geotechnical hazards likely to adversely impact upon the subject site were observed beside the site, no risk analysis is required.



Jack Hodgson Consultants Pty Limited

CONSULTING CIVIL, GEOTECHNICAL AND STRUCTURAL ENGINEERS

ABN: 94 053 405 011

MP 29763.

14th November, 2014.

Page 6.

9. SUITABILITY OF DEVELOPMENT FOR SITE.

9.1 GENERAL COMMENTS.

The proposed developments are suitable for the site.

9.2 GEOTECHNICAL COMMENTS.

No geotechnical hazards will be created by the completion of the proposed development in accordance with the requirements of this Report and good engineering and building practice.

9.3 CONCLUSIONS.

The site and the proposed development can achieve the Acceptable Risk Management criteria outlined in the Pittwater Geotechnical Risk Policy provided the recommendations given in **Section 10** are undertaken.

10. RISK MANAGEMENT.

10.1. TYPE OF STRUCTURE.

The types of structures are suitable for the site.

10.2. EXCAVATIONS.

Apart from those required for footings, no significant excavations are required for the proposed works.

10.3. FILLS.

No fills are shown on the plans.

10.4. FOUNDATION MATERIALS AND FOOTINGS.

It is recommended that the footings for the proposed extension be supported on the underlying weathered rock utilising piers as necessary. The design ultimate bearing pressures are 800 kPa for spread footings or shallow piers.



Jack Hodgson Consultants Pty Limited

CONSULTING CIVIL, GEOTECHNICAL AND STRUCTURAL ENGINEERS

ABN: 94 053 405 011

MP 29763.

14th November, 2014.

Page 7.

10.5. STORM WATER DRAINAGE.

All storm water runoff from the development is to be piped to the existing stormwater system for the house through any water tanks or onsite detention systems that may be required by the regulating authorities.

10.6. SUBSURFACE DRAINAGE.

All retaining walls are to be back filled with non-cohesive free draining material to provide a drainage layer immediately behind the wall. The free draining material is to be separated from the ground materials by geotextile fabric.

10.7. INSPECTIONS.

It is essential that the foundation materials of all footing excavations be inspected and approved before concrete is placed.

11. GEOTECHNICAL CONDITIONS FOR ISSUE OF CONSTRUCTION CERTIFICATE.

It is recommended that the following geotechnical conditions be applied to the Development Approval:-

The work is to be carried out in accordance with the Risk Management Report MP 29763 dated 14th November, 2014.

12. GEOTECHNICAL CONDITIONS FOR ISSUE OF OCCUPATION CERTIFICATE.

The Geotechnical Engineer is to certify the following geotechnical aspects of the development:-

The work has been carried out in accordance with the requirements of the Risk Management Report MP 29763 dated 14th November, 2014



Jack Hodgson Consultants Pty Limited

CONSULTING CIVIL, GEOTECHNICAL AND STRUCTURAL ENGINEERS

ABN: 94 053 405 011

MP 29763.

14th November, 2014.

Page 8.

13. RISK ANALYSIS SUMMARY.

HAZARDS TYPE	Hazard One A failure of the slope across the property is a potential hazard
LIKELIHOOD	'Unlikely' (10^{-4})
CONSEQUENCES TO PROPERTY	'Minor' (5%)
RISK TO PROPERTY	'Low' (5×10^{-6})
RISK TO LIFE	2.49×10^{-7} /annum
COMMENTS	This level of risk is ' ACCEPTABLE ' provided the conditions in Section 10 are followed.

JACK HODGSON CONSULTANTS PTY. LIMITED.

Peter Thompson MIE Aust CPEng
Member No. 146800
Civil/Geotechnical Engineer

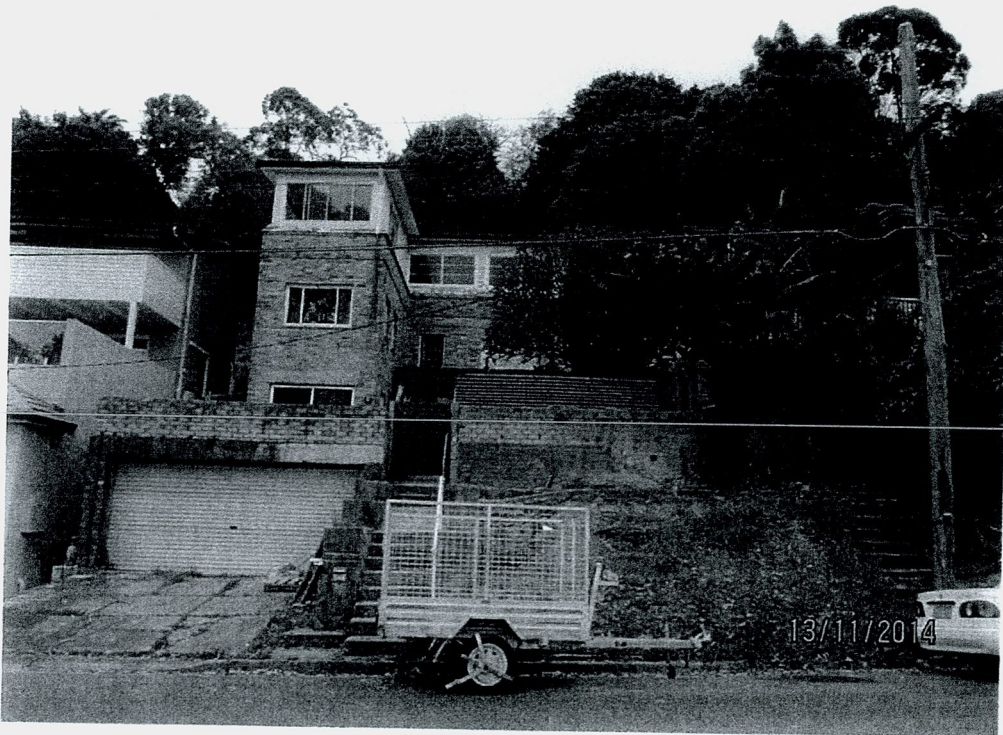


Photo 1

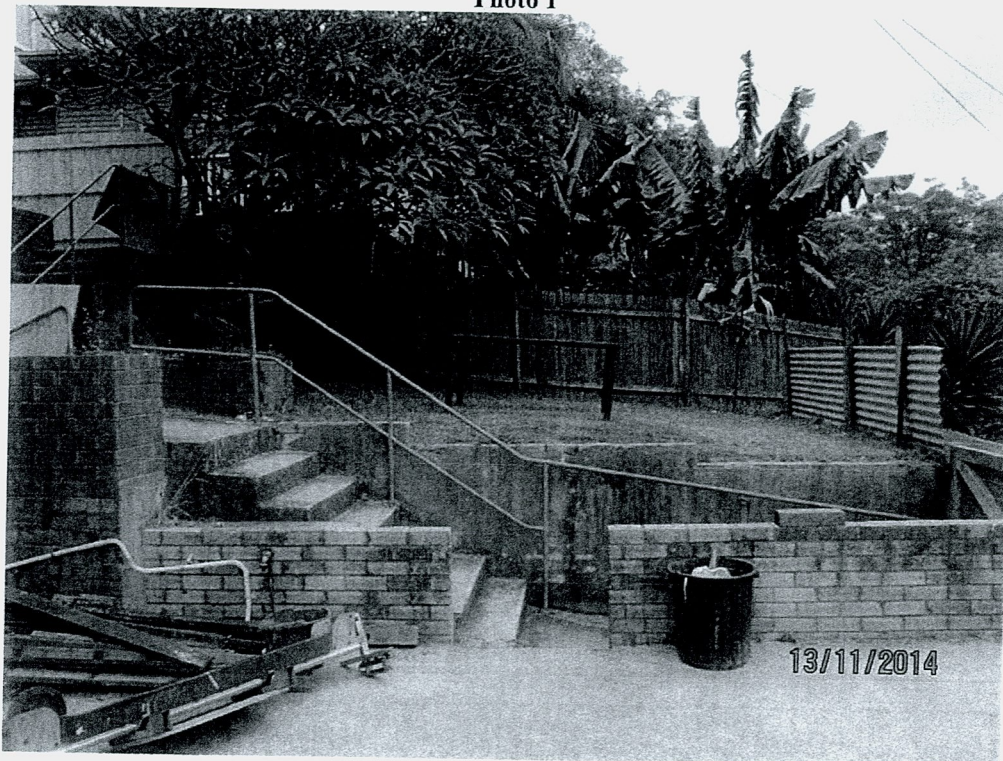


Photo 2

MP 29763.

14th November, 2014.

Page 10.

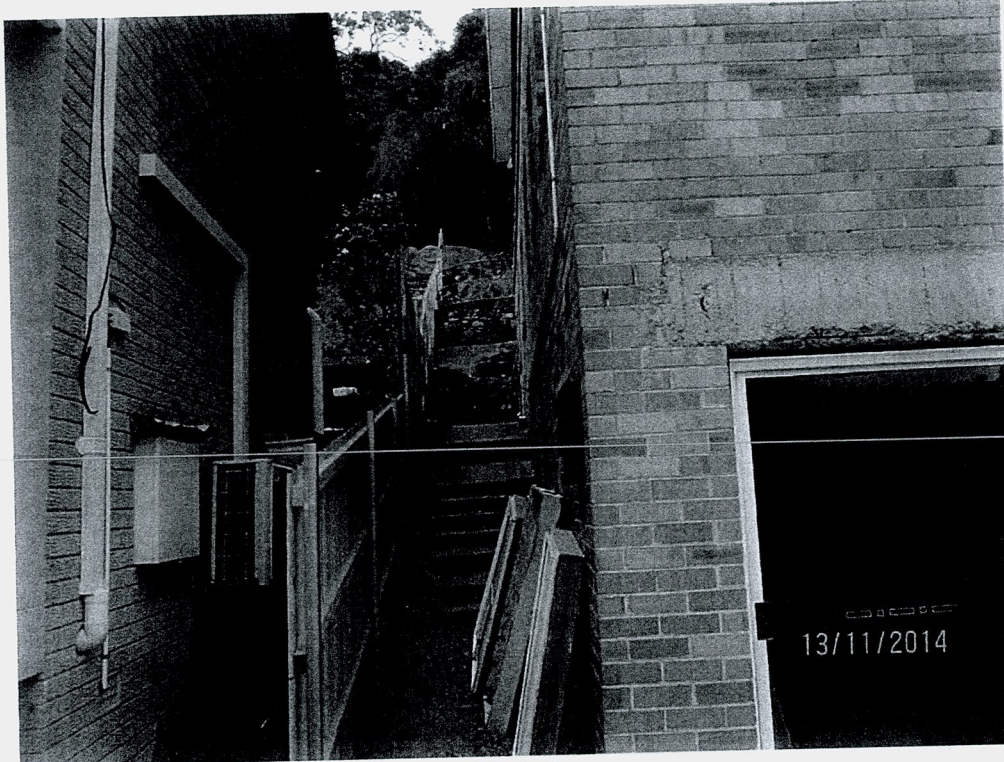


Photo 3

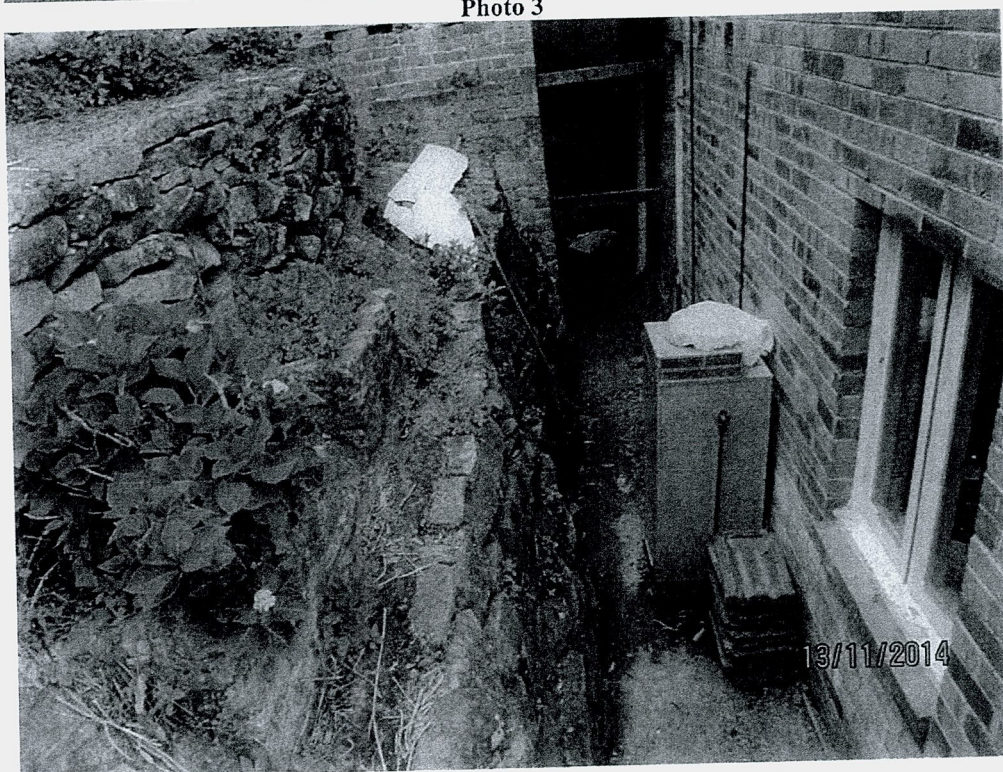


Photo 4



Photo 5

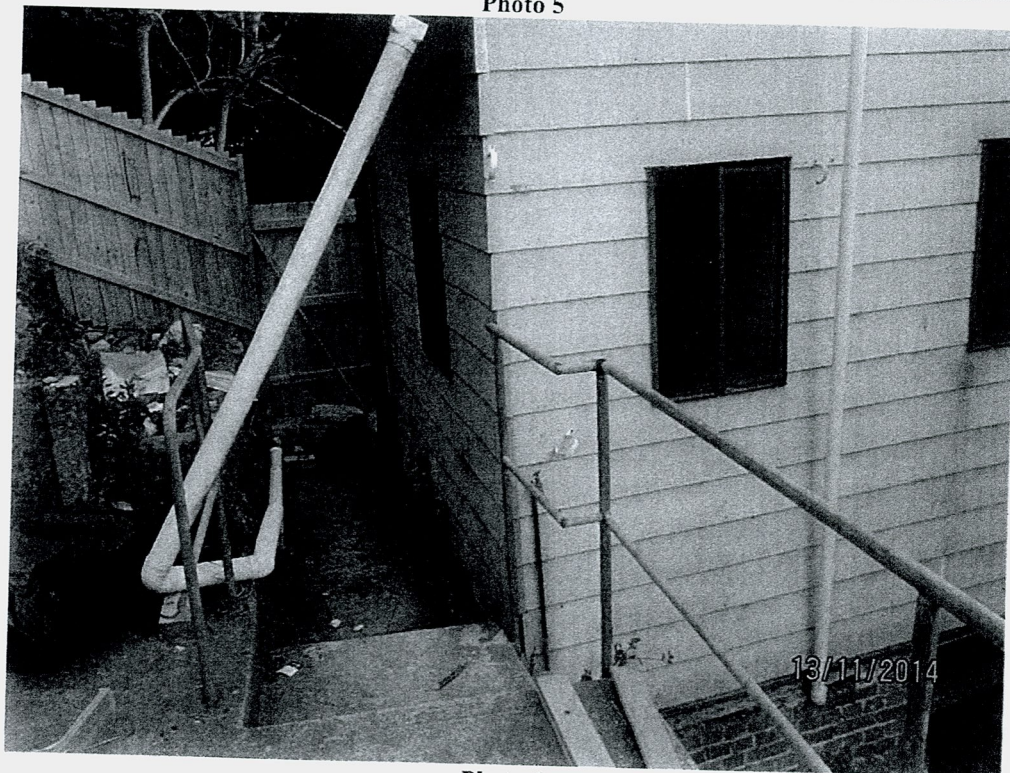


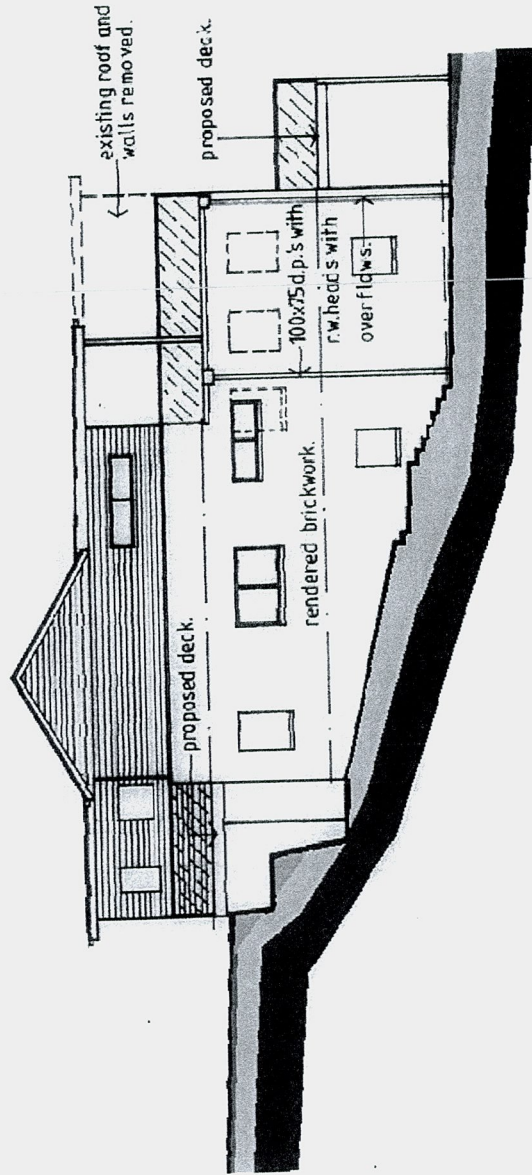
Photo 6



Photo 7



Photo 8



SOUTH EAST ELEVATION

Jack Hodgson Consultants Pty Limited ANZ 14 853 125 63 CONSULTING CIVIL, GEOTECHNICAL AND STRUCTURAL ENGINEERS		TYPE SECTION Job No MP 29763 Scale NTS	Address 135 RICHARD ROAD NORTH NARRABEEN NSW	Strata Profile Legend Fill Sandy Topsoil Sandy Clay	Narrabeen Group Rocks Hawkesbury Sandstone
--	--	---	---	---	--

BASIX®Certificate

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

Alterations and Additions

Certificate number: A203527

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 Alterations and Additions Definitions" dated 18/09/2014 published by Planning & Infrastructure. This document is available at www.basix.nsw.gov.au

Director-General

Date of issue: Monday, 27, October 2014

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



This plan/document forms part of the
Approved Construction Certificate

2014/01797

Issued by DM Certifiers P/L BPB 1869

Description of project

Project address	
Project name	135 Rickard Road North Narrabeen
Street address	135 Rickard Road North Narrabeen 2101
Local Government Area	Pittwater Council
Plan type and number	Deposited Plan 16212
Lot number	74
Section number	0
Project type	
Dwelling type	Separate dwelling house
Type of alteration and addition	My renovation work is valued at \$50,000 or more, and does not include a pool (and/or spa).

Certificate Prepared by (please complete before submitting to Council or PCA)
Name / Company Name: Tim Rutherford
ABN (if applicable): N/A

Fixtures and systems		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: gas instantaneous.		✓	✓	✓
Lighting				
The applicant must ensure a minimum of 40% of new or altered light fixtures are fitted with fluorescent, compact fluorescent, or light-emitting-diode (LED) lamps.			✓	✓
Fixtures				
The applicant must ensure new or altered showerheads have a flow rate no greater than 9 litres per minute or a 3 star water rating.			✓	✓
The applicant must ensure new or altered toilets have a flow rate no greater than 4 litres per average flush or a minimum 3 star water rating.			✓	✓
The applicant must ensure new or altered taps have a flow rate no greater than 9 litres per minute or minimum 3 star water rating.			✓	✓

Construction		Show on DA Plans	Show on CC/CDC Plans & specs	Certifier Check
Insulation requirements				
The applicant must construct the new or altered construction (floor(s), walls, and ceilings/roofs) in accordance with the specifications listed in the table below, except that a) additional insulation is not required where the area of new construction is less than 2m2, b) insulation specified is not required for parts of altered construction where insulation already exists.		✓	✓	✓
Construction	Additional insulation required (R-value)	Other specifications		
suspended floor with enclosed subfloor: framed (R0.7).	R0.60 (down) (or R1.30 including construction)			
flat ceiling, pitched roof	ceiling: R0.70 (up), roof: foil backed blanket (75 mm)	light (solar absorptance < 0.475)		

Glazing requirements				Show on DA Plans	Show on CC/CDC Plans & specs	Certifier Check																							
Windows and glazed doors																													
The applicant must install the windows, glazed doors and shading devices, in accordance with the specifications listed in the table below. Relevant overshadowing specifications must be satisfied for each window and glazed door. The following requirements must also be satisfied in relation to each window and glazed door: Each window or glazed door with standard aluminium or timber frames and single clear or toned glass may either match the description, or, have a U-value and a Solar Heat Gain Coefficient (SHGC) no greater than that listed in the table below. Total system U-values and SHGCs must be calculated in accordance with National Fenestration Rating Council (NFRC) conditions. Each window or glazed door with improved frames, or polylytic low-e glass, or clear/air gap/clear glazing, or toned/air gap/clear glazing must have a U-value and a Solar Heat Gain Coefficient (SHGC) no greater than that listed in the table below. Total system U-values and SHGCs must be calculated in accordance with National Fenestration Rating Council (NFRC) conditions. The description is provided for information only. Alternative systems with complying U-value and SHGC may be substituted. For projections described in millimetres, the leading edge of each eave, pergola, verandah, balcony or awning must be no more than 500 mm above the head of the window or glazed door and no more than 2400 mm above the sill. Pergolas with polycarbonate roof or similar translucent material must have a shading coefficient of less than 0.35. Pergolas with fixed battens must have battens parallel to the window or glazed door above which they are situated, unless the pergola also shades a perpendicular window. The spacing between battens must not be more than 50 mm. Overshadowing buildings or vegetation must be of the height and distance from the centre and the base of the window and glazed door, as specified in the 'overshadowing' column in the table below.																													
Windows and glazed doors glazing requirements <table border="1"> <thead> <tr> <th rowspan="2">Window / door no.</th><th rowspan="2">Orientation</th><th rowspan="2">Area of glass inc. frame (m2)</th><th colspan="2">Overshadowing</th><th rowspan="2">Shading device</th><th rowspan="2">Frame and glass type</th></tr> <tr> <th>Height (m)</th><th>Distance (m)</th></tr> </thead> <tbody> <tr> <td>W1</td><td>NW</td><td>1</td><td>3</td><td>3</td><td>none</td><td>standard aluminium, single toned, (or U-value: 7.57, SHGC: 0.57)</td></tr> <tr> <td>W2</td><td>NE</td><td>4.2</td><td>0</td><td>0</td><td>eave/verandah/pergola/balcony >=900 mm</td><td>improved aluminium, single clear, (U-value: 6.44, SHGC: 0.75)</td></tr> </tbody> </table>							Window / door no.	Orientation	Area of glass inc. frame (m2)	Overshadowing		Shading device	Frame and glass type	Height (m)	Distance (m)	W1	NW	1	3	3	none	standard aluminium, single toned, (or U-value: 7.57, SHGC: 0.57)	W2	NE	4.2	0	0	eave/verandah/pergola/balcony >=900 mm	improved aluminium, single clear, (U-value: 6.44, SHGC: 0.75)
Window / door no.	Orientation	Area of glass inc. frame (m2)	Overshadowing		Shading device	Frame and glass type																							
			Height (m)	Distance (m)																									
W1	NW	1	3	3	none	standard aluminium, single toned, (or U-value: 7.57, SHGC: 0.57)																							
W2	NE	4.2	0	0	eave/verandah/pergola/balcony >=900 mm	improved aluminium, single clear, (U-value: 6.44, SHGC: 0.75)																							

Glazing requirements

Glazing requirements							Show on DA Plans	Show on CC/CDC Plans & specs	Certifier Check
Window / door no.	Orientation	Area of glass inc. frame (m2)	Overshadowing		Shading device	Frame and glass type			
			Height (m)	Distance (m)					
W3	SE	1.08	4.3	2.4	none	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W4	SE	1.8	0	0	none	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W5	SW	1.62	0	0	eave/verandah/ pergola/balcony >=900 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W6	NE	6.48	0	0	eave/verandah/ pergola/balcony >=900 mm	improved aluminium, single clear, (U-value: 6.44, SHGC: 0.75)			
W7	SE	1.05	0	0	eave/verandah/ pergola/balcony >=450 mm	improved aluminium, single clear, (U-value: 6.44, SHGC: 0.75)			
W8	SW	5.04	10	11.5	eave/verandah/ pergola/balcony >=450 mm	improved aluminium, single clear, (U-value: 6.44, SHGC: 0.75)			
W9	SW	2.16	10	11.5	eave/verandah/ pergola/balcony >=450 mm	improved aluminium, single clear, (U-value: 6.44, SHGC: 0.75)			
W10	NW	0.72	1.95	4.47	eave/verandah/ pergola/balcony >=450 mm	improved aluminium, single clear, (U-value: 6.44, SHGC: 0.75)			
W11	NW	1	1.95	4.47	eave/verandah/ pergola/balcony >=450 mm	improved aluminium, single clear, (U-value: 6.44, SHGC: 0.75)			
W12	NE	12	0	0	awning (fixed) >=900 mm	improved aluminium, single clear, (U-value: 6.44, SHGC: 0.75)			

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 & 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 for the development may be issued.	

7 RISK ESTIMATION

7.1 QUANTITATIVE RISK ESTIMATION

Quantitative risk estimation involves integration of the frequency analysis and the consequences. For property, the risk can be calculated from:

$$R_{(Prop)} = P_{(H)} \times P_{(S:H)} \times P_{(T:S)} \times V_{(Prop:S)} \times E \quad (1)$$

Where

$R_{(Prop)}$ is the risk (annual loss of property value).

$P_{(H)}$ is the annual probability of the landslide.

$P_{(S:H)}$ is the probability of spatial impact by the landslide on the property, taking into account the travel distance and travel direction.

$P_{(T:S)}$ is the temporal spatial probability. For houses and other buildings $P_{(T:S)} = 1.0$. For Vehicles and other moving elements at risk $1.0 > P_{(T:S)} > 0$.

$V_{(Prop:S)}$ is the vulnerability of the property to the spatial impact (proportion of property value lost).

E is the element at risk (e.g. the value or net present value of the property).
For loss of life, the individual risk can be calculated from:

$$R_{(LoL)} = P_{(H)} \times P_{(S:H)} \times P_{(T:S)} \times V_{(ID:T)} \quad (2)$$

Where

$R_{(LoL)}$ is the risk (annual probability of loss of life (death) of an individual).

$P_{(H)}$ is the annual probability of the landslide.

$P_{(S:H)}$ is the probability of spatial impact of the landslide impacting a building (location) taking into account the travel distance and travel direction given the event.

$P_{(T:S)}$ is the temporal spatial probability (e.g. of the building or location being occupied by the individual) given the spatial impact and allowing for the possibility of evacuation given there is warning of the landslide occurrence.

$V_{(ID:T)}$ is the vulnerability of the individual (probability of loss of life of the individual given the impact).
A full risk analysis involves consideration of all landslide hazards for the site (e.g. large, deep seated landsliding, smaller slides, boulder falls, debris flows) and all the elements at risk.

PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

For comparison with tolerable risk criteria, the individual risk from all the landslide hazards affecting the person most at risk, or the property, should be summed.

The assessment must clearly state whether it pertains to 'as existing' conditions or following implementation of recommended risk mitigation measures, thereby giving the 'residual risk'.

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 2 – PART A – To be submitted with detailed design for Construction Certificate

Development Application for <u>Tim Rotherford</u>
Name of Applicant
Address of site <u>135 Rickard Road Nth Narrabeen</u>

PART A: Declaration made by Structural or Civil Engineer in relation to the incorporation of the Geotechnical issues into the project design

I, ADAM GILLET (insert name) on behalf of GILCON STRUCTURAL ENGINEERS (trading or company name)

on this the 20/2/15 (date)

certify that I am a Structural or Civil Engineer as defined by the Geotechnical Risk Management Policy for Pittwater - 2009. I am authorised by the above organisation/company to issue this document and to certify that the organisation/company has a current professional indemnity policy of at least \$2million. I also certify that I have prepared the below listed structural documents in accordance with the recommendations given in the Geotechnical Report for the above development and that

Please mark appropriate box



the structural design meets the recommendations as set out in the Geotechnical Report or any revision thereto.

the structural design has considered the requirements set out in the Geotechnical Report for Excavation and Landfill both for the excavation/construction phase and the final installation in accordance with Clause 3.2 (b)(iv) of the Geotechnical Risk Management Policy.

Geotechnical Report Details:

Report Title:	<u>RISK ANALYSIS & MGMT FOR AGS & ADDS AT 135---</u>
Report Date:	<u>14/11/14</u>
Author:	<u>JACK HODGSON</u>
Author's Company/Organisation:	<u>JACK HODGSON CONSULTANTS</u>

Structural Documents list:

<u>15056 SO1A, SO2A, SO3A - GILCON</u>

I am also aware that Pittwater Council relies on the processes covered by the Geotechnical Risk Management Policy, including this certification as the basis for ensuring that the geotechnical risk management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure taken as at least 100 years unless otherwise stated and justified.

Signature [Signature]
Name ADAM GILLET
Chartered Professional Status MIE Aust
Membership No. 2432050
Company GILCON

This plan/document forms part of the
Approved Construction Certificate

2014/01797

Issued by DM Certifiers P/L BPB 1869

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 2 – PART B - To be submitted with detailed design for construction certificate

PART B Declaration made by Geotechnical Engineer or Engineering Geologist and/or Coastal Engineer (where applicable) in relation to the incorporation of the Geotechnical issues into the project design

I, Peter Thompson on behalf of Jack Hodgson Consultants Pty Ltd
(insert name) (trading or company name)

on this the 23RD FEBRUARY, 2015
(date)

certify that I am a Geotechnical Engineer or Engineering Geologist and/or Coastal Engineer as defined by the Geotechnical Risk Management Policy for Pittwater – 2009 and I am authorised by the above organization/company to issue this document and to certify that the organization/company has a current professional indemnity policy of at least \$2million. I also certify that I have reviewed the design plans and structural design plans in accordance for the Construction Certificate Stage and that I am satisfied that:

Please mark appropriate box

- ☒ the structural design meets the recommendations as set out in the Geotechnical Report or any revision thereto
☒ the structural design has considered the requirements set out in the Geotechnical Report for Excavation and Landfill both for the excavation/construction phase and the final installation in accordance with Clause 3.2 (b)(iv) of the Geotechnical Risk Management Policy

Geotechnical Report Details :

Report Title: RISK ANALYSIS & MANAGEMENT FOR PROPOSED ADDITIONS & ALTERATIONS AT
135 RICKARD ROAD, NORTH NARRABEEN – MP 29763

Report Date: 14TH NOVEMBER, 2014

Author: PETER THOMPSON

Documentation which relates to or is relied upon in report preparation:

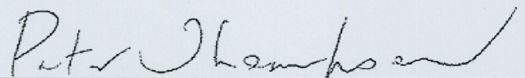
ARCHITECTURAL PLANS PREPARED BY INNER LIVING PTY LTD REF RA1014 SHEET 1-6 DATED OCTOBER, 2014

STRUCTURAL PLANS PREPARED BY GILCON STRUCTURAL ENGINEERS JOB NO: 15056 DWG NO: S01 TO S03 DATED FEBRUARY, 2015

I am also aware that Pittwater Council relies on the processes covered by the Geotechnical Risk Management Policy, including this certification as the basis for ensuring that the geotechnical risk management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure taken as at least 100 years unless otherwise stated and justified.

Peter Thompson

(name)


(signature)

I am also aware that Pittwater Council relies on the processes covered by the Geotechnical Risk Management Policy, including this certification as the basis for ensuring that the geotechnical risk management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure taken as at least 100 years unless otherwise stated and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk

Signature

Name Peter Thompson

Chartered Professional Status MIE Aust CPEng

Membership No. 146800

Company Jack Hodgson Consultants Pty Ltd

**SCHEDULE OF FINISHES for
135 RICKARD ROAD, NORTH NARRABEEN.**

BRICKWORK: Taubman's 'Cookie Jar'. Render.

EXTERNAL BOARDING: Taubman's 'Phantom Hue'.

WINDOWS/DOORS: Powdercoat: 'Apo Grey'.

GUTTERS AND DOWNPIPES: Powdercoat: 'Apo Grey'.

This plan/document forms part of the
Approved Construction Certificate

2014/01797

Issued by DM Certifiers P/L BPB 1869