

Pittwater Council

OFFICIAL RECEIPT

01/04/2005 Receipt No: 164923

To TOM MISKOVICH AND ASSOCIATES P/L

PO BOX 189
PENNANTS HILLS NSW 1715

Applic.	Reference	Amount
GL Recei	PRVC-Priv Iss	\$30.00
	1 X N1004/02	

Total: \$30.00

Amounts Tendered

Cash	\$0.00
Cheque	\$30.00
Card	\$0.00
Money Order	\$0.00
Agency Rec	\$0.00
Total	\$30.00
Rounding	\$0.00
Change	\$0.00
Nett	\$30.00

Printed 01/04/2005 12:04:47 PM

Cashier: CLummas

Our Ref: C-04-127-1

Tuesday, 29 March 2005

Pittwater Council
PO Box 882
MONA VALE NSW 1660

Dear Sir or Madam,

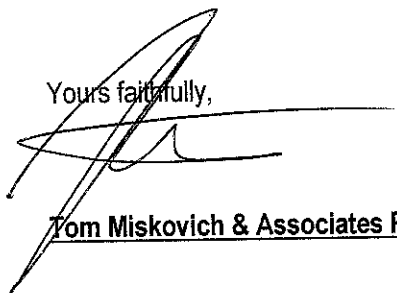
**Re: Construction Certificate
137 Riverview Road, Clareville
Development Consent No. N1004/02**

I refer to our engagement in respect of the above and enclose the Construction Certificate for such in accordance with the provisions of clause 142(2) of the Environmental Planning and Assessment Regulation 2000.

Please find enclosed a cheque for \$30.00 being the regulated registration fee for the above as detailed in Clause 263 of the Environmental Planning and Assessment Further Amendment (Quality of Construction) Regulation 2004. It would be appreciated if a receipt in this regard could be forwarded to our firm as soon as possible.

Should you require any further information please do not hesitate to contact me.

Yours faithfully,



Tom Miskovich & Associates Pty Ltd

Encl.

**tom miskovich
& associates
pty ltd**

acn 094 366 873
abn 93 094 366 873

email
tma@tm-a.com.au

all correspondence

po box 189
pennant hills
nsw 1715

sydney
8 albion street
pennant hills
nsw 2120

**ph 02 9484 6999
fax 02 9484 3400**

bowral
**ph 02 4862 5550
fax 02 4862 5551**

Roger & Sue-Ellen Jones

New Dwelling

137 Riverview Road
Clareville

Reference No: C-04-127-1
Dated: 24 March 2005

Construction Certificate

tm-a

**tom miskovich
& associates
pty ltd**

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abn 93 094 366 873

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bowral
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fax 02 4862 5551

construction certificate

**tom miskovich
& associates
pty ltd**

This certificate is issued by a certifying authority (a council or a private certifier) and verifies that, if the applicant carries out the proposed work in accordance with the plans and specifications that are approved, the work will comply with the Environmental Planning and Assessment Regulation 2000 as referred to in section 81A(5) of the Environmental Planning and Assessment Act 1979

acn 094 366 873
abn 93 094 366 873

1. Details of the applicant

Mr ☒ Ms ☐ Mrs ☒ Dr ☐ Other

First name Family name Company/Organisation

Flat/street no. Street name

Suburb or town State Postcode

Daytime telephone Fax Mobile

2. Details of the development consent

Development Consent Number: Date Consent Determined: Consent Authority (Local Government):

3. Decision of the certifying authority

This certificate is issued:

- ☒ without any conditions
- ☐ subject to conditions of the kind referred to in clauses 187 or 188 of the Environmental Planning and Assessment Regulation 2000

Conditions have been placed on the certificate for the following reasons:

Date of this decision

4. Certification

certifies that

if the work is completed following the plans and specifications which have been approved, it will comply with the Environmental Planning and Assessment Regulation 2000 as referred to in section 81A(5) of the Environmental Planning and Assessment Act 1979.

Construction certificate no. Date of this certificate

email
tma@tm-a.com.au

all correspondence

po box 189
pennant hills
nsw 1715

sydney
8 albion street
pennant hills
nsw 2120

ph 02 9484 6999
fax 02 9484 3400

bowral
ph 02 4862 5550
fax 02 4862 5551

construction certificate

5. Identify the land

Flat/street no.	Street name
137	Riverview Road
Suburb or town	Postcode
Clareville	2107
Lot no.	Section
5	
DP/MPS no.	Volume/folio
19402	

6. Description of works

Building classification & BCA amendment	Building works considered under the deemed to satisfy provisions of the BCA	Type of Construction (BCA)
1a		Not Applicable

Description of the building or part of the building
New Dwelling

7. Signature

	
Name of certifier	For enquiries please contact the project building surveyor
Tom Miskovich	Tom Donohoe
Accreditation body of the certifier	Accreditation no. of the certifier
Planning NSW	2024

8. Attachments

certificate application details
documents that form part of this certificate
other supporting documentation
BCA – summary

annexure 1
annexure 2
annexure 3
annexure 4

construction certificate documentation
certificate number C-04-127
premises – 137 Riverview Road, Clareville

annexure 1

certificate application details

certificate application form

tom miskovich
& associates
pty ltd

acn 094 366 873
abn 93 094 366 873

1. Service Requested

I/We the undersigned hereby make application to tom miskovich & associates pty ltd to undertake the following service:

(Place a cross in the box next to the service sought)

- ☒ The issue of a Construction Certificate.
- ☒ The modification (under clause 148 of the EP & A Regulations 2000) of previously issued Construction Certificate
- ☐ The issue of a Complying Development Certificate.
- ☒ The issue of an Occupation Certificate for ☒ interim, ☒ final, ☐ change of use, ☐ occupation/use of a new building.
- ☒ To appoint Tom Miskovich, Planning NSW Accreditation No. 2024, as our "Principal Certifying Authority".
- ☒ To have staff of tom miskovich & associates pty ltd to undertake critical stage inspections of the proposed building works as nominated by them during the certification process.

RECEIVED
21 MAR 2005

2. Details of the applicant (note: the applicant must be the person who has the benefit of the development consent)

Mr ☐ Ms ☐ Mrs ☐ Dr ☐ Other ☐ **MR. & MRS.**

First name **ROGER & SUE-ELLEN** Family name **JONES** Company/Organisation **c/- WARWICK WERNER ARCHITECT PTY LTD**

Flat/street no. **4** Street name **WANAWONG ROAD**

Suburb or town **AVALON BEACH** State **NSW** Postcode **2107**

Daytime telephone **c/- 9918 5455** Fax **c/- 9918 5462** Mobile

Email **c/- arkitec@netspace.net.au**

email
tma@tm-a.com.au

all correspondence:

p.o. box 189
pennant hills
nsw 1715

3. Identify the land

Flat/street no. **137** Street name **RIVERVIEW RD.**

Suburb or town **CLAREVILLE** Postcode **2107**

Lot no. **9** Section **-----**

DP/MPS no. **19402** Volume/folio **-----**

sydney

8 albion street
pennant hills
nsw 2120

ph 02 9484 6999
fax 02 9484 3400

4. Estimated cost of the development

\$ **400,000.00** including GST

bowral

ph 02 4862 5550
fax 02 4862 5551

certificate application form

5. Describe the development

What type of work do you propose to carry out?

Building work ☒

Subdivision work ☐

Describe the work

ALTERATIONS AND ADDITIONS TO EXISTING RESIDENCE

For building work, what is the class of the building under the Building Code of Australia?

1 a

This can be found on the development consent

6. For purposes of an Occupation Certificate

Development Consent
Number:

N1004/02

Date Consent
Determined

09 FEBRUARY 2004

Consent Authority (Local
Government)

PITTWATER COUNCIL

Construction Certificate
Number:

Date Construction
Certificate Issued

Accredited Certifier / Consent
Authority

**Tom Miskovich, Planning
NSW 2024**

Complying Development
Certificate Number:

Date Construction
Certificate Issued

Accredited Certifier / Consent
Authority

7. Signatures

The owner(s) of the land must sign this application.

As the owner(s) of the above property, I/we consent to this application:

Signature



Name

ROGER JONES

Date

21/6/04

Signature



Name

SUE-ELLEN JONES

Date

21-6-04

The applicant, or the applicant's agent, must sign the application.

Signature



Name, if you are not the applicant



Date



In what capacity are you signing if you are not
the applicant



certificate application form

Schedule to application for a construction certificate

Please complete this schedule. The information will be sent to the Australian Bureau of Statistics.

All new buildings

Please complete the following:

- Number of storeys (including underground floors)
- Gross floor area of new building (m²)
- Gross site area (m²)

3

293.74 m²

935.8 m²

Residential buildings only

Please complete the following details on residential structures:

- Number of dwellings to be constructed
- Number of pre-existing dwellings on site
- Number of dwellings to be demolished
- Will the new building(s) be attached to other new buildings?
- Will the new building(s) be attached to existing buildings?
- Does the site contain a dual occupancy?
(NB dual occupancy = two dwellings on the same site)

1

1

1

Yes ☐ No ☒

Yes ☐ No ☒

Yes ☐ No ☒

Materials – residential buildings

Please indicate the materials to be used in the construction of the new building(s):

Walls	Code	Roof	Code	Floor	Code	Frame	Code
Brick (double)	☐ 11	Tiles	☐ 10	Concrete or slate	☐ 20	Timber	☒ 40
Brick (veneer)	☐ 12	Concrete or slate	☐ 20	Timber	☒ 40	Steel	☒ 60
Concrete or stone	☐ 20	Fibre cement	☐ 30	Other	☐ 80	Aluminium	☐ 70
Fibre cement	☐ 30	Steel	☒ 60	Not specified	☐ 90	Other	☐ 80
Timber	☐ 40	Aluminium	☐ 70			Not specified	☐ 90
Curtain glass	☐ 50	Other	☐ 80				
Steel	☒ 60	Not specified	☐ 90				
Aluminium	☐ 70						
Other	☐ 80						
Not specified	☐ 90						

construction certificate documentation
certificate number C-04-127
premises -- 137 Riverview Road, Clareville

annexure 2

documents that form part of this certificate

construction certificate documentation
 certificate number C-04-127
 premises – 137 Riverview Road, Clareville

documents that form part of this certificate

Architectural documentation & specification prepared by Warwick Werner Architect Pty Ltd.

Drawing No.	Revision	Title	Date
WD-02	-	Site Works Developed Driveway Sections (including certification for street levels & erosion controls)	24-09-04
WD-02	-	Site Works Developed Driveway Sections (including certification for stormwater drainage design)	24-09-04
WD-03	-	Level 1 Floor Plan / Level 2 Floor Plan	24-09-04
WD-04	-	Level 3 Floor Plan / Roof Plan	24-09-04
WD-05	A	West Elevation / East Elevation	16-03-05
WD-06	A	South Elevation / North Elevation	16-03-05
WD-07	-	Section A-A / Section B-B	24-09-04
WD-08	A	Landscape Plan	14-02-05

Structural documentation & specification prepared by D'Ambrosio Consulting.

Drawing No.	Revision	Title	Date
1.01	A	Footings Plan, Level 1 Framing Plan and Details	13-08-04
1.02	A	Level 1 Framing Details Sheet 1	13-08-04
1.03	A	Level 1 Framing Details Sheet 2	13-08-04
2.01	A	Level 2 Framing Plan and Details	13-08-04
2.02	A	Level 2 Framing Details Sheet 1	13-08-04
2.03	A	Level 2 Framing Details Sheet 2	13-08-04
3.01	A	Level 3 Framing Plan and Details	13-08-04
3.02	A	Level 3 Framing Details Sheet 1	13-08-04
4.01	A	Roof Framing Plan and Details	13-08-04
4.02	A	Roof Framing Details Sheet 1	13-08-04
5.01	A	Framing Elevations	13-08-04

Design statements and certificates as provided in annexure 3

Discipline	Certificate/statement reference	Prepared by	Dated
Structure	S443	D'Ambrosio Consulting P/L	13-08-04
Structure (Geotechnical issues)	-	D'Ambrosio Consulting P/L	28-02-05
Geotechnical assessment report	VO20716B	Jack Hodgson Consultants Pty Ltd	2-10-03

construction certificate documentation
certificate number C-04-127
premises – 137 Riverview Road, Clareville

annexure 3

other supporting documentation



OFFICE OF FAIR TRADING

NSW Consumer Protection Agency

Department of Commerce

ROGER HUNTER JONES
137 RIVERVIEW ROAD
CLAREVILLE 2107

HOME BUILDING ACT 1989

OWNER BUILDER PERMIT

Permit :275000P
Receipt:AA1878727

Issued:05/04/2004
Amount:\$126.00

Building Site:

LOT 5, 137 RIVERVIEW ROAD, AVALON 2107

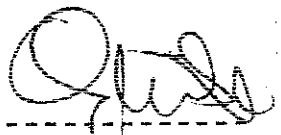
Authorized Building Work:

BUILDING WORK AS PER BA NO.
DA NO.: N1004/02
ISSUED BY PITTWATER 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 \$12,000. A certificate of insurance must be attached to any contract for 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 at presentation.



Issuing Officer

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

RECEIVED
13 OCT 2004
BY:-----

RECEIVED
21 MAR 2005

BY:.....

Pittwater Council

OFFICIAL RECEIPT

3/17/05 Receipt No 164277

To Roger Hunter Jones and
Suelien Jones

137 Riverview Rd
Avalon
2107

Applid: Reference	Amount
EL Re: QLSL-Buil	\$712.00
1 x N1004/02	

Total: \$712.00

Amounts Tendered

Cash	\$0.00
Cheque	\$712.00
Card	\$0.00
Money Order	\$0.00
Agency Rec	\$0.00
Total	\$712.00
Rounding	\$0.00
Change	\$0.00
Nett	\$712.00

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Cashier: NCulli

- 54443

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

Development Application for _____

Name of Applicant _____

Address of site 137 RIVERVIEW RD CLAREVILLE

Declaration made by Structural or Civil Engineer in relation to the incorporation of the Geotechnical Issues into the project design

I, ANGELO DAMBROSIO on behalf of DAMBROSIO CONSULTING P/L (Structural Engineers)
(insert name) (trading or company name)

on this the 28 FEB, 2005
(date)

certify that I am a Structural or Civil Engineer as defined by the Geotechnical Risk Management Policy for Pittwater. 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 prepared the below listed structural documents in accordance with the recommendations given in the Geotechnical Report for the above development

Geotechnical Report Details:

Report Title: RISK ANALYSIS & RISK MANAGEMENT FOR PROPOSED HOUSE AT
 Report Date: 2-10-03 137 RIVERVIEW ROAD CLAREVILLE
 Author: JACK HODGSON

Structural Documents List:

S4443-1-01/A, 1-02/A, 1-03/A, 2-01/A, 2-02/A, 2-03/A, 3-01/A, 3-02/A
4-01/A, 4-02/A & 5-01/A

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.

ANGELO DAMBROSIO
(name)

Angelo Dambrosio
(signature)

Declaration made by Geotechnical Engineer or Engineering Geologist in relation to Structural Drawings

I prepared and/or technically verified the abovementioned Geotechnical Report as per Form 1 dated 10-2-03 and now certify that I have viewed the above listed structural documents prepared for the same development. I am satisfied that the recommendations given in the Geotechnical Report have been appropriately taken into account by the structural engineer in the preparation of these structural documents. I am 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 _____

Chartered Professional Status MEMBER F.I.E. Aust

Membership No. _____

149 788



D'Ambrosio Consulting Pty Ltd
ACN 058 635 822 Structural Engineers
Suite 4/153 Victoria Road Gladesville
PO Box 251 Gladesville NSW 1675
Tel (02) 9879 5577 Fax (02) 9879 5588
Email: dambrosioconsulting@bigpond.com

Ref: S4443

13 August, 2004

The General Manager
Pittwater Council
Administrative Offices
Vuko Place
Warriewood NSW 2102

Dear Sir / Madam,

Re: 137 Riverview Rd, Clareville - Certificate Of Structural Adequacy (New Residence).

This letter is to certify to council that the structural details shown on the accompanying structural drawings S4443 – 1.01, 1.02, 1.03, 2.01, 2.02, 2.03, 3.01, 3.02, 4.01, 4.02 & 5.01 have been designed in accordance with the structural requirements of The Building Code Of Australia and will be safe for the maximum anticipated loadings as outlined in AS1170.0, 1,2 & 4. The new structural elements will be framed out of structural steel and timber, supported off reinforced concrete piers, founded to sandstone bedrock. The structural system for the new building is a combination of braced structural steel and portal frame action. The floors have been designed for an applied live-load of 200 kg/m² (in accordance with the requirements of AS1170), and the building designed for a terrain category 2.5 wind exposure (from the south). The new timber framing is to be constructed in accordance with the requirements of AS1684 – Residential Timber Framing Code, and structural steelwork is to comply with the requirements of AS4100 – Steel Structures Code.

It is recommended that engineers from this office make periodic inspections of the structural elements associated with this project to ensure compliance with the design intent. The concrete piers must be socketed into sandstone bedrock, and either engineers from this office or a geotechnical engineer is to certify that the bearing under the piers is structurally sound and acceptable.

This office carries professional indemnity insurance with CGU Insurances, and is current to June, 2005. If council has any questions, or requires any additional information, please do not hesitate to contact me.

Yours faithfully

A handwritten signature in dark ink, appearing to read 'Angelo'.

Angelo D'Ambrosio B.E.(Hons) MIEAust NPER3 (Structural)
D'AMBROSIO CONSULTING P/L

RECEIVED
28 FEB 2005

BY:

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 1 - To be submitted with Development Application

Development Application for

Address of site 137 Riverview Road Clareville Name of Applicant

Declaration made by geotechnical engineer or engineering geologist or coastal engineer (where applicable) as part of a geotechnical report

I, J HODGSON on behalf of Jack Hodgson Consultants Pty Limited
(Insert Name) (Trading or Company Name)

on this the 2-10-03 certify that I am a geotechnical engineer or engineering geologist or coastal engineer as defined by the Geotechnical Risk Management Policy for Pittwater and 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.

Please mark appropriate box

- ☒ Prepared the detailed Geotechnical Report referenced below in accordance with the Australia Geomechanics Society's Geotechnical Risk Management Guidelines and the Pittwater Council Policy
- ☐ Am willing to technically verify that the detailed Geotechnical Report referenced below has been prepared in accordance with the Australian Geomechanics Society's Geotechnical Risk Management Guidelines and the Pittwater Council Policy
- ☐ Have examined the site and the proposed development/alteration in detail and am of the opinion that the Development Application only involves Minor Development/Alterations that do not require a Detailed Geotechnical risk Assessment and hence my report is in accordance with the Policy requirements for Minor Development/Alterations.
- ☐ Provided the coastal process and coastal forces analysis for inclusion in the geotechnical report

Geotechnical Report Details:

Report Title: Risk Analysis & Risk Management for Proposed House at 137 Riverview Road Clareville.

Report Date: 2-10-03

Author: J HODGSON

Documentation which relate to or are relied upon in report preparation:

Survey Plan Architectural Plans

Archives of Jack Hodgson Consultants P/L

I am aware that the above geotechnical report, prepared for the abovementioned site is to be submitted in support of a Development Application for this site and will be relied on by Pittwater Council 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 J Hodgson
Name J HODGSON
Chartered Professional Status MEMBER F.I.E.A.N.S.I.
Membership No. 149 788

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 1(a) - Checklist Of Requirements For Geotechnical Risk Management Report for Development
Application or Part V assessment

Development Application for _____	Name of Applicant _____
Address of site <u>137 Riverview Road Clareville</u>	

The following checklist covers the minimum requirements to be addressed in a Geotechnical Risk Management Geotechnical Report. This checklist is to accompany the Geotechnical Report and its certification (Form No. 1).

Geotechnical Report Details:

Report Title: <u>Risk Analysis & Risk Management for Proposed House at</u>
Report Date: <u>2-10-03</u> <u>137 Riverview Road Clareville</u>
Author: <u>J HODGSON</u>

Please mark appropriate box

- ☒ Comprehensive site mapping conducted 26-6-03
(date)
- ☒ Mapping details presented on contoured site plan with geomorphic mapping to a minimum scale of 1:200 (as appropriate)
- ☒ Subsurface investigation required
 - ☒ No Justification See Report
 - ☐ Yes Date conducted
- ☒ Geotechnical model developed and reported as an inferred subsurface type-section
- ☒ Geotechnical hazards identified
 - ☐ Above the site NONE
 - ☒ On the site
 - ☐ Below the site NONE
 - ☐ Beside the site NONE
- ☒ Geotechnical hazards described and reported
- ☒ Risk assessment conducted in accordance with Council's Policy
 - ☒ Consequence analysis
 - ☒ Frequency analysis
- ☒ Risk calculation
- ☒ Risk assessment for property conducted in accordance with Council's Policy
- ☒ Risk assessment for loss of life conducted in accordance with Council's Policy
- ☒ Assessed risks have been compared to "Acceptable Risk Management" criteria as defined in the Geotechnical Risk Management Policy for Pittwater
- ☒ Opinion has been provided that the design can achieve the "Acceptable Risk Management" criteria provided that the specified conditions are achieved.
- ☒ Design Life Adopted:
 - ☒ 100 years
 - ☐ Other specify
- ☒ Development Conditions to be applied to all four phases as described in Pittwater Geotechnical Risk Management Policy have been specified
- ☒ Additional action to remove risk where reasonable and practical have been identified and included in the report.

I am aware that Pittwater Council will rely on the Geotechnical Report, to which this checklist applies, as the basis for ensuring that the geotechnical risk management aspects of the proposal 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 J Hodgson
 Name J HODGSON
 Chartered Professional Status MEMBER FIEAUSI
 Membership No. 149788



Jack Hodgson Consultants Pty Limited

CONSULTING CIVIL, GEOTECHNICAL AND STRUCTURAL ENGINEERS

ABN: 94 053 405 011

VO 20716B.
2nd October, 2003.
Page 1.

RISK ANALYSIS & RISK MANAGEMENT FOR PROPOSED HOUSE AT 137 RIVERVIEW ROAD, CLAREVILLE

1. INTRODUCTION.

1.1 This assessment has been prepared to accompany an application for development approval. The requirements of the Interim Geotechnical Risk Management Policy for Pittwater, June 2003 have been met.

1.2 The definitions used in this Report are those used in the Interim Geotechnical Risk Management Policy for Pittwater, June 2003.

1.3 The methods used in this Assessment are based on those described in Landslide Risk Management Concepts and Guidelines, March 2000, published by the Sub-Committee on Landslide Risk Management of the Australian Geomechanics Society and as modified by the Interim Geotechnical Risk Management Policy for Pittwater, June 2003.

1.4 The experience of the author of this Report spans some 46 years in many areas of Australia and in the Pittwater area, particularly in the last 30 years as Principal of Jack Hodgson Consultants Pty Limited.

2. PROPOSED DEVELOPMENT.

2.1 Demolish the existing house.

2.2 Construct a part three storey, timber house in approximately the same location as the existing house.

2.3 Details of the proposed development are shown on four drawings numbered DA-01, DA-02-A, DA-03-A and DA-04-A prepared by Warwick Werner Architect Pty Limited and dated DEC. 2002.

3. DESCRIPTION OF SITE & SURROUNDING AREA.

3.1 This property was inspected on 26th June 2003. It was previously inspected on 11th February 2003 and during February 2000.

DIRECTOR: J.D. HODGSON, M.Eng.Sc., F.I.E. Aust., Nper3 Struc. Civil 149788

11 Bungan Street, Mona Vale NSW 2103
PO Box 389 Mona Vale NSW 1660
Telephone: 9979 6733 Facsimile: 9979 6926



Jack Hodgson Consultants Pty Limited

CONSULTING CIVIL, GEOTECHNICAL AND STRUCTURAL ENGINEERS

ABN: 94 053 405 011

VO 20716B.
2nd October, 2003.
Page 2.

3. DESCRIPTION OF SITE & SURROUNDING AREA. Continued.

3.2 This property is located on the low side of the road and has a westerly aspect. A concrete paved driveway leaves the road near the northern boundary and runs down and across to a carport on the southern side of the block. The downhill side of the driveway is elevated above the ground. Timber steps provide access from the drive to the upper platform of an inclined lift and onto the surface of the block. The surface of the block slopes down from the bottom of these steps to an outcrop of sandstone above the house. The inclined lift also finishes on this outcrop. Access to the rear of the block is by steps and paths down the northern side of the house. A retaining wall runs across the block just down hill of the house. From the toe of this wall a steeper slope continues down to the water front of Pittwater. A boatshed and jetty are located at the water front. The grounds have been extensively landscaped with native trees, native shrubs and exotic shrubs. The trees on the upper part of the block are straight. Some trees near the water front have slight tilts and this is probably due to intermittent soil creep.

3.3 The part two storey house in reasonable condition for its age. It is located some 5 to 8 metres down hill of an outcrop of thickly bedded and resistant sandstone.

3.4 The properties on either side of the subject land are of similar topography and geology. They have been developed for a considerable number of years.

4. GEOLOGY OF THE SITE.

4.1 The site is underlain by interbedded sandstones, siltstones and shales of the Narrabeen Group. Sandstone outcrops at all levels of the site with fine sediments cropping out in the steeper slope down to the water. These rocks have all been identified as Narrabeen Group rocks. 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.

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ABN: 94 053 405 011

VO 20716B.
2nd October, 2003.
Page 3.

4. GEOLOGY OF THE SITE. Continued.

4.2 The slope materials are colluvial at the surface and residual at depth. They consist of sandy loam topsoil 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 shallow to 2 metres

5. SUBSURFACE INVESTIGATION.

Sandstone outcrops at all levels of the site with fine sediments cropping out in the steeper slope down to the water. These rocks have all been identified as Narrabeen Group rocks. It is our opinion that this information is adequate for the preparation of a type section and for the design of the proposed development. Therefore no subsurface investigation is required.

6. DRAINAGE OF THE SITE.

6.1 ON THE SITE.

There are no natural water courses on the site. All roof water is piped to Pittwater.

6.2 SURROUNDING AREA.

No signs of overland flow entering the site from the adjoining properties were observed.

7. GEOTECHNICAL HAZARDS.

7.1 ABOVE THE SITE.

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

7.2 ON THE SITE.

7.2.1 The steep slope down to the water front is subject to intermittent slow creep and this is a potential hazard. (HAZARD ONE.)

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Page 4.

7. GEOTECHNICAL HAZARDS. Continued.

7.2 ON THE SITE. Continued.

7.2.2 The cut batters of the excavations for lower levels of the proposed house will be a potential hazard during the construction phase. (HAZARD TWO.)

7.3 BELOW THE SITE.

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

7.4 BESIDE THE SITE.

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

8. RISK ASSESSMENT.

8.1 ABOVE THE SITE.

8.1.1 As no geotechnical hazards likely to adversely affect the subject site were observed above the site, no risk analysis is required

8.2 ON THE SITE.

8.2.1 **HAZARD ONE.** The likelihood of this hazard becoming a problem for the subject property is assessed as 'Unlikely' ($>10^{-4}$). The consequences to property of this problem occurring are assessed as 'Minor' ($>0.1\%$) as it is essentially a very slow process and there will be ample warning. Also the area affected would not influence the proposed house. The consequences to life of this problem occurring are assessed as 'Insignificant' ($<10^{-4}$) as it is essentially a very slow process and there will be ample warning so that people will not be in the failure area. The risk to property is 'Low' (10^{-7}). The risk to life is 'Very Low' (10^{-8}).



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VO 20716B.

2nd October, 2003.

Page 5.

8. RISK ASSESSMENT. Continued.

8.2 ON THE SITE.

8.2.2 HAZARD TWO. The likelihood of failure of the cut batters of the proposed excavations during the construction phase is assessed as 'Possible' ($>10^{-3}$). The consequences to property of such a failure are assessed as 'Minor' ($>0.1\%$) as little other construction work will be in place at this time. The consequences to life of such a failure are assessed as 'Minor' ($>10^{-4}$) as only the machine operator will be near the cut faces and that person would be protected in part by the machine. The risk to property is 'Low' (10^{-6}). The risk to life is 'Low' (10^{-6}).

8.3 BELOW THE SITE.

8.3.1 As no geotechnical hazards likely to adversely affect the subject site were observed below the site, no risk analysis is required

8.4 BESIDE THE SITE.

8.4.1 As no geotechnical hazards likely to adversely affect the subject site were observed beside the site, no risk analysis is required

9. SUITABILITY OF DEVELOPMENT FOR SITE.

9.1 GENERAL COMMENTS.

The proposed house is a satisfactory structure for the site.

9.2 GEOTECHNICAL COMMENTS.

No geotechnical hazards will be created by the completion of the proposed development.

9.3 CONCLUSIONS.

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

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ABN: 94 053 405 011

VO 20716B.
2nd October, 2003.
Page 6.

10. RISK MANAGEMENT.

10.1. TYPE OF STRUCTURE.

The proposed structure is suited to the site.

10.2. EXCAVATIONS.

10.2.1 Some excavation will be required for the uphill side of the lower levels of the proposed house. The cut batters must be supported by properly designed and constructed retaining walls unless they are in sound rock approved by the Engineer to stand unsupported at near vertical angles. The design Coefficient of Lateral Pressure is 0.7.

10.2.2 Construction of the retaining walls must be done as soon as possible after the excavation has been completed. The cut batters are to be covered to prevent loss of moisture in dry weather and to prevent access of moisture in wet weather. Upslope runoff is to be diverted from the cut faces by sandbag mounds or similar devices. Temporary support may be necessary depending upon the material encountered in the cuts and the length of period before permanent support is installed.

10.3. FILLS.

10.3.1 No fills are shown on the plans of the proposed development.

10.3.2 All excavated material is to be removed from the block.

10.4. FOUNDATION MATERIALS AND FOOTINGS.

10.4.1 It is recommended that all footings for the proposed development be supported on the underlying rock using piers as necessary. The design ultimate bearing pressures are 1.2 MPa for spread footings or shallow piers and 2.4 MPa for piers in which the surface of the rock is deeper than 1.2 metres from the ground level at the top of the pier. All piers are to be potted not less than 0.3 metres into the rock.

10.5. STORM WATER DRAINAGE.

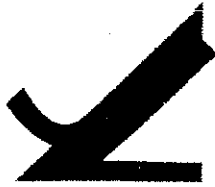
All storm water from the proposed development is to be collected and piped to Pittwater.

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ABN: 94 053 405 011

VO 20716B.
2nd October, 2003.
Page 7.

10.6. SUBSURFACE DRAINAGE.

No subsurface drainage is required additional to that to be provided with the retaining walls. All subsurface drains are to be constructed with standpipes to permit flushing out of the systems.

10.7. INSPECTIONS.

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

10.7.2 All subsurface drainage is to be inspected and approved before backfilling is completed.

10.7.3 The Geotechnical Engineer is to inspect all cut batters and determine if temporary support is required and, if necessary in collaboration with the Structural Engineer, determine the type of temporary support to be used.

10.8 MAINTENANCE.

10.8.1 The property is to be maintained in good order and in accordance with the guidelines set out in CSIRO Sheet No. 10-91 1988 and the Australian Geomechanics Article "Landslide Risk Management Concepts and Guidelines" May 2002.

10.8.2 All subsurface drains are to be flushed out at not more than 10 yearly intervals to check on any possible deterioration.

10.8.3 The area of long term creep down hill of the proposed development is to be checked at not more than 10 yearly intervals.

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 VO 20716B dated 2nd October 2003.

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ABN: 94 053 405 011

VO 20716B.
2nd October, 2003.
Page 8.

11. GEOTECHNICAL CONDITIONS FOR ISSUE OF CONSTRUCTION CERTIFICATE. Continued.

The Geotechnical Engineer is to inspect and approve the foundation materials of all footing excavations before concrete is placed.

The Geotechnical Engineer is to inspect and approve all subsurface drains before backfilling is completed.

The Geotechnical Engineer is to inspect all cut batters and determine if temporary support is required and, if necessary, in collaboration with the Structural Engineer determine the type of support that is to be used.

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 Risk Management Report VO 20716B dated 2nd October 2003.

The foundation materials of all footing excavations were inspected and approved before concrete was placed.

All subsurface drains were inspected and approved before backfilling was completed.

All cut batters were inspected and the need for temporary support determined and, if necessary, in collaboration with the Structural Engineer the type of support was determined.



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VO 20716B.
2nd October, 2003.
Page 9.

13. RISK ANALYSIS SUMMARY.

HAZARDS	Hazard One	Hazard Two
TYPE	Intermittent long term soil creep in the area down hill of the house.	Failure of the excavations for the lower levels of the house during construction of the permanent support.
LIKELIHOOD	'Unlikely' ($>10^{-4}$).	'Possible' ($>10^{-3}$).
CONSEQUENCES TO PROPERTY	'Minor' ($>0.1\%$).	'Minor' ($>0.1\%$).
CONSEQUENCES TO LIFE	'Insignificant' ($<10^{-4}$).	'Minor' ($>10^{-4}$).
RISK TO PROPERTY	'Low' (10^{-7}).	'Low' (10^{-6}).
RISK TO LIFE	'Very Low' (10^{-8}).	'Low' (10^{-6}).
COMMENTS	Acceptable.	Acceptable.

JACK HODGSON CONSULTANTS PTY. LIMITED.

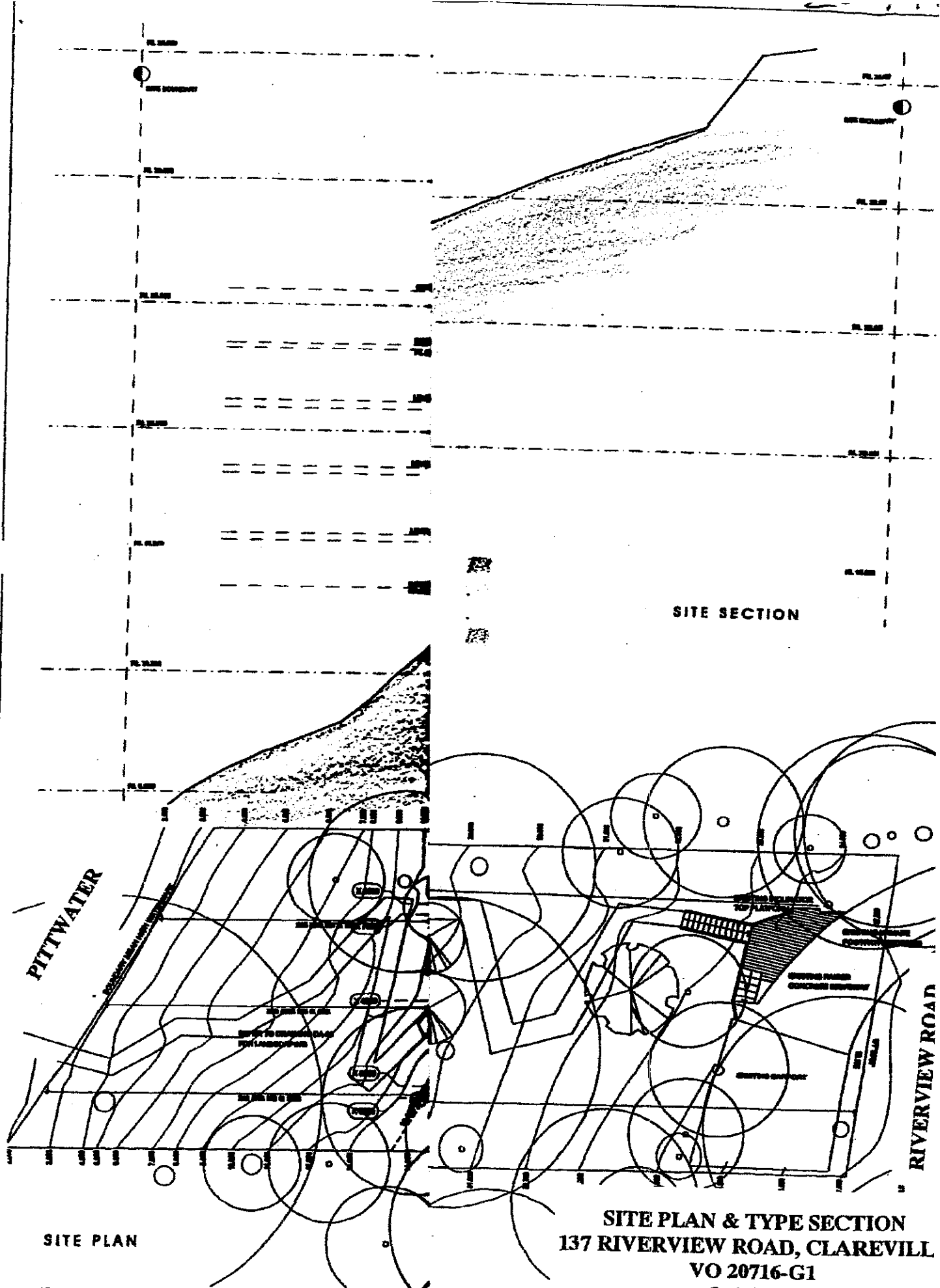

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Civil & Structural Engineer.
Nper3, Struct. Civil No. 149788.
Director.

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SITE PLAN

SITE SECTION

SITE PLAN & TYPE SECTION
137 RIVERVIEW ROAD, CLAREVILL
VO 20716-G1
Scale 1:200

NO.	REVISION	DATE	BY	CHKD	APP'D
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

1. HANSHAW, ROSE
CLAREVILL, NSW
AUSTRALIA
TELEPHONE 08 9391 1111
FAX 08 9391 1112
EMAIL: hshaw@clarevill.nsw.gov.au
WWW: www.clarevill.nsw.gov.au

Project No.	Date	Scale	Drawing No.
137	12/01/03	1:200	1A-02-A
Client	Architect	Site	Notes
137	137	137	137

DEVELOPMENT APPLICATION





Appendix A Qualitative Terminology and Risk Matrix

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2



**GEOTECHNICAL HAZARD RISK ASSESSMENT
QUALITATIVE TERMINOLOGY AND RISK MATRIX**

The tables are based on the principles outlined in "Landslide Risk Management Concepts and Guidelines", as presented in Australian Geomechanics, Vol. 35, No. 1, 2000.

Qualitative Measures of Likelihood

Level	Descriptor	Description	Indicative Annual Probability
A	ALMOST CERTAIN	The event is expected to occur.	$\geq 10^{-1}$
B	LIKELY	The event will probably occur under adverse conditions.	$\geq 10^{-2}$
C	POSSIBLE	The event could occur under adverse conditions.	$\geq 10^{-3}$
D	UNLIKELY	The event might occur under very adverse circumstances.	$\geq 10^{-4}$
E	RARE	The event is conceivable, but only under exceptional circumstances.	$\geq 10^{-5}$
F	BARELY CREDIBLE	The event is almost fanciful.	$< 10^{-6}$

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QUALITATIVE MEASURES OF CONSEQUENCES TO PROPERTY

Level	Descriptor	Description	* Approximate Cost of Damage
1	CATASTROPHIC	Structure(s) completely destroyed or large scale damage requiring major engineering works for stabilisation. Could cause at least one adjacent property major consequence damage.	> 100 %.
2	MAJOR	Extensive damage to most of structure, or extending beyond site boundaries requiring significant stabilisation works. Could cause at least one adjacent property medium consequence damage.	> 10 %.
3	MEDIUM	Moderate damage to some of structure, or significant part of site requiring large stabilisation works. Could cause at least one adjacent property minor consequence damage.	> 1 %.
4	MINOR	Limited damage to part of structure, or part of site requiring some reinstatement stabilisation works.	> 0.1 %.
5	INSIGNIFICANT	Little damage.	> 0.01 %.

* Note: The cost of damage is expressed as a percentage of the cost of the improved value of the unaffected structure(s).

Qualitative Measures of Consequences to Life

Level	Descriptor	Description	Indicative Vulnerability
1	CATASTROPHIC	Almost Certain Fatality	$\geq 10^{-1}$
2	MAJOR	Likely Fatality	$\geq 10^{-2}$
3	MEDIUM	Possible Fatality	$\geq 10^{-3}$
4	MINOR	Unlikely Fatality	$\geq 10^{-4}$
5	INSIGNIFICANT	Rare Fatality	$< 10^{-4}$

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3



QUALITATIVE RISK ANALYSIS MATRIX – LEVEL OF RISK TO PROPERTY AND PERSONS

LIKELIHOOD	CONSEQUENCE TO PROPERTY OR TO LIFE				
	1 CATASTROPHIC	2 MAJOR	3 MEDIUM	4 MINOR	5 INSIGNIFICANT
A- ALMOST CERTAIN	VH	VH	H	M	M
B- LIKELY	VH	VH	H	M	L
C- POSSIBLE	VH	H	M	L	VL
D- UNLIKELY	H	M	L	L	VL
E- RARE	M	L	L	VL	VL
F- BARELY CREDIBLE	L	VL	VL	VL	VL

Notes: 1. The risk matrix has been skewed in favour of consequence.
2. The diagonal lines give indicative (p.a.) risk levels for life.

Risk Level Implications

	Risk Level	Implications
VH	VERY HIGH RISK	Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to acceptable levels: may be too expensive and not practical.
H	HIGH RISK	Detailed investigation, planning and implementation of treatment options required to reduce risk to acceptable levels.
M	MODERATE RISK	May require investigation and planning of treatment options. Tolerable provided treatment options are implemented to maintain or reduce risks.
L	LOW RISK	Treatment requirements and responsibilities to be defined to maintain or reduce risk.
VL	VERY LOW RISK	Manage by normal slope maintenance procedures.

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4

The following notes should be read in conjunction with the Qualitative Risk Analysis Matrix – Level of Risk to Property and Persons

- Notes**
- (1)** The cost of damage is expressed as a percentage of the cost of the improved value of the unaffected property, which includes the land plus the unaffected structure(s).
 - (2)** The Approximate Cost is to be an estimate of the direct cost of the damage, such as the cost of reinstatement of the damaged portion of the property (land plus structures), which would include professional design fees, but does not include consequently costs such as legal fees, temporary accommodation, and stabilization works to "fix" the event.
 - (3)** To assess an appropriate Descriptor, it is preferable to prepare a cost estimate and then select the appropriate Descriptor accordingly.
 - (4)** If the Descriptor is being selected based on the Description alone, then the most severe Descriptor should be selected based on either the assessed extent of damage to the structure, or assessed extent of stabilization works, or assessed effect on adjacent structures.

LANDSLIDE RISK MANAGEMENT

AGS SUB-COMMITTEE

APPENDIX J

SOME GUIDELINES FOR HILLSIDE CONSTRUCTION

ADVICE		GOOD ENGINEERING PRACTICE	POOR ENGINEERING PRACTICE
GEOTECHNICAL ASSESSMENT		Obtain advice from a qualified, experienced geotechnical consultant at early stage of planning and before site works.	Prepare detailed plan and start site works before geotechnical advice.
PLANNING			
SITE PLANNING		Having obtained geotechnical advice, plan the development with the risk arising from the identified hazards and consequences in mind.	Plan development without regard for the Risk.
DESIGN AND CONSTRUCTION			
HOUSE DESIGN		Use flexible structures which incorporate properly designed brickwork, timber or steel frames, timber or panel cladding. Consider use of split levels. Use decks for recreational areas where appropriate.	Floor plans which require extensive cutting and filling. Movement intolerant structures.
SITE CLEARING		Retain natural vegetation wherever practicable.	Indiscriminately clear the site.
ACCESS & DRIVEWAYS		Satisfy requirements below for cuts, fills, retaining walls and drainage. Council specifications for grades may need to be modified. Driveways and parking areas may need to be fully supported on piers.	Excavate and fill for site access before geotechnical advice.
EARTHWORKS		Retain natural contours wherever possible.	Indiscriminate bulk earthworks.
	CUTS	Minimise depth. Support with engineered retaining walls or better to appropriate slope. Provide drainage measures and erosion control.	Large scale cuts and benching. Unsupported cuts. Ignore drainage requirements.
	FILLS	Minimise height. Strip vegetation and topsoil and key into natural slopes prior to filling. Use clean fill materials and compact to engineering standards. Batter to appropriate slope or support with engineered retaining wall. Provide surface drainage and appropriate subsurface drainage.	Loose or poorly compacted fill, which if it fails, may flow a considerable distance including onto property below. Block natural drainage lines. Fill over existing vegetation and topsoil. Include stumps, trees, vegetation, topsoil, boulders, building rubble etc in fill.
ROCK OUTCROPS & BOULDERS		Remove or stabilise boulders which may have unacceptable risk. Support rock faces where necessary.	Disturb or undercut detached blocks or boulders.
RETAINING WALLS		Engineer design to resist applied soil and water forces. Found on rock where practicable. Provide subsurface drainage within wall backfill and surface drainage on slope above. Construct wall as soon as possible after cut/fill operation.	Construct a structurally inadequate wall such as sandstone flagging, brick or unreinforced blockwork. Lack of subsurface drains and weepholes.
FOOTINGS		Found within rock where practicable. Use rows of piers or strip footings oriented up and down slope. Design for lateral creep pressures if necessary. Backfill footing excavations to exclude ingress of surface water.	Found on topsoil, loose fill, detached boulders or undercut cliffs.
SWIMMING POOLS		Engineer designed. Support on piers to rock where practicable. Provide with under-drainage and gravity drain outlet where practicable. Design for high soil pressures which may develop on uphill side whilst there may be little or no lateral support on downhill side.	
DRAINAGE			
	SURFACE	Provide at tops of cut and fill slopes. Discharge to street drainage or natural water courses. Provide general falls to prevent blockage by siltation and incorporate silt traps. Line to minimise infiltration and make flexible where possible. Special structures to dissipate energy at changes of slope and/or direction.	Discharge at top of fills and cuts. Allow water to pond on bench areas.
	SUBSURFACE	Provide filter around subsurface drain. Provide drain behind retaining walls. Use flexible pipelines with access for maintenance. Prevent inflow of surface water.	Discharge roof runoff into absorption trenches.
	SEPTIC & SULLAGE	Usually requires pump-out or mains sewer systems; absorption trenches may be possible in some areas if risk is acceptable. Storage tanks should be water-tight and adequately founded.	Discharge sullage directly onto and into slopes. Use absorption trenches without consideration of landslide risk.
EROSION CONTROL & LANDSCAPING		Control erosion as this may lead to instability. Revegetate cleared area.	Failure to observe earthworks and drainage recommendations when landscaping.
DRAWINGS AND SITE VISITS DURING CONSTRUCTION			
DRAWINGS		Building Application drawings should be viewed by geotechnical consultant	
SITE VISITS		Site Visits by consultant may be appropriate during construction/	
INSPECTION AND MAINTENANCE BY OWNER			
OWNERS RESPONSIBILITY		Clean drainage systems; repair broken joints in drains and leaks in supply pipes. Where structural distress is evident see advice. If seepage observed, determine causes or seek advice on consequences.	

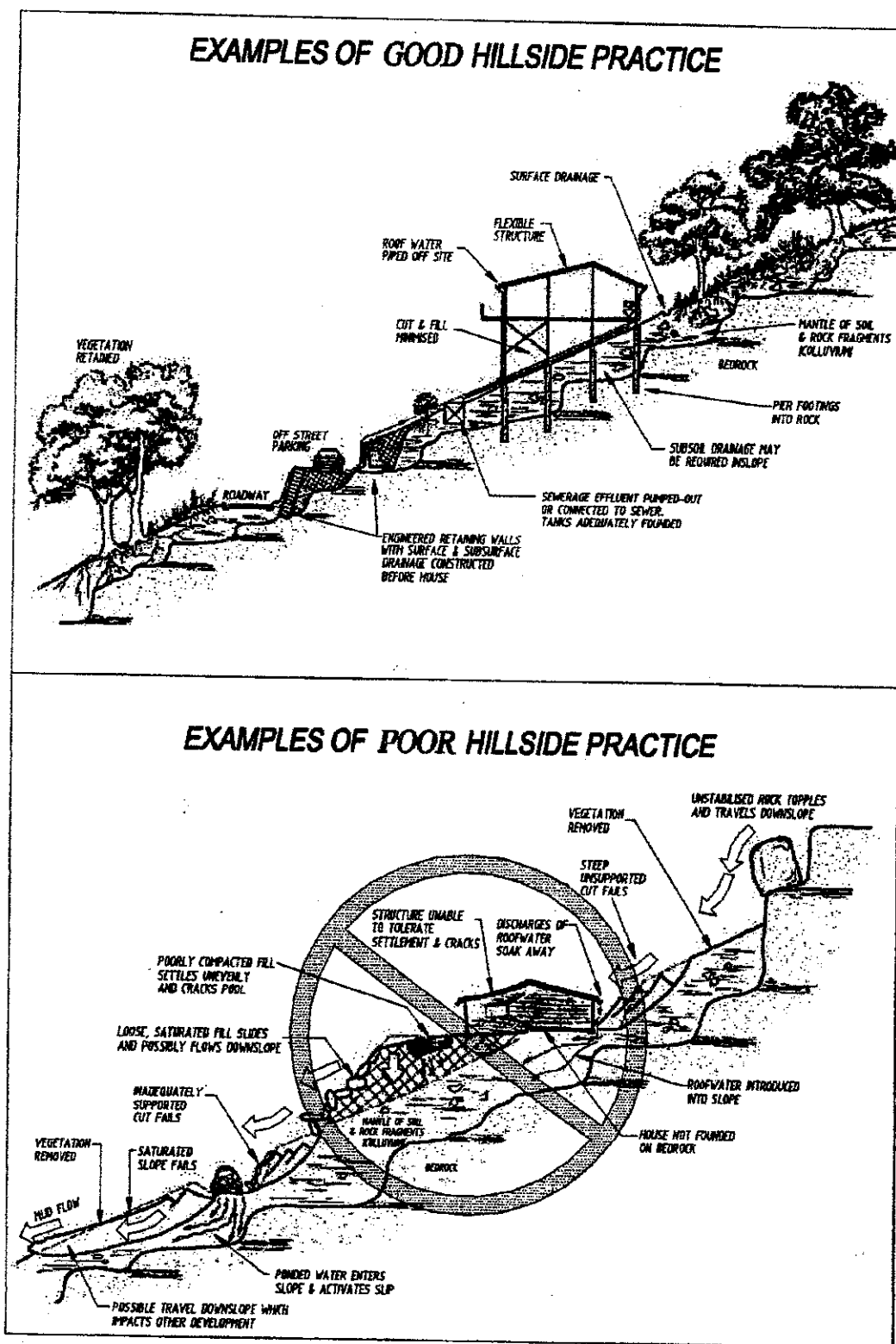


Figure J1 Illustrations of Good and Poor Hillside Practice

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PTY. LIMITED ACN 077 722 779

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NSW AUSTRALIA 2107
Telephone: 02 9918 5455
Facsimile: 02 9918 5462
Mobile Phone: 0402 038 109
Email: w_werner@optusnet.com.au

28 February 2005

Ref: TM-RSJ-06LTR.wpd

Tom Miscovich & Associates Pty. Ltd.
P.O.Box 189
PENNANT HILLS NSW 2120

Attention: Tom Donohoe

Dear Tom,

Re: **PROPOSED NEW RESIDENCE, 137 RIVERVIEW RD., CLAREVILLE - CONSTRUCTION CERTIFICATE SUBMISSION**

With respect to Condition B.34 of the Conditions of Development Consent the following Certification is provided:

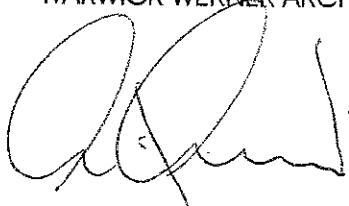
I am a qualified Architect holding the following qualifications:
B.Arch(Hons) NSW, Grad.Dip.LD NSW, NSW Board of Architects Registration No. 3507

I am appropriately qualified to provide the following certification:

I hereby state that the SCHEDULE OF EXTERNAL FINISHES - CLAUSE 19.1 OF THE SPECIFICATION (copy attached) complies with the requirements of Section 3.1.9 of Pittwater Council's DCP-LP08 as required by By Condition B.34 of the Conditions of Consent.

Yours faithfully,

WARWICK WERNER ARCHITECT PTY. LIMITED



WARWICK WERNER

RECEIVED
21 MAR 2005
BY:

19 SCHEDULES

19.1 SCHEDULE OF EXTERNAL FINISHES

Schedule

Element	Sub-strata	Material	Finish	Colour	Supplier
Level 1 walls	Steel frame	Custom Orb	Colorbond	Bushland	Lysaght
Level 2 walls	Steel frame	Custom Orb	Colorbond	Bushland	Lysaght
Level 3 walls	Steel frame	Custom Orb	Colorbond	Bushland	Lysaght
Window	Aluminium	Powdercoat	Duralloy	Charcoal	Dulux
Roof	Zincalume	Custom Orb	Colorbond	Woodland	Lysaght
Fascia	Zincalume	Sheet steel	Colorbond	Woodland	Lysaght
Steel columns	Galvanised	Paint	Gloss enamel	Charcoal	Dulux
Steel beams	Galvanised	Paint	Gloss enamel	Charcoal	Dulux



Business Hours:
8am to 6.00pm Monday to Thursday
8am to 5.00pm Friday

DA No: N1004/02

16 March 2005

Warwick Werner Architect
4 Wanawong Rd
Careel bay NSW 2107

Dear Sir

137 Riverview Rd, Clareville

I refer to your recent enquiry concerning Condition D39 of the abovementioned development consent.

Condition D39 is as follows:

D39. The fixed highlight glazing immediately below the roofline of the proposed dwelling, level 3, as shown in red on the approved plans, shall be constructed of an obscured glazing or solid panels.

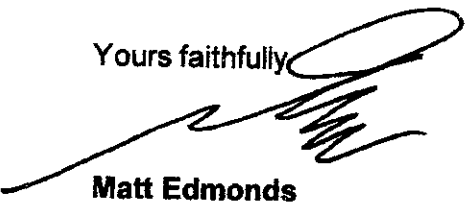
I understand from our discussions that your clients copies of the stamped approved plans do not identify in red the fixed highlight glazing referred to in condition D39.

Council's consent register copy, electronic copy and file copies of the stamped approved plans also do not identify in red the subject windows.

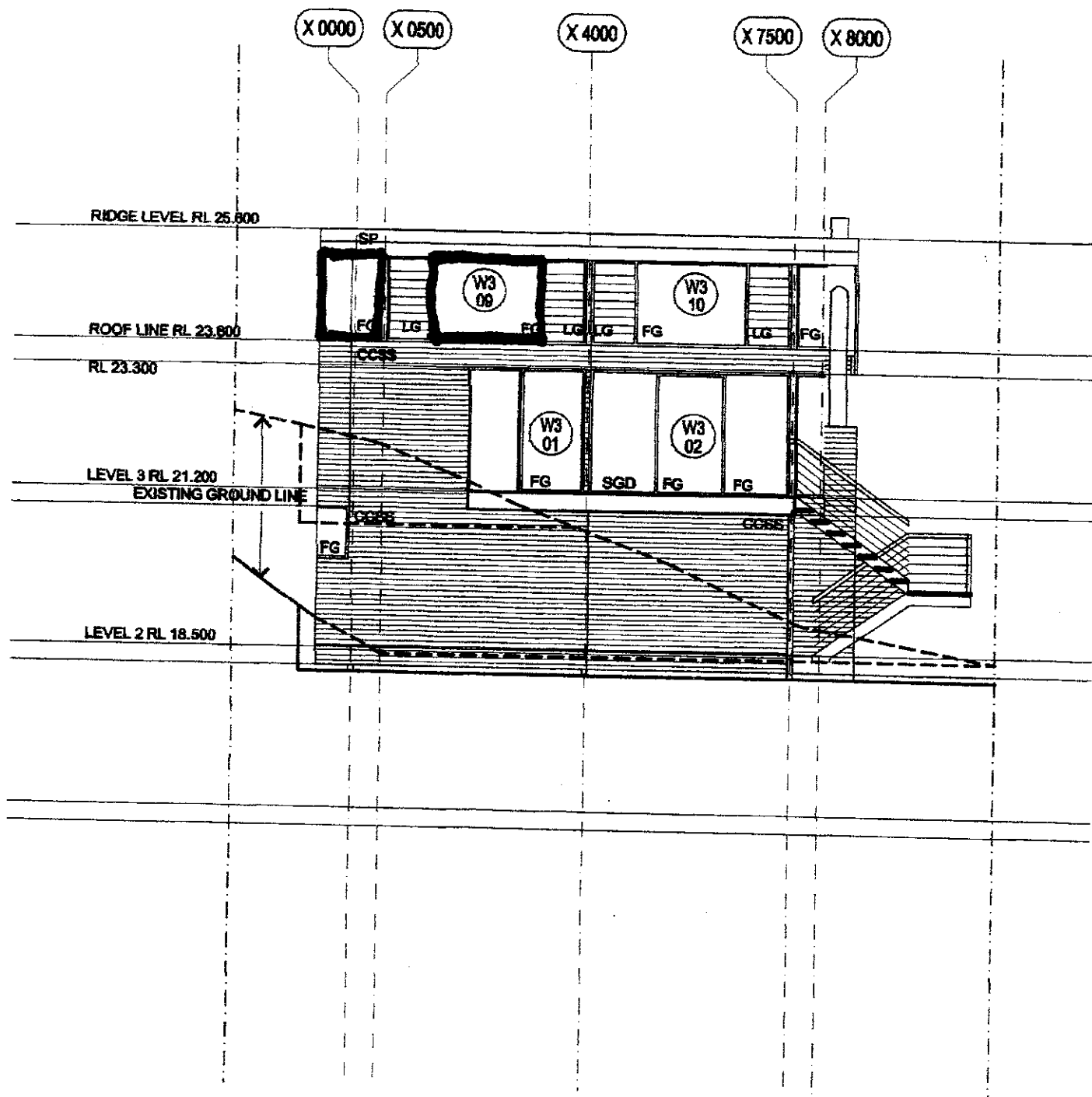
There is a copy in Council's file of the Level 3 Floor Plan (Drawing DA – 10 dated 7 April 2003) that has a marking on it (in blue) of the window areas that required treatment, as identified during the application assessment. A copy of the relevant part of this plan is enclosed for your information. These windows are numbered Part W3 15 (raised section only) W3 16 and W3 09 on approved Drawing DA-04-A dated 4 Dec 2002 and as identified in the attached part copy of this plan.

The requirements of Condition D39 relate to the abovementioned windows.

Yours faithfully



Matt Edmonds
Principal Officer - Development



EAST ELEVATIC

Y 16000 Y 14000 Y 12000 Y 10500 Y 7000 Y 3500 Y 2000 Y 0000

RIDGE LEVEL RL 25.800

ROOF LINE RL 23.500
RL 23.300

LEVEL 3 RL 21.200

LEVEL 2 RL 18.500

LEVEL 1 RL 15.800

INTERPOLATED NATURAL
GROUND LEVEL RL 13.500

RIDGE LEVEL RL 25.800

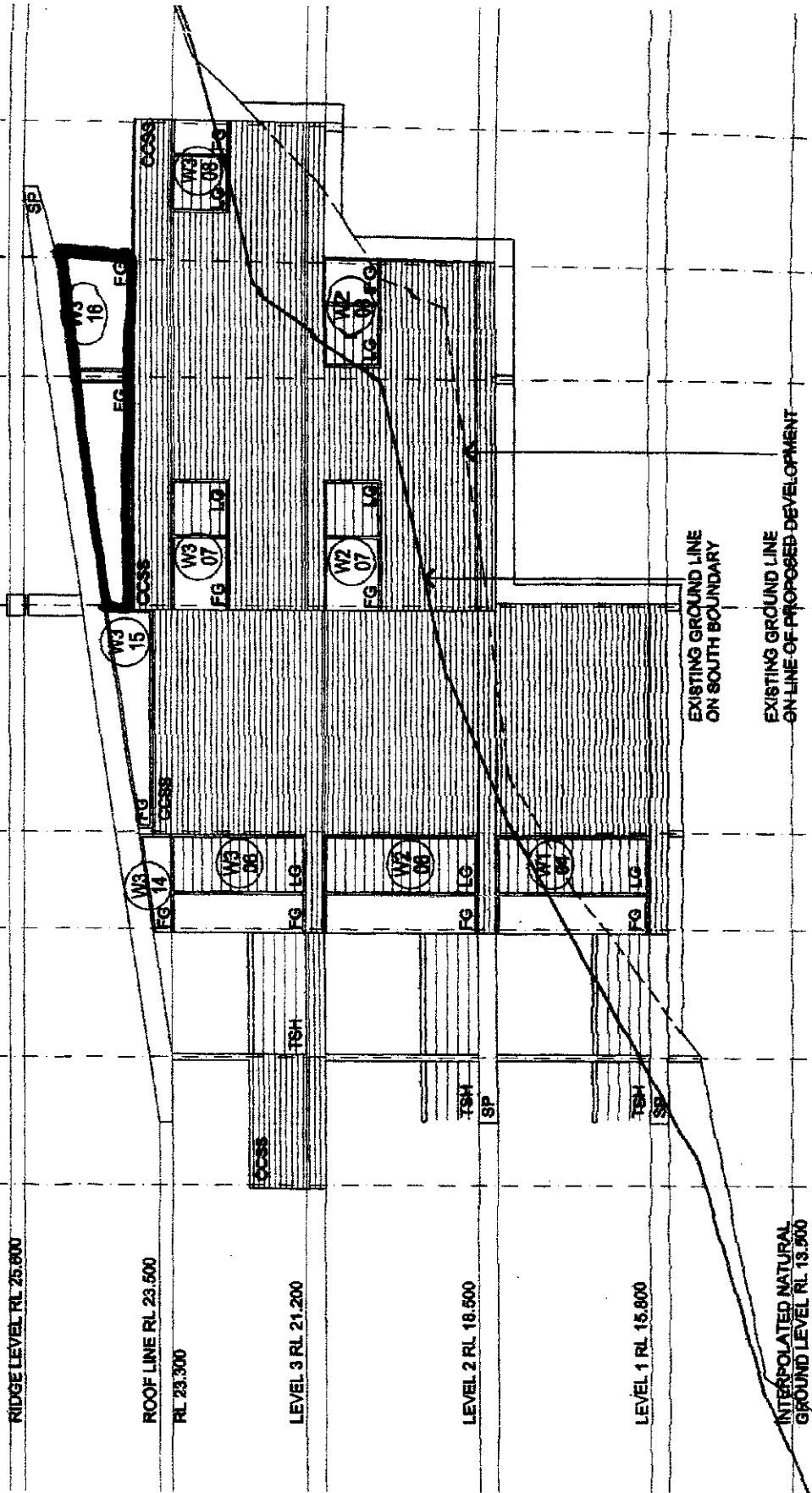
ROOF LINE RL 23.500
RL 23.300

LEVEL 3 RL 21.200

LEVEL 2 RL 18.500

LEVEL 1 RL 15.800

INTERPOLATED NATURAL
GROUND LEVEL AT NW
CORNER OF ROOF RL 13.500





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CONSULTATIONS, FELLING, TRIMMING AND SURGERY

FULL INSURANCE PROTECTION CREDIT CARDS ACCEPTED

PO Box 35, Newport Beach, 2106, NSW

Phone: (02) 9997 4101 Mobile: 0412 221 562 Fax: (02) 9940 0217

ABN 97 965 355 200

Warwick Werner
137 Riverview Road
Clareville

16 November 2004

Dear Warwick

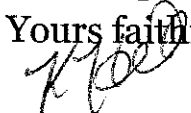
**RE: Tree Protection for 137 Riverview Road,
Clareville**

As requested by Warwick Werner an inspection of the trees to be retained at 137 Riverview Road, Clareville was conducted by Kyle Hill on 10 November 2004. The trees were inspected in relation to the proposed development and the Tree Protection Measures required to aid in the longevity of the subject trees. The trees assessed were located below, above and adjacent to footpaths, inclinator and driveway. Tree numbers were 1 to 9 as noted on site plans.

Adequate Tree Protection Measures for this site are to be in the form of wooden planks (50-75mm x 15mm) to a height of 3.0metres above ground levels, excluding trees near driveway/garage. The levels for these trees are to be significantly higher. The planks are to be fixed together using metal strapping (or similar) with padding placed between planks and bark. This padding is to protect the bark and must be made of material which will not damage the bark.

Should you have any queries relating to this letter, or any other matter, please do not hesitate to call me on 0412-221-962.

Yours faithfully


Kyle Hill

Growing My Way



PITTWATER COUNCIL
Unit 9/5 Vuko Place, Warriewood NSW 2102
Telephone 9970 1111

Date: 5-Mar-04
Receipt No:
Amount: \$132.00

Name: Warwick Werner Architect Pty Ltd
Postal Address: 4 Wanawong Road
Avalon 2107

COUNCIL CROSSING PROFILE AT
137 Riverview Road, Clareville

The future vehicular access profile will be as per the enclosed plan **MLLS**.

WORK REQUIRED:

Construct: Vehicular access slab 7.0m long x 4.0m wide at gutter crossing to 4.0m wide at the boundary.

Type of Construction: Domestic

Note: "G" (see attached diagram) at edge of road and 50mm below edge of road.

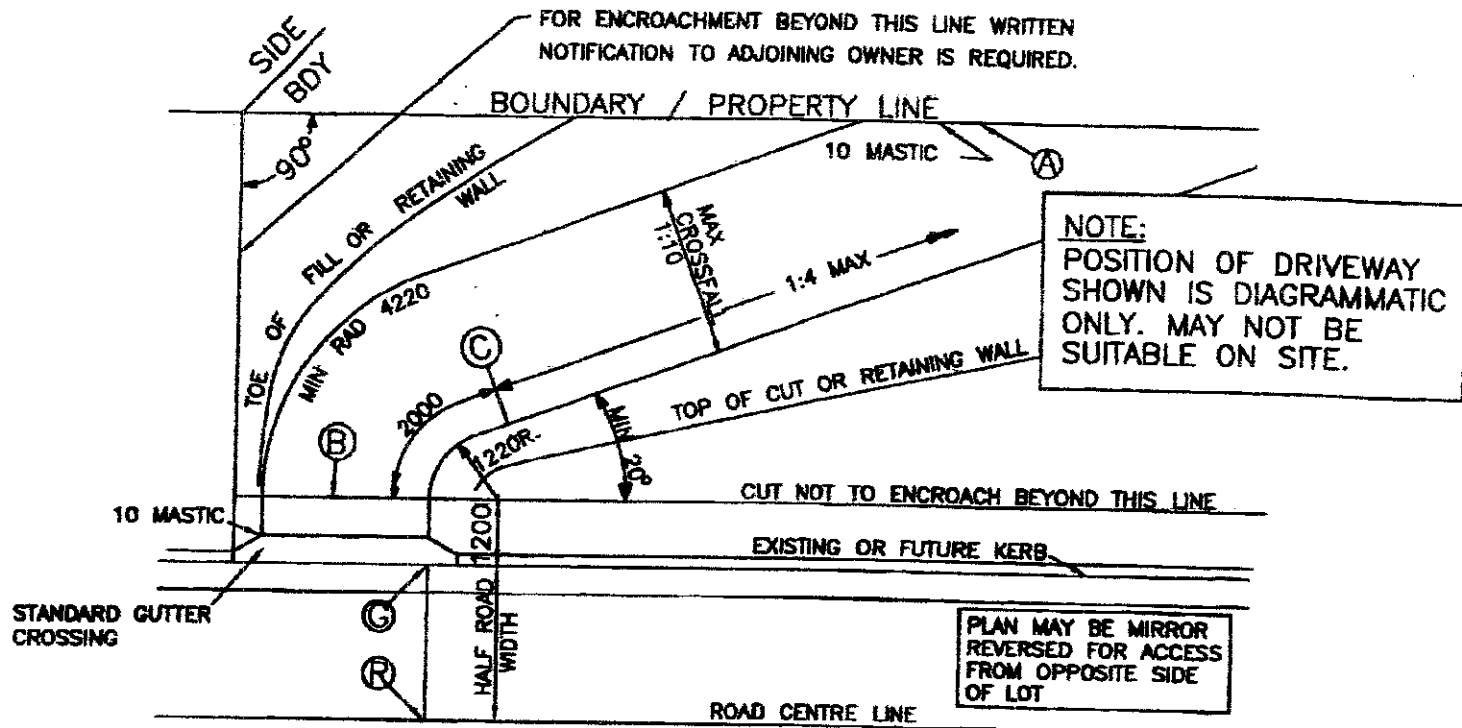
VEHICULAR ACCESS

- (a) All work within the road reserve (including excavation) in connection with the above, is to be carried out by authorised contractors only.
- (b) Quotations for the work specified above should be obtained from any of the contractors on the list and should be for the whole of the work stated.
- (c) Construction of vehicular access will be strictly in accordance with the profile supplied and where the drive within the property is to be constructed first, it shall be the responsibility of the owner to have the work carried out in such a manner as to provide a smooth join and continuity of grading.

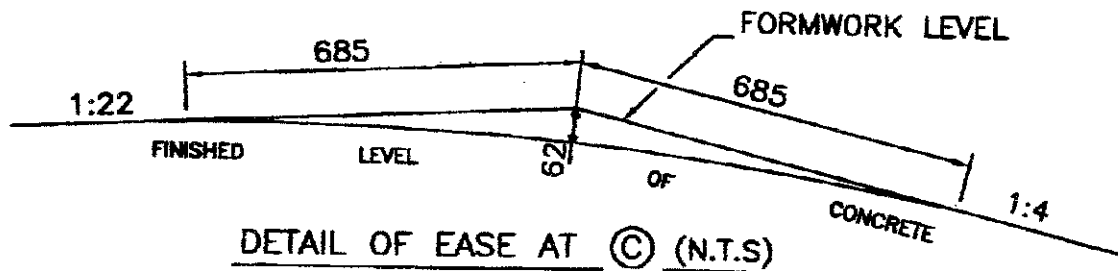
Please Note: Council will only permit an absolute maximum gradient of 25% (1 in 4) measured at any point on the driveway and that an ease may be required for access into the car stand area, carport or garage. Refer to relevant attached profile.

Sigi Melderis
ASSETS / RESTORATIONS OFFICER

MAXIMUM LOW LEVEL SKEW (MLLS)



POINT	REMARKS	LEVELS
R	ROAD CENTRELINE	
G	INVERT OF GUTTER	
B	1200 FROM KERB FACE	150 ABOVE "G"
C	3200 FROM KERB FACE	100 ABOVE "G" (FORMWORK LEVEL)
A	BOUNDARY	EASE REQUIRED AT GRADE CHANGE



1. Driveway must be a minimum of 150mm above gutter level.
2. All construction within the road reserve to be in plain uncoloured 20Mpa concrete unless otherwise approved by Council.
3. Single dwellings - 20Mpa concrete 130mm thick.
 - Dual occupancies where the crossing services both dwellings - 20Mpa concrete 150mm thick with F72 reinforcement.
 - Subdivisions servicing up to 10 lots - 20Mpa concrete 150mm thick with F72 reinforcement.
 - Industrial or commercial - 25Mpa concrete 180mm thick with F72 reinforcement.
4. The vehicular crossing and the driveway to 1200 behind the kerbline is to be graded parallel with the road centre line grading.
5. At least 24 hours notice of intention to place concrete within the road reserve shall be given to Council. and no concrete shall be placed until the formwork has been approved.
6. Retaining walls to be designed by a structural engineer & plans must be submitted to Council for approval prior to commencing construction.
7. Radii shown are minimum but tangent points shall remain at or beyond B.
8. Driveway pavers to be laid on a 100mm concrete base.



PITTWATER COUNCIL

Standard Domestic Driveway Profiles

MAXIMUM LOW LEVEL SKEW

PLAN No.

MLLS

SHEET No. 1 of 1 SHEETS



Pittwater Council

ABN 61 340 837 871

All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1860
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

8am to 6pm Mon - Thurs, 8am to 5pm Fri
Phone 9970 1111
Email: pittwater_council@pittwater.nsw.gov.au

17 January 2003

R H JONES & S J JONES
PO BOX 647
AVALON BEACH NSW 2107

Dear Madam or Sir

Re: Pittwater LGA - Bushfire Prone Land Map
137 RIVERVIEW ROAD
AVALON NSW 2107

I am writing to advise you that NSW Rural Fire Service has forwarded a new map, the Pittwater LGA - Bushfire Prone Land Map which shows land that the Rural Fire Services considers to be bushfire prone. Your property is no longer identified as being bushfire prone.

You can view the new map at www.pittwaterlga.com.au, Mona Vale Library, the Coastal Environment Centre or at Council's offices at Warriewood and Avalon.

Previously, at the Environment and Planning Committee meeting on 5 August 2002, Council considered the Rural Fires and Environmental Assessment Legislation Amendment Act 2002 and the Bushfire Hazard Map Plus Buffer prepared under that Act. All affected property owners were advised and submissions received.

The Pittwater LGA - Bushfire Prone Land Map significantly reduces the number of properties identified as being bushfire prone, but until the map is certified by the NSW RFS Commissioner, Council will continue to use the Bushfire Hazard Map plus Buffer endorsed by the RFS on 1 August 2002 for referral of development applications to the RFS, and for planning certificates (section 149 of the Environmental Planning and Assessment Act).

The Pittwater LGA - Bushfire Prone Land Map was reported to Council on 2 December 2002 and the map and the report are on public exhibition which has been extended until 21 February 2003. Following consideration of submissions, a further report will be made to Council.

Should you wish to make a submission please email or post your comments to the above address by 21 February 2003.

Yours faithfully

Caroline Kades

PRINCIPAL STRATEGIC PLANNER

WARWICK WERNER ARCHITECT
PTY. LIMITED ACN 077 722 779

RECEIVED
24 MAR 2005

4 WANAWONG RD. CAREEL BAY
NSW AUSTRALIA 2107
Telephone: 02 9918 5455
Facsimile: 02 9918 5462
Mobile Phone: 0402 038 109
Email: arkitec@netspace.net.au

EMAIL ATTACHMENT

BY:.....

ATTENTION:	TOM DONOHOE	DATE:	24 March 2005
ORGANISATION:	TOM MISKOVICH & ASSOCIATES PTY LTD	EMAIL:	tomd@tm-a.com.au
FROM:	WARWICK WERNER	NO. PAGES:	1
SUBJECT:	137 RIVERVIEW RD CLAREVILLE NSW	FILE REF:	TM-RSJ-08-EMAIL.wpd

Tom,

The following is confirmation as to the relationship of the north west corner of Level 2 western balcony to the ground level below.

The RL of Level 2 balcony is **RL 18.357**

The northern side of the Level 2 western boundary lies along grid line X7500. The north western corner of the balcony is on this grid line 1050mm west of grid line Y14000.

The top of the existing retaining wall along grid line X7500 is by computer measurement from the surveyor's drawing 1160mm west of grid line Y14000. The existing ground RL at this point, ie immediately below the north west corner of Level 2 balcony, is shown on the survey as **RL 14.360**.

The height from the existing ground level to the Level 2 balcony RL is therefore 3.997 metres.

Regards

WARWICK

f a c s i m i l e

acn 094 366 873
abn 93 094 366 873

9918 5462

24 March 2005

8

137 Riverview Road, Clareville

FAXED
24 MAR 2005
BY: _____

Phord

YES

NO

ph 02 4862 5550
fax 02 4862 5551

PROPOSED NEW RESIDENCE
137 RIVERVIEW RD. CLAREVILLE NSW
FOR
R. & S. JONES

SPECIFICATION
CONSTRUCTION CERTIFICATE
24 SEPTEMBER 2004

WARWICK WERNER ARCHITECT PTY. LIMITED
CHARTERED ARCHITECTS • LANDSCAPE ARCHITECTS

4 WANAWONG ROAD CAREEL BAY NSW 2107
TEL 9918 5455
FAX 9918 5462
MOB 0402 038 109

This is the document
referred to in certificate

No. C-04-074

Dated: 24-3-05

REC'D
24-3-05
10:10 AM
WARWICK WERNER
ARCHITECT PTY. LTD

TABLE OF CONTENTS

SECTION		PAGE
1	GENERAL REQUIREMENTS	1
2	SITE PREPARATION	3
3	CONCRETE CONSTRUCTION	8
4	TIMBER AND STEEL CONSTRUCTION	9
5	BRICK AND BLOCK CONSTRUCTION	11
6	INSULATION AND SARKING	13
7	WATERPROOFING	14
8	ROOFING	15
9	DOORS AND WINDOWS	16
10	LINING	19
11	BOCK AND TILE FINISHES	20
12	FLOOR COATINGS AND COVERINGS	22
13	PAINTING	24
14	TIMBER FIXTURES	26
15	PLUMBING AND DRAINAGE	29
16	ELECTRICAL INSTALLATIONS	32
17	LANDSCAPING	35
18	REFERENCED DOCUMENTS	37
19	SCHEDULES	41

1 GENERAL REQUIREMENTS

1.1 GENERAL

Interpretation

- Owner: Means the same as "principal" or "proprietor".
Builder: Means the same as "contractor".
Supply: Means "supply only" - do not install.
Provide: Means "supply and install".
Required: Means required by the contract documents or by the local council or statutory authorities.
Proprietary: Means identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.

Standards

Use referenced Australian or other standards (including amendments) which are current one month before the date of the contract except where other editions or amendments are required.

Manufacturers' or suppliers' recommendations

Select, store, handle and install proprietary products or systems in accordance with the current published recommendations of the manufacturer or supplier.

Bushfire protection

If required, provide protection to AS 3959-1999 (Construction of buildings in bushfire prone areas).

1.2 AUTHORITIES AND ESTABLISHMENT

Prior applications and approvals

- Development Approval 03 February 2004

Existing services

Attend to existing services as follows:

- If the service is to be continued, repair, divert or relocate as required. If such a service crosses the line of a required trench, or will lose support when the trench is excavated, provide permanent support for the existing service.
- If the service is to be abandoned, cut and seal or disconnect, and make safe.

Temporary services and works

Provide temporary toilet accommodation. Connect to the sewer main if required by the Local Authority.

Use of existing services

Existing services may be used as temporary services for the performance of the contract.

Signs

Provide a signboard displaying the owners name, the lot number and the builder's name, address and licence number.

1.3 EXECUTION AND COMPLETION

Survey marks

Preserve and maintain the owners survey marks in their true positions.

Rectification: If the proprietor's survey marks are disturbed or obliterated, immediately give notice and rectify the disturbance or obliteration.

Hours of work

In accordance with the current requirements of Pittwater Council.

Removal of temporary work, services and plant

Remove temporary work services and construction plant within 10 working days after practical completion.

Rectification: Clean and repair damage caused by the installation or use of temporary work and services and restore existing facilities used during construction to original condition.

Final cleaning

Remove rubbish and surplus material from the site and clean the work throughout.

Warranties

Name the owner as warrantee and give the owner copies of manufacturers' warranties.

Instruction manuals

Give the owner manufacturers' instruction manuals.

Operation

Ensure moving parts operate safely and smoothly.

Surveyor's certificate

Give the owner a certificate which confirms that the work, including boundary fences, has been correctly located.

Services layout

Give the owner a plan which shows the location of underground services.

Authorities' approvals

Give the owner evidence of approval of the local council and statutory authorities whose requirements apply to the work.

Keys

Give the owner two keys for each set of locks keyed alike and two keys for each lock keyed to differ.

1.4 TERMITE PROTECTION

General

Standard: To AS 3660.1-2000 (Termite management - New buildings).

Extent

Form a complete and continuous barrier under the whole of the extended building footprint and extending 300mm beyond the perimeter of slabs on ground comprising the following:

Graded stone barriers

Graded stone termite barrier system installed around building perimeter, in all footings and across subfloor areas with less than 400mm clearance in accordance with manufacturer's instructions.

Proprietary item: Granitgard

Application: by Granitgard Pty Ltd licensed installer

Termite barrier notice

Provide a durable notice permanently fixed in a prominent location to BCA Volume 2 clause 3.1.3.2 (b) and AS 3660.1 - 2000 (Termite management - New buildings) Appendix A.

1.5 TIMBER GENERALLY

Unseasoned timber

If unseasoned timber is provided, or variations in moisture content are likely, make allowance for shrinkage, swelling and differential movement.

Durability

General: Provide timbers with natural durability appropriate to the conditions of use, or preservative-treated timbers of equivalent durability.

Natural durability classification: To AS 1604.1-2000 (Specification for preservative treatment - Sawn and round timber) Table F2.

Minimum requirements:

- Class 1: Timbers in contact with the ground.
- Class 2: Timbers above ground, not in continuous contact with moisture, well ventilated, protected from moisture but exposed to the weather.
- Class 3: Timbers above ground, not in continuous contact with moisture, well ventilated, protected with a finish, and well maintained.
- Class 4: Timbers fully protected from moisture, indoors, above ground, and well ventilated.

Preservative treatment

Plywood: To AS/NZS 1604.3-2002 (Specification for preservative treatment - Plywood).

- End use hazard classification: To Table A1.

Reconstituted wood based products: To AS/NZS 1604.2-2002 (Specification for preservative treatment - Reconstituted wood-based products).

- End use hazard classification: To Table A1.

Sawn and round: To AS 1604.1-2000 (Specification for preservative treatment - Sawn and round timber).

- End use hazard classification: To AS 1604.1-2000 (Specification for preservative treatment - Sawn and round timber) Table D1.

2 SITE PREPARATION

2.1 GENERAL

Standard

Groundworks for slabs and footings: To AS 2870-1996 (Residential slabs and footings - Construction).

Ground slabs and footings: To AS 2870-1996 (Residential slabs and footings - Construction).

Structural Engineer's drawings

All demolition and excavation work is to be executed in accordance with the Structural Engineer's drawings and the Specification notes contained therein. Where there is a variance with this Specification the Structural Engineer's Specification shall take precedence.

Interpretation

Rock: Monolithic material with volume greater than 0.5 m³ which cannot be removed until broken up by mechanical means such as rippers or percussion tools.

Bad ground: Ground unsuitable for the work, including fill liable to subsidence, ground containing cavities, faults or fissures, ground contaminated by harmful substances and ground which is, or becomes, soft, wet or unstable.

Line of influence: A line extending downward and outward from the bottom edge of a footing, slab or pavement and defining the extent of foundation material having influence on the stability or support of the footings, slab or pavement.

Subgrade: The trimmed or prepared portion of the formation on which the pavement or slab is constructed.

Immediate notice

If rock or bad ground is encountered, advise the owner immediately.

Explosives

Do not use explosives.

2.2 DEMOLITION

Standard

Demolition: To AS 2601-2001 (The demolition of structures).

Records

Prior to commencement of the works make a detailed record of conditions existing within adjoining buildings, especially structural damage or other defacement. Submit copy of report including drawings, written descriptions and photographs to Superintendent before commencement of demolition works.

Demolition items

As indicated on the Drawings.

Site investigation

Inspect the site and determine and confirm the full extent of the existing site, in-ground, building and building services requiring disconnection and / or relocation.

Demolished materials

Except for materials to be salvaged and retained by the owner or re-used, take possession of demolished materials and remove them from the site. Do not burn or bury demolished materials on the site.

Protection of existing items

Take all necessary care to protect existing water and gas meters.

Damage

Restore and make good to match existing to the approval of the Superintendent damage and defacement caused to adjoining buildings by the demolition works.

2.3 TREES TO BE RETAINED

Existing trees, plants and shrubs

Trees, plants and shrubs to be retained: As indicated on Drawing WD-08

Trees, plants and shrubs to be removed: As indicated on Drawing WD-08

Marking

Mark trees which are required to be retained using suitable non-injurious, easily visible and removable means of identification. Remove the identification on completion.

Protection

Protect from damage trees which are required to be retained. Do not remove topsoil from the area within the dripline of the trees and keep this area free of construction material and debris.

Excavation

If excavating near trees required to be retained, use hand methods to locate, expose and cleanly remove the roots on the line of excavation.

2.4 ENVIRONMENTAL PROTECTION

Erosion control

Avoid erosion, contamination, and sedimentation of the site, surrounding areas, and drainage systems.

Dewatering

Keep the site free of water and prevent water flow over new work.

2.5 SITE CLEARING

Extent

Limit clearing to areas to be occupied by construction, paving or landscaping.

Clearing operations

Remove everything on or above the site surface, including rubbish, scrap, grass, vegetable matter and organic debris, scrub, trees, timber, stumps, boulders and rubble. Remove grass to a depth just sufficient to include the root zone.

Grubbing

Grub out or grind stumps and roots over 75 mm diameter to a minimum depth of 500 mm below subgrade under construction, and 300 mm below the finished surface in unpaved areas.

Removal of topsoil

General: Remove the topsoil layer of the natural ground which contains substantial organic matter over the areas to be occupied by construction and paving.

Maximum depth: 100 mm.

Topsoil stockpiles

Stockpile site topsoil required for re-use. Protect stockpiles from contamination by other excavated material, weeds and building debris.

Surplus material

Take possession of surplus material and remove it from the site.

2.6 EXCAVATION

Extent

Excavate to give the levels and profiles required for construction, site services, paving, and landscaping. Allow for compaction or settlement.

Foundations

After excavation, confirm that the bearing capacity is adequate.

Bearing surfaces

Provide even plane bearing surfaces for load-bearing elements including footings. Step for level changes. Make the steps to the appropriate courses if supporting masonry.

Reinstatement

If excavation exceeds the required depth, or deteriorates, reinstate with fill to the correct depth, level and bearing value.

Grading

Grade the ground surface externally and under suspended floors to drain ground or surface water away from buildings without ponding.

2.7 SURFACE PREPARATION

General

Before placing fill, ground slabs or load-bearing elements, remove loose material, debris and organic matter and compact the ground to achieve the required density.

Placing fill

Place fill in layers and compact each layer to achieve the required density.

Moisture content

If necessary to achieve the required density or moisture content, adjust the moisture content of

the fill before compaction.

2.8 SERVICE TRENCHES

Excavation

Generally, make trenches straight between manholes, inspection points and junctions, with vertical sides and uniform grades.

Trench widths

Keep trench widths to the minimum consistent with the laying and bedding of the relevant service and construction of manholes and pits.

Backfilling

General: Backfill service trenches as soon as possible after laying the service. Place backfill in layers. Compact each layer to a density sufficient to minimise settlement.

Backfill material: Excavated spoil or well graded inorganic material with maximum particle size of 75 mm.

- Next to services: Do not place any particles greater in size than 25 mm within 150 mm of services.
- Under paved areas: Coarse sand, controlled low strength material or fine crushed rock.
- In reactive clay sites classified M, H or E to AS 2870-1996 (Residential slabs and footings - Construction): Impervious material.

2.9 EROSION AND SEDIMENT CONTROL

General

Prior to commencement of any work on site provide and install erosion and sediment controls as required by Pittwater Council and as shown on drawing WD-02. Maintain in place until completion of project.

3 CONCRETE CONSTRUCTION

3.1 GENERAL

Cross reference

Refer to the General Requirements section for termite protection.

Standards

Concrete structures generally: To AS 3600-2000 (Concrete structures).

Ground slabs and footings: To AS 2870-1996 (Residential slabs and footings - Construction).

Structural Engineer's drawings

All concrete work is to be executed in accordance with the Structural Engineer's drawings and the Specification notes contained therein. Where there is a variance with this Specification the Structural Engineer's Specification shall take precedence.

3.2 GROUND SLAB VAPOUR BARRIER

Material

General: Provide a proprietary vapour barrier which consists of high impact resistant polyethylene film minimum 0.2 mm thick which has been pigmented and branded by the manufacturer.

Installation

Lay over the base. Lap joints not less than 200 mm. Face the laps away from the direction of concrete pour. Seal laps with adhesive tape not inferior to double sided butyl adhesive tape. Similarly seal around unavoidable penetrations such as service pipes. Take the underlay up vertical faces as far as the damp proof course where applicable, and fix at the top by tape sealing. Arrange to have vertical laps only on vertical or inclined surfaces. Patch or seal any punctures or tears before pouring concrete.

3.3 REINFORCEMENT

Minimum lap

Splice as follows:

- Mesh generally: 225 mm.
- Trench mesh: 500 mm.
- Bars: Greater of either 500 mm or 25 x bar diameter.
- Strip footing intersections and corners: For full width of intersecting reinforcement.

Minimum cover

Unprotected by membrane on ground or external surfaces: 40 mm.

Protected by membrane on ground: 30 mm.

Internal surfaces: 20 mm.

Aggressive soil or salty environment: 65 mm.

3.4 CONCRETE

Ready mixed supply

Standard: To AS 1379-1997 (Specification and supply of concrete).

Maximum slump: 100 mm.

Concrete placing

Depth: If concrete is deeper than 350 mm, place it in layers so that each succeeding layer is blended into the preceding one by the compaction process.

Slabs and pavements: Place concrete uniformly over the width of the slab so that the face is generally vertical and normal to the direction of placing.

Compaction

Vibrate concrete to remove entrapped air, but avoid over-vibration that may cause segregation.

Curing

Protection: Protect concrete from premature drying and from excessive hot, cold and/or windy conditions.

Method: Cure concrete by

- using a proprietary curing compound; or
- keeping it covered and moist for the following periods:
 - In-ground footings: 2 days.
 - Exposed footings, beams and slabs: 7 days.

Formwork removal

Remove timber formwork.

Stripping times

Leave formwork for suspended structures in place after pouring concrete for the following periods:

- Vertical surfaces: 2 days.
- Bottom surfaces: 7 days with shoring and backprops left in position for 21 days.

3.5 JOINTS

Construction joints

Joint preparation: Roughen and clean the hardened concrete joint surface, remove loose or soft material, free water and foreign matter. Dampen the surface before placing the concrete.

Slip joints

If concrete slabs are supported on masonry, provide proprietary pre-lubricated slip joints.

4 TIMBER AND STEEL CONSTRUCTION

4.1 GENERAL

Cross references

Refer to the following Sections:

- General requirements, for termite protection and timber durability.
- Concrete construction, for concrete bearer supports.
- Brick and block construction, for clearance for timber frame shrinkage.
- Waterproofing, for waterproofing of wet areas.
- Painting, for priming of steel and timber before fixing, and repair of zinc-coated steel after cutting and welding.

Standards

Timber framing and flooring: To AS 1684.4-1999 (Residential timber-framed construction - Simplified - Non-cyclonic) or AS 1720.1-1997 (Timber structures - Design methods).

Structural steelwork: To AS 4100-1998 (Steel structures).

Cold-formed steel framing: Provide a proprietary system designed to AS 3623-1993 (Domestic metal framing).

Preparation of metal surfaces: To AS 1627- Various (Metal finishing - Preparation and pretreatment of surfaces).

Structural Engineer's drawings

All structural timber and steel work is to be executed in accordance with the Structural Engineer's drawings and the Specification notes contained therein. Where there is a variance with this Specification the Structural Engineer's Specification shall take precedence.

4.2 MATERIALS AND COMPONENTS

Cold-formed steel framing

Cold-form sections from zinc-coated steel or aluminium/zinc alloy coated steel to AS 1397-2001 (Steel sheet and strip - Hot-dipped zinc-coated or aluminium/zinc-coated).

Corrosion protection: To BCA Volume 2 clause 3.4.2.2.

Self-drilling screws

Standard: To AS 3566.1-2002 (Self-drilling screws for the building and construction industries - General requirements and mechanical properties).

Corrosion resistance: Class 2 to AS 3566.2-2002 (Self-drilling screws for the building and construction industries - Corrosion resistance requirements), Table 1.

Flashings and damp-proof courses

Standard: To AS/NZS 2904-1995 (Damp-proof courses and flashings).

Timber fasteners

Metal washers: Provide washers to the heads and nuts of all bolts and coach screws.

Steel straps: Zinc-coated steel to AS 1397-2001 (Steel sheet and strip - Hot-dipped zinc-coated or aluminium/zinc-coated), minimum size 25 x 1 mm or 30 x 0.8 mm.

Galvanizing

Galvanize mild steel components (including fasteners) to AS 1214-1983 (Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series)) or AS/NZS 4680-1999 (Hot-dip galvanized (zinc) coatings on fabricated ferrous articles), as appropriate, if

- exposed to weather;
- embedded in masonry; or
- in contact with chemically treated timber.

4.3 CONSTRUCTION GENERALLY

Welding

Standard: To AS/NZS 1554.1-1995 (Structural steel welding - Welding of steel structures).

Grommets

Provide grommets to isolate piping and wiring from cold-formed steel framing.

Swarf

Remove swarf and other debris from cold-formed steel framing immediately after it is deposited.

CCA (copper chrome arsenic)-treated timber

Greasing: Before placing bolts in contact with CCA-treated timber, coat the shank of the bolt in grease or a bituminous coating.

Steel framing: Do not fix CCA-treated timber in contact with cold-formed steel framing.

Priming steel

Before fixing, prime steel which is not galvanized or zinc-coated.

4.4 FLOORS

General

Standard: To AS 1684.4-1999 (Residential timber-framed construction - Simplified - Non-cyclonic).

Particleboard flooring

Standards: To AS/NZS 1859.1 (Int)-2001 (Reconstituted wood-based panels - Specifications - Particleboard) and install to AS 1860-1998 (Installation of particleboard flooring).

Junctions: Sand junctions lightly to a smooth, level surface.

Fibre cement flooring

Compressed sheets: To AS/NZS 2908.2-2000 (Cellulose-cement products - Flat sheets), Type A, Category 5.

Minimum thickness:

- Joist spacing up to 450 mm: 15 mm.
- Joist spacing 450 - 600 mm: 18 mm.

4.5 WALL FRAMING

Proprietary system

Use proprietary framing system comprising cold-formed steel sections for wall construction.

Standard

Design: To AS 3623

MATERIAL AND COMPONENTS

Cold-formed steel sections

Sections cold-formed from zinc-coated or aluminium/zinc-coated steel: To AS 1397/Z200 or AZ150 (minimum), as appropriate.

Steel hollow sections

To AS 1163. Galvanized to AS 1650.

Screws

To AS 3566, corrosion resistance class 2.

CONSTRUCTION

Wall studs

Provide studs in single lengths without splices. Place a stud under or not more than 40 mm from each structural load point from roof or ceiling (except for openings). Provide multiple studs at points of concentrated load.

Nominal frame dimension

(stud width): 92mm and 150mm where shown on the drawings.

Maximum stud spacing: 600 mm.

Heads to openings

Use lintels consisting of either a stiffened top plate or a truss built up from frame members, depending on load and span.

Bracing

Adequately brace the frame to resist wind loads, by diagonal noggings or by tensioned straps.

Splicing

Splice plates at ends to maintain continuity and alignment.

Additional support

Provide additional support in the form of noggings, trimmers and studs for fixing lining, cladding, hardware, accessories, fixtures and fittings as required.

Maximum spacing of noggings: 1350 mm centres.

4.6 ROOF AND CEILING FRAMING

Wall plates

Fixing: Fix timber wall plates to masonry, with either straps or bolts.

Steel zinc-coated straps: In cavities. Build bottom end 75 mm into brickwork, 1200 mm below

plate. Bend top end over plate and fix with galvanized fastenings.

- Coating class: Z275.
- Size: 25 x 1 mm or 30 x 0.8 mm.

Bolts: 10 mm diameter hot dip galvanized steel, embedded at least 150 mm into the wall structure of solid masonry external walling or the top bond beam of load-bearing hollow block external walling.

Nailing strips

Where timber joists, rafters or purlins bear on steel members, provide 50 mm thick nailing strips bolted to the flange of the steel member at 450 mm maximum centres.

Strutted framing

General: Construct traditional timber pitched roof framing consisting of rafters and ceiling joists supported at intermediated points by a system of underpurlins strutted off walls or strutting beams and braced by collar ties, and ceiling hanging beams.

Beam framing

General: Construct framing for flat or pitched roofs where the ceiling follows the roof line, consisting of rafters or purlins acting as beams to support both ceiling and roof covering.

Blocking: Where the depth of rafters or purlins is at least 4 x width, provide solid blocking between them at the support points and at 1.8 m maximum intervals between supports.

Ridge straps: Butt ends of rafters together at ridge, and strap each pair together with 900 mm long steel strap passing over the ridge, triple-nailed to each rafter.

Additional support

Provide a frame member behind every joint in fibre cement sheeting or lining.

Anti-ponding boards

Standard: To AS/NZS 4200.2-1994 (Pliable building materials and underlays - Installation requirements).

4.7 HANDRAILS AND BALUSTRADES

Balustrades

48 x 8 galvanised mild steel plate uprights at centres as shown on the drawings with stainless steel wire intermediate rails spaced evenly apart at maximum 125mm centres. Fix wires to uprights at ends of runs with shackles and turnbuckles. Splay and profile top of upright as detailed to accept 100mm long x 50mm wide galvanised mild steel plate handrail connector welded to upright.

Handrail

100 x 50mm dia. round edged solid Tallowwood top rail in sections rebated to fit onto flat steel plate connectors at uprights. Fix handrail sections onto connectors with two countersunk screws at each end on the underside of connectors.

Fixing

Bolt bottom of baluster to steel beam top flanges to structural engineer's detail.

Finish

Painted galvanised steel uprights

Finished height

All balustrades and handrails to finish minimum 1000mm above adjacent finished floor level or a minimum 865mm above stair nosings where applicable.

S/S - See amended pg 10

walling.

Nailing strips

Where timber joists, rafters or purlins bear on steel members, provide 50 mm thick nailing strips bolted to the flange of the steel member at 450 mm maximum centres.

Strutted framing

General: Construct traditional timber pitched roof framing consisting of rafters and ceiling joists supported at intermediated points by a system of underpurlins strutted off walls or strutting beams and braced by collar ties, and ceiling hanging beams.

Beam framing

General: Construct framing for flat or pitched roofs where the ceiling follows the roof line, consisting of rafters or purlins acting as beams to support both ceiling and roof covering.

Blocking: Where the depth of rafters or purlins is at least 4 x width, provide solid blocking between them at the support points and at 1.8 m maximum intervals between supports.

Ridge straps: Butt ends of rafters together at ridge, and strap each pair together with 900 mm long steel strap passing over the ridge, triple-nailed to each rafter.

Additional support

Provide a frame member behind every joint in fibre cement sheeting or lining.

Anti-ponding boards

Standard: To AS/NZS 4200.2-1994 (Pliable building materials and underlays - Installation requirements).

4.7 HANDRAILS AND BALUSTRADES

Balustrades

48 x 8 galvanised mild steel plate uprights at centres as shown on the drawings with stainless steel wire intermediate rails spaced evenly apart at maximum 125mm centres. Fix wires to uprights at ends of runs with shackles and turnbuckles. Splay and profile top of upright as detailed to accept 100mm long x 50mm wide galvanised mild steel plate handrail connector welded to upright.

Polycarbonate sheet

Selection: AS/NZS 4256.5 1996 Polycarbonate

Reflectivity Index: Less than 25%

Handrail

100 x 50mm dia. round edged solid Tallowwood top rail in sections rebated to fit onto flat steel plate connectors at uprights. Fix handrail sections onto connectors with two countersunk screws at each end on the underside of connectors.

Fixing

Bolt bottom of baluster to steel beam top flanges to structural engineer's detail.

Finish

Painted galvanised steel uprights

Finished height

All balustrades and handrails to finish minimum 1000mm above adjacent finished floor level or a minimum 865mm above stair nosings where applicable.

4.8 TIMBER AND STEEL STAIRS

Timber treads

Provide timber treads:

Timber type: Spotted Gum

Finished size: 295 x 45mm (min.) with 2mm pencil round edges and with bottom face rebated to accommodate steel tread fixing plate as detailed. Fix 60(h) x 25(t)mm solid timber upstand to back of tread to project 15mm above top of tread.

Riser height

2724mm Floor to Floor height / 15 risers = 182mm

Tread to tread opening

182mm(riser height) - 45mm(tread thickness) - 15mm(rear upstand) = 122mm

5 BRICK AND BLOCK CONSTRUCTION

5.1 GENERAL

Cross references

Refer to the following Sections:

- General requirements, for termite protection.
- Timber and steel construction, for structural steelwork.

Standard

Masonry generally: To AS 3700-2001 (Masonry structures).

Masonry units: To AS/NZS 4455-1997 (Masonry units and segmental pavers).

Structural Engineer's drawings

All structural brick and block work is to be executed in accordance with the Structural Engineer's drawings and the Specification notes contained therein. Where there is a variance with this Specification the Structural Engineer's Specification shall take precedence.

5.2 MATERIALS AND COMPONENTS

Steel components

Galvanizing: Galvanize mild steel components (including fasteners) to AS 1214-1983 (Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series)), or AS/NZS 4680-(Hot-dip galvanized (zinc) coatings on fabricated ferrous articles), as appropriate.

Durability requirements: To AS/NZS 2699.2 (Built-in components for masonry construction - Connectors and accessories)

Masonry units

Type: To approval

Load bearing: To AS 4455

Size: 400(l) x 200(h) x as shown on the drawings(w)

Clay bricks durability

Below damp-proof course: Use exposure category to AS/NZS 4456.10-1997 (Masonry units and segmental pavers - Method of test - Method 10: Determining resistance to salt attack) Appendix A (Salt attack resistance categories)

Wall ties

Standard: To AS/NZS 2699.1 (Built-in components for masonry construction - Wall ties)

Non-seismic areas: Type A.

Seismic areas: Type B.

Flashings and damp-proof courses

Standard: To AS/NZS 2904-1995 (Damp-proof courses and flashings).

Mortar materials

Sand: Fine aggregate with a low clay content and free from efflorescing salts, selected for grading and colour for facework.

Additives: Do not provide additives unless required.

Mortar mix table

Provide mortar mixes as follows:

Location	Mortar Proportions (cement:lime:sand)	Mortar type to AS3700
Concrete or calcium silicate masonry	1:0:5 + water thickener	M3
Grouted and reinforced masonry	1:0:4 + water thickener	M4
Underpinning, high strength masonry	1:0-0.25:3	M4
Other masonry	0.0424305556	M3

5.3 CONSTRUCTION GENERALLY

Joints and cutting

Set out masonry with joints of uniform width and the minimum cutting of masonry units.

Joints

Externally: Rake to give key for render.

Internally: Flush all joints and perpends except Bathrooms where rake to give a key for render prior to tiling.

Rod

76 mm high bricks: 7 courses to 600 mm.

90 mm high bricks: 6 courses to 600 mm.

190 mm high blocks: 3 courses to 600 mm.

Bond

Single leaf construction: Stretcher bond.

Perpends

Keep perpends in alternate courses vertically aligned and fill them completely with mortar.

Colour mixing

In facework, distribute the colour range of units evenly to prevent colour concentrations.

Sills and thresholds

Solidly bed masonry sills and thresholds and lay them so that the top surfaces drain away from the building.

Chimneys and fireplaces

Follow the guidelines given in SAA HB33-1992 (Domestic open fire places).

5.4 DAMP-PROOF COURSES

Location

Provide damp-proof courses where shown on the drawings and in the following locations:

- Walls adjoining infill floor slabs on membranes: In the course above the underside of the slab in internal walls and inner leaves of cavity walls. Project 40 mm and dress down over the membrane turned up against the wall.
- Cavity walls built off slabs on ground: In the bottom course of the outer leaf, continuous horizontally across the cavity and up the inner face bedded in mortar, turned 30 mm into the inner leaf one course above.
- Internal walls built off slabs on ground: In the first course above floor level.

Installation

Lay in long lengths. Lap the full width of angles and intersections and 150 mm at joints. Step as necessary, but not more than two courses per step. Preserve continuity of damp-proofing at junctions of damp-proof courses and waterproof membranes. Install at least 150 mm above adjacent finished ground. Sandwich damp-proof courses between mortar.

5.7 CONTROL OF MOVEMENT

Ageing of bricks and concrete

Minimum age of clay bricks: 7 days.

Minimum age of concrete supports to clay bricks: 28 days.

Control joints for calcium silicate and concrete masonry

Maximum length of continuous wall: 8 m.

Minimum width of control joint: 10 mm.

Flexible ties and anchors

If ties or anchors extend across control joints, provide ties or anchors which maintain the stability of the masonry without impairing the effectiveness of the joint.

Joint material

Installation: Clean the joints thoroughly and insert an easily compressible backing material before sealing.

Sealant depth: Fill the joints with a gun-applied flexible sealant for a depth of at least two-thirds the joint width.

6 INSULATION AND SARKING

6.1 GENERAL

Interpretation

Sarking-type material: Flexible membrane material normally used for waterproofing, vapour retarding or thermal reflective insulation.

6.2 MATERIALS AND COMPONENTS

Bulk insulation

Cellulosic fibre: To AS 2462-1981 (Cellulosic fibre thermal insulation).

Mineral wool batts and blankets: To AS 3742-1990 (Mineral wool thermal insulation - Batt and blanket).

Mineral wool in loose fill: To AS 2461-1981 (Mineral wool thermal insulation - Loose fill).

Polystyrene: To AS 1366.4-1989 (Rigid cellular plastics sheets for thermal insulation - Rigid cellular polystyrene - Extruded (RC/PS-E)).

Wool: To AWRAP/A202-1993 (Mandatory Woolmark Specifications for building insulation material).

Sarking material

Standard: To AS/NZS 4200.1-1994 (Pliable building materials and underlays - Materials).

Proprietary item: Sisalation 439

Insulation types and ratings

Internal timber framed walls:	Resilient glasswool insulation batt
Thickness (mm):	50mm
R-value:	2
Roof: Type:	Flexible glasswool insulation blanket.
R-value:	2
Type:	Concertina foil batts
R-value:	3
Proprietary item:	Solartex
Floor: Type:	Flexible glasswool insulation blanket.
R-value:	2.5

6.3 INSTALLATION

Roof sarking

General: Provide sarking to the whole of the roof area.

Ridge ventilation: Finish sarking at least 50 mm clear of ridges.

Wall sarking:

General: Provide sarking to the whole of the external wall area.

5 BRICK AND BLOCK CONSTRUCTION

5.1 GENERAL

Cross references

Refer to the following Sections:

- General requirements, for termite protection.
- Timber and steel construction, for structural steelwork.

Standard

Masonry generally: To AS 3700-2001 (Masonry structures).

Masonry units: To AS/NZS 4455-1997 (Masonry units and segmental pavers).

Structural Engineer's drawings

All structural brick and block work is to be executed in accordance with the Structural Engineer's drawings and the Specification notes contained therein. Where there is a variance with this Specification the Structural Engineer's Specification shall take precedence.

5.2 MATERIALS AND COMPONENTS

Steel components

Galvanizing: Galvanize mild steel components (including fasteners) to AS 1214-1983 (Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series)), or AS/NZS 4680-(Hot-dip galvanized (zinc) coatings on fabricated ferrous articles), as appropriate.

Durability requirements: To AS/NZS 2699.2 (Built-in components for masonry construction - Connectors and accessories)

Masonry units

Type: To approval

Load bearing: To AS 4455

Size: 400(l) x 200(h) x as shown on the drawings(w)

Clay bricks durability

Below damp-proof course: Use exposure category to AS/NZS 4456.10-1997 (Masonry units and segmental pavers - Method of test - Method 10: Determining resistance to salt attack) Appendix A (Salt attack resistance categories)

Wall ties

Standard: To AS/NZS 2699.1 (Built-in components for masonry construction - Wall ties)

Non-seismic areas: Type A.

Seismic areas: Type B.

Flashings and damp-proof courses

Standard: To AS/NZS 2904-1995 (Damp-proof courses and flashings).

Mortar materials

Sand: Fine aggregate with a low clay content and free from efflorescing salts, selected for grading and colour for facework.

Additives: Do not provide additives unless required.

Mortar mix table

Provide mortar mixes as follows:

Location	Mortar Proportions (cement:lime:sand)	Mortar type to AS3700
Concrete or calcium silicate masonry	1:0.5 + water thickener	M3
Grouted and reinforced masonry	1:0.4 + water thickener	M4
Underpinning, high strength masonry	1:0-0.25:3	M4
Other masonry	0.0424305556	M3

5.3 CONSTRUCTION GENERALLY

Joints and cutting

Set out masonry with joints of uniform width and the minimum cutting of masonry units.

7 WATERPROOFING

7.1 GENERAL

Cross References

Refer to the General requirements section.

Related sections

Refer to the following sections: CONCRETE

7.2 QUALITY

Submissions

Waterproofing membranes: Submit a project report on preparation, work-in-progress and completion, including photographic record.

7.3 MEMBRANES

Seamless membranes

Membranes applied in liquid or gel form and air cured to form a seamless film.

Substrates for membranes

General: Apply membranes to dry, smooth, firm, continuous surfaces, clean and free from loose or foreign matter. Provide coving or fillets on internal corners. Round or arris external corners and edges.

Dryness tests for substrates: To AS 1884 Appendix A.

7.4 RESIDENTIAL WET AREAS

Waterproofing

Standard: To AS 3740.

Membrane

Type: Proprietary liquid applied or sheet membrane system which has a current Australian Building Product and Systems Certification Scheme certificate or has a current technical opinion issued by the Australian Building Systems Appraisal Council stating that the system is suitable for use as a waterproofing system for use in wet areas, shower recess bases and associated floors and wall/floor junctions which are to be tiled.

Installation

Applicators: Use suitably qualified applicators.

Floor wastes: Turn membrane down onto the floor waste puddle flanges, and adhere.

Hobs: Extend membrane over the hob and into the room at least 50 mm. For hobless showers extend 1800 mm into the room.

Curing: Allow membrane to fully cure before tiling.

8 ROOFING

8.1 GENERAL

Cross reference

Refer to the Insulation and sarking worksection for roof sarking requirements.

8.2 MATERIALS AND COMPONENTS

Flashing material

Standard: To AS/NZS 2904-1995 (Damp-proof courses and flashings).

Fasteners

Self-drilling screws: To AS 3566.1-2002 (Self-drilling screws for the building and construction industries - General requirements and mechanical properties).

Corrosion resistance: Class 3 to AS 3566.2-2002 (Self-drilling screws for the building and construction industries - Corrosion resistance requirements), Table 1.

Exposed fasteners: Provide fasteners which are prefinished with a coating to match the roofing material, or provide matching purpose-made plastic caps.

8.3 METAL ROOFING

Design and installation

Standard: To AS 1562.1-1992 (Design and installation of sheet roof and wall cladding - Metal).

Roof material: Colorbond coated zincalume sheet steel

Type: Lysaght Custom Orb

Thickness: 0.42mm

Pitch: 8 degrees

Colour: Woodland Grey

Fascia capping colour: Woodland Grey

Visible accessories

Provide material with the same finish as roofing sheets.

Eaves

Treat ends of sheets as follows:

Generally: Close off ribs at tops and bottoms of sheets by mechanical means or with purpose-made fillers or end caps.

At gutters: Project sheets 50 mm into gutters.

Fascias:

Material: Colorbond coated zincalume sheet steel

Thickness: 0.42mm

Colour: Woodland Grey

Swarf

Remove swarf and other debris as soon as it is deposited.

8.4 ROOF PLUMBING

Selection and installation of rainwater goods

Standard: To AS/NZS 3500.3.2 (National Plumbing and Drainage - Stormwater drainage - Acceptable solutions).

PVC rainwater goods and accessories: To AS/NZS 2179.2 (Int) -1998 (Specifications for rainwater goods, accessories and fasteners - PVC rainwater goods and accessories)

Sealing: Seal fasteners and mechanically fastened joints with silicone sealant.

Flashings and cappings

General: Flash projections above or through the roof with two part flashings consisting of an apron flashing and an over-flashing, with at least 100 mm vertical overlap. Provide for independent movement between the roof and the projection.

Wall abutments: Where a roof abuts a wall, provide raking overflashings

Gutters and rainwater heads

General: Prefabricate gutters to the required shape where possible. Form stop ends, downpipe pops, bends and returns. Dress downpipe pops into outlets. Provide overflows to prevent back-flooding. Ball guards to gutter outlets: Galvanised wire mesh

Material: Colorbond coated zincalume sheet steel

Profile: 150mm half round

9 DOORS AND WINDOWS

9.1 GENERAL

Cross references

Refer to the Painting worksection for priming of frames and doors before installation.

9.2 MATERIALS AND COMPONENTS

Flashings

Standard: To AS/NZS 2904-1995 (Damp-proof courses and flashings).

Metal finishes

Zinc plating: To AS 1789-1984 (Electroplated coatings - Zinc on iron or steel), at least service condition number 2.

Anodising: To AS 1231-2000 (Aluminium and aluminium alloys - Anodic oxidation coatings), at least class AA10.

Thermoset powder coating: To AS 3715-1989 (Metal finishing - Thermoset powder coatings for architectural applications), or AS 4506-1998 (Metal finishing - Thermoset powder coatings) as appropriate.

Glass

Selection and installation: To AS 1288-1994 (Glass in buildings - Selection and installation).

Doorsets

Timber doors: To AS 2688-1984 (Timber doors).

Timber frames and jamb linings: To AS 2689-1984 (Timber doorsets).

Security screen doors: To AS/NZS 2803.1-1994 (Doors - Security Screen - Hinged) or AS/NZS 2803.2- (Doors - Security Screen - Sliding).

Windows

Selection: To AS 2047-1999 (Windows in buildings - Selection and installation).

Preglazing

Wherever possible, preglaze doors and windows.

9.3 DOOR CONSTRUCTION GENERALLY

Standards

Doorset installation: To AS 1909-1984 (Installation of timber doorsets).

Security screen doors installation: To AS/NZS 2804.1-1995 (Installation of security screen doors - Hinged) or AS/NZS 2804.2 -1996 (Installation of security screen doors - Sliding)

Flashings and weatherings

Install flashings, weather bars, drips, storm moulds, caulking and pointing so that water is prevented from penetrating the building between frames and the building structure.

Installation

Install doorsets so they

- are plumb, level, straight and true;
- are adequately fixed or anchored to the building structure; and
- will not carry building loads, including loads caused by structural deflection or shortening.

Fixing

Packing: Pack behind fixing points with durable full width packing.

9.4 INTERNAL DOOR FRAMES

Proprietary item

Type: Cold rolled steel split jamb with perforated sides for flush finish

Product: Ezy Jamb

Manufacturer: Studco Building Systems distributed by Altro Building Systems

9.5 TIMBER DOORS

Door thickness

Generally: 35 mm.

External doors and doors over 900 mm wide: 40 mm.

Door construction

External doors: Solid construction.

S/S - see amended
pg 16

9 DOORS AND WINDOWS

9.1 GENERAL

Cross references

Refer to the Painting worksection for priming of frames and doors before installation.

9.2 MATERIALS AND COMPONENTS

Flashings

Standard: To AS/NZS 2904-1995 (Damp-proof courses and flashings).

Metal finishes

Zinc plating: To AS 1789-1984 (Electroplated coatings - Zinc on iron or steel), at least service condition number 2.

Anodising: To AS 1231-2000 (Aluminium and aluminium alloys - Anodic oxidation coatings), at least class AA10.

Thermoset powder coating: To AS 3715-1989 (Metal finishing - Thermoset powder coatings for architectural applications), or AS 4506-1998 (Metal finishing - Thermoset powder coatings) as appropriate.

Glass

Selection & installation: To AS 1288-1994 (Glass in buildings - Selection and installation).

Reflectivity Index: Less than 25%

Doorsets

Timber doors: To AS 2688-1984 (Timber doors).

Timber frames and jamb linings: To AS 2689-1984 (Timber doorsets).

Security screen doors: To AS/NZS 2803.1-1994 (Doors - Security Screen - Hinged) or AS/NZS 2803.2- (Doors - Security Screen - Sliding).

Windows

Selection: To AS 2047-1999 (Windows in buildings - Selection and installation).

Preglazing

Wherever possible, preglaze doors and windows.

9.3 DOOR CONSTRUCTION GENERALLY

Standards

Doorset installation: To AS 1909-1984 (Installation of timber doorsets).

Security screen doors installation: To AS/NZS 2804.1-1995 (Installation of security screen doors - Hinged) or AS/NZS 2804.2 -1996 (Installation of security screen doors - Sliding)

Flashings and weatherings

Install flashings, weather bars, drips, storm moulds, caulking and pointing so that water is prevented from penetrating the building between frames and the building structure.

Installation

Install doorsets so they

- are plumb, level, straight and true;
- are adequately fixed or anchored to the building structure; and
- will not carry building loads, including loads caused by structural deflection or shortening.

Fixing

Packing: Pack behind fixing points with durable full width packing.

9.4 INTERNAL DOOR FRAMES

Proprietary item

Type: Cold rolled steel split jamb with perforated sides for flush finish

Product: Ezy Jamb

Manufacturer: Studco Building Systems distributed by Altro Building Systems

9.5 TIMBER DOORS

Door thickness

Generally: 35 mm.

External doors and doors over 900 mm wide: 40 mm.

Internal doors: Flush panel cellular core.

Medium density fibreboard doors: Board designated by the manufacturer as having a moisture resistance which is suitable for the exposure of the door.

Timber internal doors

Type: Hollow core

Priming

Prime timber doors on top and bottom edges before installation.

Door stops

Install door stops to prevent door furniture striking the wall or other surface.

Hinges

Product: Ezy Jamb Herline Hinge

Manufacturer: Studco Building Systems distributed by Altro Building Systems

Hinge table

Provide 3 hinges for external doors and door leafs over 2040 mm in height or 820 mm in width and as follows:

Door thickness (max)	Door height (max)	Hinges per leaf	Hinge Type
35 mm	2040mm	2	Ezy Jamb Herline
35 mm	2340mm	3	Ezy Jamb Herline

9.6 LOCKSETS

External doors

Provide a double-cylinder dead bolt to each door.

Internal doors

Generally: Passage sets.

Bathrooms, showers and toilets: Privacy sets.

Sliding patio doors and windows: Provide key-lockable surface mounted bolts.

Door lockset mounting heights

To centreline of spindle: 1 m above finished floor.

Keying

Key doors (excluding garage doors) alike and key windows alike.

Locksets

Proprietary item: To be selected

9.7 DOOR HARDWARE

Door handles and latchsets

Proprietary item: To be selected

9.8 ALUMINIUM WINDOWS AND GLAZED EXTERNAL DOORS

Standards

Window installation: To AS 2047-1999 (Windows in buildings - Selection and installation).

Joints

Make accurately fitted tight joints so that neither fasteners nor fixing devices such as pins, screws, adhesives and pressure indentations are visible on exposed surfaces.

Jointing materials

Use jointing and pointing materials, including sealants, mastics, primers, gaskets and compressible fillers of types compatible when used together, and non staining to finished surfaces. Do not use bituminous materials on absorbent surfaces.

Silicone sealants: Neutral cure silicone.

Operation

Ensure moving parts operate freely and smoothly, without binding or sticking, at correct tensions or operating forces and that they are lubricated where appropriate.

Protection

Remove all traces of temporary protection measures from the following:

- Contact mating surfaces before joining up.
- Exposed surfaces.

Flashings and weatherings

Materials: Use flashings and weatherings which are corrosion resistant, compatible with the other materials in the installation, and coated with a non-staining compound where necessary.

Installation: Install flashings, weather bars, drips, storm moulds, caulking and pointing so that water is prevented from penetrating the building between the window frame and the building structure under the prevailing service conditions, including normal structural movement of the building.

Installation

Install the windows so that the frames

- are plumb, level, straight and true within acceptable building tolerances;
- are adequately fixed or anchored to the building structure; and
- will not carry any building loads, including loads caused by structural deflection or shortening.

Fixing

Packing: Pack behind fixing points with durable full width packing.

Prepared openings: Where fixing of windows to prepared anchorages is unavoidably by fastening from the frame face, conceal the fasteners by sinking the heads below the surface and filling the sinking flush with a material compatible with the surface finish.

Fasteners: Conceal all fasteners.

Internal metal trim

For metal windows provide mouldings, architraves, reveal linings, and other internal trim using materials and finishes matching the window frames, to make neat and clean junctions between the frame and the adjoining building surface.

Adjustable louvres

Use louvre blades clipped into blade holders pivoted to stiles or coupling mullions, linked together in banks, each bank operated by an operating handle incorporating a latching device, or by a locking bar.

Installation: Screw fix the stiles and mullions to the building structure. Provide weather strips to heads and sills.

Louvre arrangement

Horizontal: Louvres span between frame stiles or mullions.

Frames

Include the necessary sills, jambs, mullions, transoms, internal and external corners, beads, brackets, anchors, straps and accessories.

INSECT SCREENS

Aluminium framed screens

Use aluminium extruded or folded box frame section with mesh fixing channel, mitred, staked and screwed at corners. Provide an extended frame section where necessary to adapt to window opening gear.

Mesh: Bead the mesh into the frame channel with a continuous resilient gasket, so that the mesh is taut and without distortion.

Fixed screens

Attach fixed screens to the window frames by a clipping device which permits removal for cleaning.

Sliding screens

Use matching aluminium head guide, sill runner, and frame stile sections if not part of the window frame.

Hardware: Nylon slide runners and finger pull handle. Provide pile strip closers against sash where necessary to close gaps.

10 LINING

10.1 GENERAL

Cross reference

Refer to the Block and tile finishes Section for waterproofing of wet areas and the Insulation worksection for sarking.

10.2 MATERIALS AND COMPONENTS

Plasterboard

Standard: To AS/NZS 2588-1998 (Gypsum plasterboard).

Sheet thickness:	Walls @ 450mm stud spacing	10mm
	Walls @ 600mm stud spacing	13mm
	Ceilings	13mm

Fibre cement

Standard: To AS/NZS 2908.2-2000 (Cellulose-cement products Flat sheets), Type B Category 2.

Sheet thickness:	Eaves linings	6mm
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Fasteners

Self-drilling screws: To AS 3566.1-2002 (Self-drilling screws for the building and construction industries - General requirements and mechanical properties).

Corrosion resistance: Class 3 to AS 3566.2-2002 (Self-drilling screws for the building and construction industries - Corrosion resistance requirements), Table 1.

Exposed fasteners: Provide fasteners which are prefinished with a coating to match the roofing material, or provide matching purpose-made plastic caps.

10.3 SHEET LINING

Supports

Install timber battens or proprietary cold-formed galvanized steel furring channels

- if framing member spacing exceeds the recommended spacing;
- if direct fixing of the sheeting is not possible due to the arrangement or alignment of the framing or substrate; and
- to support fixtures.

Installation

Plasterboard: To AS/NZS 2589.1-1997 (Gypsum linings in residential and light commercial construction - Application and finishing - Gypsum plasterboard).

Framed construction: Screw or nail or combine with adhesive.

Wet areas: Do not use adhesive.

Joints

General: Provide recessed edge sheets and finish flush with perforated reinforcing tape.

External corner joints: Make over zinc-coated steel corner beads.

Wet areas: Provide the flashings, trim and sealants necessary to ensure wet areas are waterproofed.

Joints in tiled areas: Do not apply a topping coat after bedding perforated paper tape in bedding compound.

Control joints: Install purpose-made zinc-coated control joint beads in walls and ceilings at the following maximum centres and to coincide with structural movement joints:

- Plasterboard: 12 m.
- Fibre cement: 7.2 m.

10.4 EXTERNAL METAL SHEET CLADDING

Material

Standard: To AS 1562.1-1992 (Design and installation of sheet roof and wall cladding - Metal).

Roof material: Colorbond coated zincalume sheet steel

Type: Lysaght Custom Orb

Thickness: 0.42mm

Direction: Lay sheets horizontally

Colour: Bushland

Visible accessories

Provide material with the same finish as wall sheets

11 BLOCK AND TILE FINISHES

11.1 GENERAL

Standards

Follow the guidance given in AS 3958.1-1991 (Ceramic tiles - Guide to the installation of ceramic tiles) and AS 3958.2-1992 (Ceramic tiles - Guide to the selection of a ceramic tiling system).

11.2 MATERIALS AND COMPONENTS

Exposed edges

If available, provide purpose-made border tiles with the exposed edge (whether round, square or cushion) glazed to match the tile face.

Accessories

If available, provide tile accessories such as round edge tiles, cove tiles, step treads and nosings to stairs, landings, and thresholds, skirtings, sills, copings and bath vents, which match the surrounding tiles, composition, colour and finish.

Adhesives

Standard: To AS 2358-1990 (Adhesives - For fixing ceramic tiles).

PVA (polyvinyl acetate)-based adhesives: Do not use in wet areas or externally.

Mortar materials

Cement: To AS 3972-1997 (Portland and blended cements), type GP.

Sand: Fine aggregate with a low clay content selected for grading.

Bedding mortar

Proportioning: Select proportions from the range 1:3 to 1:4 cement:sand to obtain satisfactory adhesion. Provide minimum water.

Grout

Cement-based proprietary grout: Mix with water. Fine sand may be added as a filler in wider joints.

Portland cement-based grout: Mix with fine sand. Provide minimum water consistent with workability.

Proportioning:

- For joints up to 3 mm: 1:2 cement:sand.
- For joints over 3 mm: 1:3 cement:sand.

Preparation

Prepare the substrates, including the following:

- Remove deleterious and loose material and leave the surface dust-free and clean.
- For mortar bedding, wet the substrate as necessary to achieve suitable suction. Alternatively, apply a proprietary bonding agent to the substrate to improve adhesion.

11.3 TILING

Cutting and laying

Cut tiles neatly to fit around fixtures and fittings, and at margins where necessary. Drill holes without damaging tile faces. Rub edges smooth without chipping. Return tiles into sills, reveals and openings. Butt up to returns, frames, fittings, and other finishes.

Variations

Distribute variations in hue, colour, or pattern uniformly, by mixing tiles or tile batches before laying.

Protection

Keep traffic off floors until the bedding has set and attained its working strength.

Setting out

General: Set out tiles to give uniform joint widths within the following limits:

- Internal ceramic tiling: 1.5 - 3 mm.
- Mosaic tiling: As dictated by pattern.
- Quarry tiles: 6 - 12 mm.
- Vitrified floor tiles: 3 - 5 mm.

Joint alignment: Set out tiling with joints accurately aligned in both directions and wall tiling joints level and plumb.

Joint position: Set out tiles from the centre of the floor or wall to be tiled and, if possible, ensure cut tiles are a half tile or larger.

Fixtures: If possible, position tiles so that holes for fixtures and other penetrations occur at the intersection of horizontal and vertical joints or in the centre of tiles.

Falls and levels

General: Grade floor tiling to even and correct falls generally, and to floor wastes and elsewhere as required. Make level junctions with walls. If falls are not required, lay level.

Minimum fall generally: 1:100.

Minimum fall in shower areas: 1:60.

Change of finish: Maintain finished floor level across changes of floor finish including carpet.

Preparation of tiles

Adhesive bedding: Fix tiles dry.

Mortar bedding: Soak porous tiles in water for half an hour and then drain until the surface water has disappeared.

Floor finish dividers

Finish tiled floors at junctions with differing floor finishes with a corrosion-resistant metal dividing strip fixed to the substrate. If changes of floor finish occur at doorways, make the junction directly below the closed door.

Bath ventilation

Ventilate the space below fully enclosed baths with at least 2 ventilating tiles.

Sealed joints

Fill joints with silicone sealant and finish flush with the tile surface where tiling joins sanitary fixtures and at corners of walls in showers.

Ceramic wall tiles

Proprietary item: To be selected

Ceramic floor tiles

Proprietary item: To be selected

12 FLOOR COVERINGS

12.1 GENERAL

Cross reference

Refer to the Timber and Steel Construction worksection for finishing of particleboard floors.

12.2 MATERIALS AND COMPONENTS

Resilient underlay alternatives

Needled underfelt: Provide a felt composed of 60% animal fibre and 40% jute, reinforced with polypropylene scrim with a minimum mass of 50 g/m², or hessian fabric with a minimum mass of 150 g/m².

Synthetic foam underlay: Provide a high density synthetic latex flat cushion foam sandwiched between reinforced carrier fabric.

Rubber underlay: Provide a heavy-duty natural rubber, waffle pattern, with a backing of reinforcing fabric, either hessian, spun nylon, or polyester.

Hot-melt adhesive tape

Provide a glass fibre and cotton thermoplastic adhesive-coated tape 60 mm wide on a 90 mm wide metal foil base and backed with silicon-coated release paper.

Carpet

Minimum class: Domestic Medium Duty under the Australian Carpet Classification Scheme.

12.3 SUBSTRATE

Substrate preparation

Prepare the substrate including the following:

- Stripping and cleaning: Remove deleterious and loose material, including existing floor coverings and any surface treatment which could adversely affect adhesion.
- Repairs: Make good to the surface finish as necessary. Fill depressions with a suitable filler, and remove high spots and projections. If necessary lay a steel-trowelled underlay to concrete substrate.
- Fixtures and fittings: Remove door stops and other fixtures, and refix in position undamaged on completion of the installation.

12.4 LAYING CARPET

Standard

General: To AS/NZS 2455.1-1995 (Textile floor coverings - Installation practice - General).

Setting out

General: Lay the carpet in continuous lengths without cross joins in the body of the area. Make unavoidable cross joins at doorways under the closed door.

Joints in underlay: Ensure joints in underlay do not coincide with carpet joints. Do not carry underlay over carpet grippers or edge strips.

Seaming methods

Woven carpet: Machine or hand sew.

Tufted carpet: Provide hot-melt adhesive tapes.

Fixing

Gripper strip: Provide preformed gripper strip and tackless edge strip. Space fixings at 150 mm maximum centres.

Permanent stick method: Immediately after laying, and again one hour later, roll the carpet from the centre diagonally towards each edge using a 65 kg multi-wheeled roller. Do not roll foam-backed carpet.

Edge strip

Provide a proprietary aluminium edge strip at exposed edges of the carpet. If edge strips occur at doorways, make the junction underneath the closed door.

Carpet

Proprietary item: To be selected

12.5 LAYING RESILIENT FINISHES

Standard

General: To AS 1884-1985 (Floor coverings - Resilient sheet and tiles - Laying and maintenance

practices).

Sheet set out

Set out sheets to give the minimum number of joints. Run sheet joints parallel with the long sides of floor areas.

Tile set out

Set out tiles from the centre of the area. Match edges and align patterns. Arrange the material so that variation in appearance is minimised.

Joints

Butt edges together to form tight neat joints showing no visible open seam and cold weld.

Junctions

Scribe neatly up to returns, edges, fixtures and fittings. Finish flush with adjoining surfaces.

Cleaning and protection

Keep traffic off floors until bonding has set or for 24 hours after laying, whichever period is the longer. Do not allow water in contact with the finish for 7 days.

Sheet vinyl flooring

Proprietary item: To be selected

13 PAINTING

13.1 GENERAL

Standards

Follow the guidance given in AS/NZS 2311-2000 (Guide to the painting of buildings) and AS/NZS 2312-1994 (Guide to the protection of iron and steel against exterior atmospheric corrosion).

13.2 SAMPLES

Coated samples

Submit, on representative substrates, 1m² samples of each coating system showing surface preparation, colour, gloss level, texture and physical properties.

13.3 MATERIALS AND COMPONENTS

Combinations

Do not combine paints from different manufacturers in a paint system.

Delivery

Deliver paints to the site in the manufacturers' labelled containers. Ensure containers are marked with the APAS (Australian Paint Approvals Scheme) specification number.

13.4 PAINTING

Order of work

Complete clear timber finishes before commencing opaque paint finishes in the same area.

Protection

Remove door furniture, switch plates, light fittings and other fixtures before starting to paint, and refix in position on completion of painting.

Restoration

Clean off marks, paint spots and stains progressively. Touch up damaged decorative paintwork or misses with the paint batch used in the original application.

Substrate preparation

Provide a filler tinted to match the substrate if the finish is transparent.

Paint application

Apply the first coat immediately after substrate preparation and before contamination of the substrate can occur. Ensure each coat of paint or clear finish is uniform in colour, gloss, thickness and texture, and free of runs, sags, blisters, or other discontinuities.

Priming before fixing

Steel: Apply a priming coat of zinc-rich organic binder to APAS 2916-2001 (Organic zinc rich coating for protection of steel).

Repair of galvanizing

If galvanized or zinc-coated surfaces have been cut or welded after galvanizing, prime the affected area with a zinc-rich organic binder to APAS 2916-2001 (Organic zinc rich coating for protection of steel).

Paint system description

If a system is referred to only by its final coat (for example by the manufacturer's brand name, the APAS specification code or the generic name) provide stains, primers, sealers and undercoats which are suitable for the substrate and are compatible with the finish coat and each other.

Paint final coat table

Provide paints as follows:

Location	Final coat	Use paint to APAS specification
Interior	Full gloss solvent-borne	APAS-0015/2-2001 (Full gloss alkyd enamel for interior use only (buildings))
	Flat latex	APAS-0260/4-2001 (Washable flat finish for interior use (buildings))
	Low gloss latex	APAS-0260/3-2001 (Low gloss interior latex paint in MCR (buildings))

PROPOSED NEW RESIDENCE FOR R. & S. JONES
137 RIVERVIEW RD., CLAREVILLE NSW

	Semi-gloss latex	APAS-0260/2-2001 (Semi gloss interior latex paint in MCR (buildings))
	Gloss latex	APAS-0260/1-2001 (Interior gloss latex paint (buildings))
Exterior	Full gloss solvent-borne	APAS-0015/1-2001 (Full gloss alkyd enamel for exterior and interior use (buildings))
	Flat latex	APAS-0280/3-2001 (Flat or low gloss exterior latex finish in MCR (buildings))
	Low gloss latex	APAS-0280/3-2001 (Flat or low gloss exterior latex finish in MCR (buildings))
	Gloss latex	APAS-0280/1-2001 (Gloss exterior latex paint in MCR (buildings))
	Stain, lightly pigmented	APAS-0115-2001 (Lightly pigmented solvent borne ranch finish for exterior timber)
	Latex stain, opaque	APAS-0280/5-2001 (Heavily pigmented low gloss latex ranch finish for exterior timber)
	Semi-gloss latex	APAS-0280/2-2001 (Semi gloss latex paint, exterior (buildings))
Paving	Semi gloss	APAS-0200/1-2001 (One pack semi gloss pigmented solvent borne paving paint for concrete)
	Gloss	APAS-0200/2-2001 (One pack full gloss pigmented solvent borne paving paint for concrete)

14 TIMBER FIXTURES

14.1 GENERAL

Cross references

Refer to the following worksections:

- General requirements, for timber durability.
- Doors and windows, for timber doors and reveal and jamb linings.

14.2 MATERIALS AND COMPONENTS

Moisture content

Make milled products from timbers seasoned

- to within 3% of the equilibrium moisture content appropriate to the timber and its intended conditions of use; and
- with no more than 3% difference between any 2 pieces in any one group.

Finished sizes

Provide milled timbers with actual dimensions which are at least the required dimensions, except for dimensions qualified by a term such as "nominal" or "out of" to which industry standards for finished sizes apply.

Hardboard

Standard: To AS/NZS 1859.4 (Int)-2001 (Reconstituted wood-based panels - Specifications - Wet-processed fibreboard).

Particleboard

Standard: To AS/NZS 1859.1 (Int)-2001 (Reconstituted wood-based panels - Specifications - Particleboard).

Medium density fibreboard

Standard: To AS/NZS 1859.2 (Int)-2001 (Reconstituted wood-based panels - Specifications - Dry-processed fibreboard).

Decorative overlaid wood panels

Standard: To AS/NZS 1859.3-1996 (Reconstituted wood-based panels - Decorative overlaid wood panels).

High pressure decorative laminate sheets

Standard: To AS/NZS 2924.1-1987 (High pressure decorative laminates - Sheets made from thermosetting resins - Classification and specifications).

High pressure decorative laminate sheet application table

Provide classes as follows:

Class to AS/NZS 2924-1987 (High pressure decorative laminates - Sheets made from thermosetting resins)	Application
HGS or HGP	Kitchen work-tops
VGS or VGP	Kitchen front panels
VLS	Other locations

14.3 CONSTRUCTION GENERALLY

General

Construction: Build components square and install plumb.

Joints: Provide materials in single lengths whenever possible. If joints are necessary, make them over supports.

Fasteners and adhesives

General: Provide fasteners, adhesives or both to transmit the loads imposed and ensure the rigidity of the assembly. Do not split, discolour or otherwise damage timber or sheets.

Visibility: Do not provide visible fixings except in the following locations:

- Inside cupboards and drawer units.
- Inside open units, in which case provide proprietary caps to conceal fixings.

Finishing

Junctions with structure: Scribe plinths, benchtops, splashbacks, ends of cupboards, kickboards and returns to follow the line of floors or walls.

14.4 TIMBER STAIRS

Closed strings

Trench for treads and risers.

Cut strings

Profile for treads and risers. Mitre riser ends.

Treads

Dress nosings to a pencil-round. Return nosings at cut strings. Groove for riser tongue in closed riser stair. Set riser 19 mm back from nosing.

Top tread

Flush with finished floor, otherwise to match stair treads. Provide similar tread section as nosing to floor edges around stair well.

Risers

Tongue to tread. Mitre to string in cut-string stairs.

Joints

Glue joints in internal work. In closed riser stairs, wedge treads and risers to strings. Plant 2 glue-blocks behind each tread to riser junction. Trim floors to carry ends of stairs and around stairwell.

14.5 DOMESTIC KITCHEN ASSEMBLIES

Standard

General: To AS/NZS 4386.1-1996 (Domestic kitchen assemblies - Kitchen units).

14.6 CUPBOARD AND DRAWER UNITS

Plinths, carcasses, drawer fronts, shelves and doors

Material: Provide melamine overlaid high moisture-resistant particleboard or melamine overlaid high moisture-resistant medium density fibreboard.

Minimum thickness: 16 mm.

Finish: Provide decorative laminated sheet if necessary

- to conceal fasteners; or
- to provide selected colours.

Installation: Secure plinths and carcasses to floors, walls, or both at not more than 600 mm centres.

Drawer fronts: Rout for drawer bottoms.

Adjustable shelves: Support on proprietary pins in holes bored at 32 mm centres vertically.

Drawer and door hardware

Hinges: Provide concealed all-metal hinges with the following features:

- Adjustable for height, side and depth location of door.
- Self-closing action.
- Hold-open function.
- Nickel plated.

Slides: Provide metal runners and plastic rollers with the following features:

- 30 kg loading capacity.
- Closure retention.
- White thermoset powder coating or nickel plated.

14.7 BENCHTOPS

Laminated benchtops

Material: Provide high moisture-resistant particleboard or medium density fibreboard.

Minimum thickness: 32 mm.

Finish: Decorative laminated sheet adhesive fixed.

Sealing underside: Laminate undersides of benchtops if

PROPOSED NEW RESIDENCE FOR R. & S. JONES
137 RIVERVIEW RD., CLAREVILLE NSW

- likely to be subject to excessive moisture from equipment such as dishwashers; or
- the benchtop is not restrained against warping by cupboard carcass or support framing.

Installation: Fix to carcass at least twice per 600 mm length of benchtop.

Joint sealing: Fill joints with sealant matching the finish colour and clamp with proprietary mechanical connectors.

Edge sealing: Seal to walls and carcasses with a sealant which matches the finish colour.

15 PLUMBING AND DRAINAGE

15.1 GENERAL

Cross references

Refer to the following worksections:

- Site preparation, for service trenches.
- Roofing, for roof plumbing and rainwater tanks.
- Block and tile finishes, for waterproofing of wet areas.
- Painting, for priming steel or iron before installation and exposed piping required to be painted.

Standard

Plumbing and drainage products: To SAA MP52-2001 (Manual of authorization procedures for plumbing and drainage products).

Connections

Excavate to locate and expose the connection points and connect to the authorities' mains. On completion, backfill and compact the excavation and reinstate surfaces and elements which have been disturbed such as roads, pavements, kerbs, footpaths and nature strips.

Hydraulic Engineer's drawings

All stormwater drainage work is to be executed in accordance with the Hydraulic Engineer's drawings and the Specification notes contained therein. Where there is a variance with this Specification the Hydraulic Engineer's Specification shall take precedence.

15.2 MATERIALS AND COMPONENTS

Water supply pipes

General: To AS 3500

Cold water: Copper - 16mm - 21mm OD x 1.2mm (t)
25mm - 38mm OD x 1.6mm (t)

Hot water: Copper - 20mm OD lagged with two layers of continuous hair felt

Water heater

Refer Schedule

Finishes

Finish exposed piping, including fittings and supports as follows:

- Internal locations such as toilet and kitchen areas: Bright chrome plate.
- Externally: Paint.
- Concealed but accessible spaces (including cupboards and non-habitable enclosed spaces): Leave unpainted except for required identification marking.

Valves

Finish valves to match connected piping.

15.3 CONSTRUCTION GENERALLY

General

Install piping in straight lines and to uniform grades. Arrange and support the piping so that it remains free from vibration and water hammer, while permitting thermal movement. Keep the number of joints to a minimum. Prevent direct contact between incompatible metals.

Concealment

If practicable, conceal piping and fittings requiring maintenance or servicing so that they are accessible within non-habitable enclosed spaces such as roof spaces, subfloor spaces and ducts. Keep pipelines in subfloor spaces at least 150 mm above ground and ensure access can be provided throughout for inspection. Provide at least 25 mm clearance between adjacent pipelines (measured from the piping insulation where applicable).

Building penetrations

If piping passes through building elements provide purpose-made metal or plastic sleeves formed from pipe sections. Prime steel or iron before installation.

Pipe supports

Materials: The same as the piping, or galvanized or non-ferrous metals, with bonded PVC or glass fibre woven tape sleeves where needed to separate dissimilar metals.

Cover plates

Where exposed piping emerges from wall, floor or ceiling finishes, provide cover plates of

non-ferrous metal, finished to match the piping, or of stainless steel.

15.4 STORMWATER

Standard

General: To AS/NZS 3500.3.2-1998 (National Plumbing and Drainage - Stormwater drainage - Acceptable solutions) or AS/NZS 3500.5 (National Plumbing and Drainage - Domestic installations).

Cleaning

During construction, use temporary covers to openings and keep the system free of debris. On completion, flush the system using water and leave it clean.

Pipelaying

Lay pipelines with the spigot ends in the direction of flow.

Downpipe connections

Turn up drain branch pipelines to finish 50 mm above finished ground or pavement level.

Subsoil drains

Connection: Connect subsoil drains to the stormwater drainage system.

Trench width: Minimum 450 mm.

Subsoil drains: Provide proprietary perforated plastic pipe.

Filter fabric: Provide a polymeric fabric formed from a plastic yarn containing stabilisers or inhibitors to make the filaments resistant to deterioration due to ultraviolet light.

Filter sock: Provide a polyester permeable sock capable of retaining particles of 0.25 mm size.

Securely fit or join the sock at each joint.

Backfilling: Backfill with 20 mm nominal size washed screenings, to the following depths:

- To the underside of the bases of overlying structures such as pavements, slabs and channels.
- To within 75 mm of the finished surface of unpaved or landscaped areas.

Pits

Cover levels: Locate the top of covers or gratings, including frames as follows:

- In paved areas: Flush with the paving surface.
- In landscaped areas: 25 mm above finished surface.
- Gratings taking surface water runoff: Set to receive the runoff without ponding.

15.5 WASTEWATER

Standards

General: To AS/NZS 3500.2.2-1996 (National Plumbing and Drainage - Sanitary plumbing and sanitary drainage - Acceptable solutions) or AS/NZS 3500.5 (National Plumbing and Drainage - Domestic installations).

Waterless composting toilets: To AS/NZS 1546.2: 2001 (On-site domestic wastewater treatment units - Waterless composting toilets).

On-site domestic wastewater treatment units: To AS/NZS 1546.3: 2001 (On-site domestic wastewater treatment units - Aerated wastewater treatment units).

Cleaning

During construction, use temporary covers to openings and keep the system free of debris. On completion, flush the system using water and leave it clean.

Septic tanks

Precast concrete or glass fibre reinforced plastic septic tank: To AS/NZS 1546.1-1998 (On-site domestic wastewater treatment - Septic tanks).

Effluent disposal: To AS/NZS 1547-2000 (On-site domestic wastewater management).

Vent pipes

Staying to roof: If fixings for stays penetrate the roof covering, seal the penetrations and make watertight.

Terminations: Provide bird-proof vent cowls made of the same material and colour as the vent pipe.

Tap positions

Locate hot tap to the left of, or above, the cold water tap.

Accessories

Provide the accessories and fittings necessary for the proper functioning of the plumbing systems, including taps, valves, outlets, pressure and temperature control devices, strainers, gauges and pumps.

Temperature

Maximum temperature at ablution outlets: 50oC.

Isolating valves

Provide isolation valves to water heaters.

Cleaning

On completion, flush the pipelines using water and leave them clean.

15.7 GAS

Standard

General: To AS 5601-2000 (Gas Installation Code).

Buried pipes

Warning tape: During backfilling, lay plastic warning tape above and for the full length of buried gas pipes.

- Type: Minimum 100 mm wide, with "GAS PIPE UNDER" marked continuously.

Commissioning

On completion of installation and testing, turn on isolating and control valves and purge and charge the installation.

15.8 HOT WATER HEATER

Standard

Section 8 of AS/NZS 3500.4 or clause 3.38 of AS/NZS 3500.5.

Type

Install a gas hot water system equal to Rheemglass High Efficiency Model No. 38/170 manufactured by Southcorp Australia Pty. Ltd.

Energy Rating

A.G.A Energy Rating: 4 stars.

15.6 FRESHWATER

Standards

General: To AS/NZS 3500.1.2-1998 (National Plumbing and Drainage - Water supply - Acceptable solutions) and AS/NZS 3500.4.2-1997 (National Plumbing and Drainage - Hot water supply systems - Acceptable solutions) or AS/NZS 3500.5 (National Plumbing and Drainage - Domestic installations).

Tap positions

Locate hot tap to the left of, or above, the cold water tap.

Accessories

Provide the accessories and fittings necessary for the proper functioning of the plumbing systems, including taps, valves, outlets, pressure and temperature control devices, strainers, gauges and pumps.

Temperature

Maximum temperature at ablution outlets: 50°C.

Isolating valves

Provide isolation valves to water heaters.

Cleaning

On completion, flush the pipelines using water and leave them clean.

15.7 GAS

Standard

General: To AS 5601-2000 (Gas Installation Code).

Buried pipes

Warning tape: During backfilling, lay plastic warning tape above and for the full length of buried gas pipes.

- Type: Minimum 100 mm wide, with "GAS PIPE UNDER" marked continuously.

Commissioning

On completion of installation and testing, turn on isolating and control valves and purge and charge the installation.

S/S - see amended pg 31

16 ELECTRICAL INSTALLATIONS

16.1 GENERAL

Cross references

Refer to the Site preparation worksection for service trenches.

Standard

Electrical installation: To AS/NZS 3018-2001 (Electrical installations - Domestic installations).

Interpretation

ED S&IR: The Electricity Distributor's Service and Installation Rules.

RCD: Residual Current Device.

16.2 COMPONENTS

Standards

Circuit breakers: To AS 3947.2-1997 (Low-voltage switchgear and controlgear - Circuit-breakers).

Electrical accessories: To AS/NZS 3100-1997 (Approval and test specification General requirements for electrical equipment).

Luminaires: To AS 3137-1992 (Approval and test specification - Luminaires (lighting fittings))

Smoke detectors: To AS 3786-1993 (Smoke alarms).

Switchboards: To AS 3439.1-1993 (Low-voltage switchgear and controlgear - Type-tested and partially type-tested assemblies) or AS 3439.3-1995 (Low-voltage switchgear and controlgear - Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution Boards), as appropriate.

Telecommunications accessories To AS/ACIF S008: 2001 (Requirements for authorised cabling products).

Television antenna: To AS 1417.1-1987 (Receiving antennas for radio and television in the frequency range 30 MHz to 1 GHz - Construction and installation) and AS 1417.2-1991 (Receiving antennas for radio and television in the frequency range 30 MHz to 1 GHz - Performance).

Telecommunications system

Telephony cable only - Speech and low band frequencies (= 100 kHz)

Small office/home office cable class

Class A Speech and low band frequencies (= 100 kHz)

Class B Medium bit rate data (= 1 MHz)

Class C High bit rate data (= 16 MHz)

Class D Very high bit rate data (= 100 MHz)

16.3 INSTALLATION

General

Submit all necessary applications for electricity supply. Liaise with the electricity distributor and comply with the ED S&IR.

Telecommunications installation

Standard: To AS/ACIF S009: 2001 (Installation Requirements for Customer Cabling (Wiring Rules)) and the recommendations of SAA HB29-2000 (Communications Cabling Handbook).

Submissions: Submit required applications for telecommunications services to the telecommunications services carrier. Liaise with the carrier and submit the Telecommunications Cabling Advice (TCA1) to the Australian Communications Cabling Authority (ACA).

Consumers mains and metering

Provide consumers mains and connect them to the electricity distributor mains.

Electricity distributor's requirements: Provide metering, protection, and control equipment as required by the ED S&IR.

Metering switchboard location: Where shown on the drawing.

Switchboards

Distribution switchboard location(s): Relocate where shown on the drawings

Do not locate a switchboard in a position prohibited by AS/NZS 3018-2001 (Electrical

installations - Domestic installations) or the ED S&IR. Verify that any proposed location complies, and if the location is not compliant, recommend a suitable location to the owner.

Construction: Enclosed type with a hinged lid. Provide circuit breakers and RCDs.

Maximum demand and spare capacity

Calculate the maximum demand of the installation in accordance with AS/NZS 3018-2001 (Electrical installations - Domestic installations) and give the owner a copy of the calculations.

Spare capacity: Provide

- > 10% spare capacity in mains and submains; and
- > 25% spare capacity in final subcircuits.

Load balancing: Spread electrical load equally across circuits to prevent overloading and inadvertent circuit breaker operation.

Fixed and stationary appliances: Treat socket outlets supplying fixed or stationary appliances likely to cause an RCD to trip due to earth leakage currents in accordance with AS/NZS 3018-2001 (Electrical installations - Domestic installations). Do not connect to circuits that supply socket outlets intended for hand held or portable appliances.

Spare spaces: Provide switchboards with (2 spare positions for future single phase circuit breakers.

Electrical and telecommunications accessories

Provide electrical accessories necessary for a complete installation including but not limited to switches, dimmers, socket outlets, and telecommunications outlets.

Mounting: Flush mount accessories to the wall (or ceiling) unless noted otherwise. Provide proprietary wall boxes in masonry and wall brackets in stud walls.

Wet areas: Position accessories in locations containing baths showers or other fixed water containers to comply with the requirements of AS/NZS 3018-2001 (Electrical installations - Domestic installations).

Wiring

Conceal cables and conduits. Provide conduits as necessary to allow wiring replacement without structural work or the removal of cladding, lining, plaster or cement rendering.

Sequence of work: Install conduits and cables before the installation of wall and ceiling linings, and before any external landscaping works.

Installation: Do not penetrate damp-proof courses. Arrange wiring such that it does not bridge the cavity in external masonry.

Conduit sizes: Provide conduits of sufficient internal diameter and arranged so that cables are not subject to undue mechanical stress during installation.

Minimum conduit diameter: 20 mm.

Conduits for future use: Provide a non-metallic drawstring having a breaking strain > 100 kg.

Luminaires

Non-specified luminaires: Provide a bayonet cap batten holder at each lighting point location where no luminaire is specified.

Dimmers and control devices

Locate dimmers and control devices for future access. Provide ventilation and acoustic treatment to suit the device characteristics.

Telecommunications

Installations requiring telephony only: To AS/ACIF S009: 2001 (Installation Requirements for Customer Cabling (Wiring Rules)).

Small office/home office installations: To AS/ACIF S009: 2001 (Installation Requirements for Customer Cabling (Wiring Rules)) and AS/NZS 3086-1996 (Telecommunications installations - Integrated communications cabling systems for small office/home office premises) and in accordance with the recommendations of SAA HB29-2000 (Communications Cabling Handbook).

Television and audio systems

Installation and testing: To AS/NZS 1367-2000 (Coaxial cable systems for the distribution of analogue television and sound signals in single and multiple unit installations).

Antennas: Provide and locate antennas to receive all locally available free-to-air television stations. Provide a coaxial cabling system.

Conduits for future cabling: (25 mm diameter with drawstrings.

PROPOSED NEW RESIDENCE FOR R. & S. JONES
137 RIVERVIEW RD., CLAREVILLE NSW

Smoke detection

Installation and testing: To AS 3786

Provision: Provide smoke detectors to the requirements of the Building Code of Australia. Connect smoke detectors to mains power.

Location: Where shown on the drawings

Testing and certification

Electrical installations: Test to AS/NZS 3017-2001 (Electrical installations - Testing and inspection guidelines). Give the owner a certificate showing test results and certifying compliance with AS/NZS 3018-2001 (Electrical installations - Domestic installations).

Telecommunications cabling: To AS/NZS 3086-1996 (Telecommunications installations - Integrated communications cabling systems for small office/home office premises) and the recommendations of SAA HB29-2000 (Communications Cabling Handbook). Test the cable link performance in accordance with the recommendations of SAA HB29-2000 (Communications Cabling Handbook) at the maximum frequency and data rate for the cable class, and the cable category. Give the owner a certificate showing test results and certifying compliance with AS/NZS 3086-1996 (Telecommunications installations - Integrated communications cabling systems for small office/home office premises).

Television and audio systems: To AS/NZS 1367-2000 (Coaxial cable systems for the distribution of analogue television and sound signals in single and multiple unit installations). Test the complete television and audio system. Give the owner a certificate showing test results and certifying compliance.

17 LANDSCAPING

17.1 GENERAL

Cross reference

Refer to the General requirements worksection for timber durability.

17.2 MATERIALS AND COMPONENTS

Concrete

Standard: To AS 1379-1997 (Specification and supply of concrete) or proprietary packaged mix.

17.3 PREPARATION

Weed eradication

Eradicate weeds using a non-residual glyphosate herbicide in any registered formulae, at the recommended maximum rate.

Surplus spoil

Remove surplus spoil from site. Do not burn vegetative material.

17.4 SUBSOIL

Ripping

General: If practicable, rip parallel to the final contours. Do not rip when the subsoil is wet or plastic. Do not rip within the dripline of trees and shrubs to be retained.

Ripping depths: Rip the subsoil to the following typical depths:

- Compacted subsoil: 300 mm.
- Heavily compacted clay subsoil: 450 mm.

Cultivation

Cultivate to a minimum depth of 100 mm. Do not disturb services or tree roots; if necessary, cultivate these areas by hand. During cultivation, thoroughly mix in materials required to be incorporated into the subsoil. Remove stones exceeding 25 mm, clods of earth exceeding 50 mm, and weeds, rubbish or other deleterious material brought to the surface during cultivation. Trim the surface to the required design levels after cultivation.

Additives

General: Apply additives after ripping or cultivation and incorporate into the upper 100 mm layer of the subsoil.

Gypsum: Incorporate at the rate of 0.25 kg/m².

17.5 TOPSOIL

General

Provide topsoil which is free from unwanted matter and is suitable for reuse on site as topsoil.

Source

If it is available, provide site topsoil.

Placing topsoil

Spread the topsoil on the prepared subsoil and grade evenly, making the necessary allowances so that:

- required finished levels and contours are achieved after light compaction; and
- grassed areas may be finished flush with adjacent hard surfaces such as kerbs, paths and mowing strips.

Consolidation

Compact lightly and uniformly in 150 mm layers. Avoid differential subsidence and excess compaction and produce a finished topsoil surface which is:

- finished to design levels;
- smooth and free from stones or lumps of soil;
- graded to drain freely, without ponding, to catchment points;
- graded evenly into adjoining ground surfaces; and
- ready for planting.

Topsoil depths

Spread topsoil to the following typical depths:

- Planting areas: 225 mm.

17.6 PLANTING

Excavation

Excavate a plant hole for each plant large enough to accept the root ball plus 0.1 m³ of backfilling with topsoil.

Plants

General: Provide plants which

- have large healthy root systems, with no evidence of root curl, restriction or damage;
- are vigorous, well established, free from disease and pests, of good form consistent with the species or variety; and
- are hardened off, not soft or forced, and suitable for planting in the natural climatic conditions prevailing at the site.

Trees: Provide trees which, unless required to be multi-stemmed, have a single leading shoot.

Labelling

Label at least one plant of each species or variety in a batch using a durable, readable tag.

Planting conditions

Do not plant in unsuitable weather conditions such as extreme heat, cold, wind or rain. In other than sandy soils, suspend excavation when the soil is wet, or during frost periods.

Watering

Thoroughly water plants before planting and immediately after planting.

Fertilising

In planting beds and individual plantings, place fertiliser pellets around plants at the time of planting.

17.7 MULCHING

Mulch

General: Provide mulch which is free of deleterious and extraneous matter such as stones, soil, weeds and sticks.

Application: Place mulch clear of plant stems, and rake to an even surface flush with the surrounding finished levels.

Depth: 75 mm.

17.8 STAKES AND TIES

Stakes

Material: Hardwood, straight, free from knots or twists, pointed at one end.

Installation: Drive stakes into the ground at least one third of their length, avoiding damage to the root system.

Stake sizes:

- For plants 1 to 2.5 m high: Two 50 x 50 x 1800 mm stakes per plant.
- For plants smaller than 1 m high: One 38 x 38 x 1200 mm stake per plant.

Ties

General: Provide ties fixed securely to the stakes, one tie at half the height of the main stem, others as necessary to stabilise the plant.

Webbing: Provide 50 mm hessian webbing stapled to the stake.

18 REFERENCED DOCUMENTS

AS 1214	1983	Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series)
AS 1231	2000	Aluminium and aluminium alloys - Anodic oxidation coatings
AS 1288	1994	Glass in buildings - Selection and installation
AS 1324		Air filters for use in general ventilation and airconditioning
AS 1324.2	1996	Methods of test
AS 1366		Rigid cellular plastics sheets for thermal insulation
AS 1366.4	1989	Rigid cellular polystyrene - Extruded (RC/PS-E)
AS/NZS 1367	2000	Coaxial cable systems for the distribution of analogue television and sound signals in single and multiple unit installations
AS 1379	1997	Specification and supply of concrete
AS 1397	2001	Steel sheet and strip - Hot-dipped zinc-coated or aluminium/zinc-coated
AS 1417		Receiving antennas for radio and television in the frequency range 30 MHz to 1 GHz
AS 1417.1	1987	Construction and installation
AS 1417.2	1991	Performance
AS/NZS 1546		On-site domestic wastewater treatment units
AS/NZS 1546.1	1998	Septic tanks
AS/NZS 1546.2	2001	Waterless composting toilets
AS/NZS 1546.3	2001	Aerated wastewater treatment units
AS 1547	2000	On site domestic wastewater management
AS/NZS 1554		Structural steel welding
AS/NZS 1554.1	2000	Welding of steel structures
AS 1562		Design and installation of sheet roof and wall cladding
AS 1562.1	1992	Metal
AS/NZS 1562.3	1996	Plastic
AS/NZS 1571	1995	Copper - Seamless tubes for airconditioning and refrigeration
AS 1604		Specification for preservative treatment
AS 1604.1	2000	Sawn and round timber
AS/NZS 1604.2	2002	Reconstituted wood-based products
AS/NZS 1604.3	2002	Plywood
AS 1627	Various	Metal finishing - Preparation and pretreatment of surfaces
AS 1668		The use of mechanical ventilation and air-conditioning in buildings
AS 1668.2	1991	Mechanical ventilation for acceptable indoor-air quality
AS 1670		Fire detection, warning, control and intercom systems - System design, installation, and commissioning
AS 1670.1	1995	Fire
AS 1670.6	1997	Smoke alarms
AS 1672		Limes and limestones
AS 1672.1	1997	Limes for building
AS 1677		Refrigerating systems
AS 1677.2	1998	Safety requirements for fixed applications
AS 1684		Residential timber-framed construction
AS 1684.4	1999	Simplified - Non-cyclonic
AS 1691	1985	Domestic oil-fired appliances - Installation
AS 1720		Timber structures
AS 1720.1	1998	Design methods
AS 1789	1984	Electroplated coatings - Zinc on iron or steel
AS/NZS 1859		Reconstituted wood-based panels - Specifications
AS/NZS 1859.1 (Int)	2001	Particleboard
AS/NZS 1859.2 (Int)	2001	Dry-processed fibreboard
AS/NZS 1859.3	1996	Decorative overlaid wood panels
AS/NZS 1859.4 (Int)	2001	Wet-processed fibreboard
AS 1860	1998	Installation of particleboard flooring
AS 1884	1985	Floor coverings - Resilient sheet and tiles - Laying and maintenance practices

PROPOSED NEW RESIDENCE FOR R. & S. JONES
137 RIVERVIEW RD., CLAREVILLE NSW

AS 1909	1984	Installation of timber doorsets
AS 2047	1999	Windows in buildings - Selection and installation
AS 2049	1992	Roof tiles
AS 2050	1995	Installation of roofing tiles
AS 2159	1995	Piling - Design and installation
AS/NZS 2179		Specification for rainwater goods, accessories and fasteners
AS/NZS 2179.2(Int)	1998	PVC rainwater goods and accessories
AS 2185	1978	Fibrous plaster products
AS/NZS 2269	1994	Plywood - Structural
AS/NZS 2311	2000	Guide to the painting of buildings
AS/NZS 2312	1994	Guide to the protection of iron and steel against exterior atmospheric corrosion
AS 2358	1990	Adhesives - For fixing ceramic tiles
AS/NZS 2455		Textile floor coverings - Installation practice
AS/NZS 2455.1	1995	General
AS 2461	1981	Mineral wool thermal insulation - Loose fill
AS 2462	1981	Cellulosic fibre thermal insulation
AS/NZS 2588	1998	Gypsum plasterboard
AS/NZS 2589		Gypsum linings in residential and light commercial construction - Application and finishing
AS/NZS 2589.1	1997	Gypsum plasterboard
AS 2592	1983	Gypsum plaster for building purposes
AS 2601	2001	The demolition of structures
AS 2688	1984	Timber doors
AS 2689	1984	Timber doorsets
AS/NZS 2699		Built in components for masonry construction
AS/NZS 2699.1	2000	Wall ties
AS/NZS 2699.2	2000	Connectors and accessories
AS/NZS 2728	1997	Prefinished/prepainted sheet metal products for interior/exterior building applications - Performance requirements
AS 2734	1984	Asphalt (hot-mixed) paving - Guide to good practice
AS/NZS 2803		Doors - Security Screen
AS/NZS 2803.1	1994	Hinged
AS/NZS 2803.2	1995	Sliding
AS/NZS 2804		Installation of security screen doors
AS/NZS 2804.1	1995	Hinged
AS/NZS 2804.2	1996	Sliding
AS 2870	1996	Residential slabs and footings - Construction
AS/NZS 2904	1995	Damp-proof courses and flashings
AS/NZS 2908		Cellulose-cement products
AS/NZS 2908.2	2000	Flat sheets
AS 2913	2000	Evaporative airconditioning equipment
AS/NZS 2918	2001	Domestic solid fuel burning appliances - Installation
AS/NZS 2924		High pressure decorative laminates - Sheets made from thermosetting resins
AS/NZS 2924.1	1998	Classification and specifications
AS/NZS 3017	2001	Electrical installations - Testing and inspection guidelines
AS/NZS 3018	2001	Electrical installations - Domestic installations
AS/NZS 3086	1996	Telecommunications installations - Integrated communications cabling systems for small office/home office premises
AS/NZS 3100	1997	Approval and test specification - General requirements for electrical equipment
AS 3137	1992	Approval and test specification - Luminaires (lighting fittings)
AS 3439		Low-voltage switchgear and controlgear
AS 3439.1	1993	Type-tested and partially type-tested assemblies
AS 3439.3	1995	Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution
AS/NZS 3500		National Plumbing and Drainage

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137 RIVERVIEW RD., CLAREVILLE NSW

AS/NZS 3500.1.2	1998	Water supply - Acceptable solutions
AS/NZS 3500.2.2	1996	Sanitary plumbing and sanitary drainage - Acceptable solutions
AS/NZS 3500.3.2	1998	Stormwater drainage - Acceptable solutions
AS/NZS 3500.4.2	1997	Hot water supply systems - Acceptable solutions
AS/NZS 3500.5	2000	Domestic installation
AS 3566		Self-drilling screws for the building and construction industries
AS 3566.1	2002	General requirements and mechanical properties
AS 3566.2	2002	Corrosion resistance requirements
AS 3600	2000	Concrete structures
AS 3623	1993	Domestic metal framing
AS 3660		Termite management
AS 3660.1	2000	New buildings
AS 3666		Air-handling and water systems of buildings - Microbial control
AS 3666.1	2002	Design, installation and commissioning
AS 3700	2001	Masonry structures
AS 3715	1989	Metal finishing - Thermoset powder coatings for architectural applications
AS 3740	1994	Waterproofing of wet areas within residential buildings
AS 3742	1990	Mineral wool thermal insulation - Batt and blanket
AS 3786	1993	Smoke alarms
AS/NZS 3823		Performance of electrical appliances - Room airconditioners
AS/NZS 3823.1.1	1998	Testing and rating for performance
AS/NZS 3823.1.2	2001	Ducted airconditioners and air-to-air heat pumps - Testing and rating for performance
AS 3947		Low voltage switchgear and controlgear
AS 3947.2	1997	Circuit-breakers
AS 3958		Ceramic tiles
AS 3958.1	1991	Guide to the installation of ceramic tiles
AS 3958.2	1992	Guide to the selection of a ceramic tiling system
AS 3959	1999	Construction of buildings in bushfire prone areas
AS 3972	1997	Portland and blended cements
AS 3999	1992	Thermal insulation of dwellings - Bulk insulation - Installation requirements
AS 4100	1998	Steel structures
AS/NZS 4200		Pliable building materials and underlays
AS/NZS 4200.1	1994	Materials
AS/NZS 4200.2	1994	Installation requirements
AS 4254	2002	Ductwork for air-handling systems in buildings
AS/NZS 4256		Plastic roof and wall cladding materials
AS/NZS 4256.3	1994	Glass fibre reinforced polyester (GRP)
AS/NZS 4256.4	1995	Unplasticized polyvinyl chloride (uPVC) wall cladding boards
AS/NZS 4256.5	1996	Polycarbonate
AS/NZS 4386		Domestic kitchen assemblies
AS/NZS 4386.1	1996	Kitchen units
AS 4440	1997	Installation of nailplated timber trusses
AS/NZS 4455	1997	Masonry units and segmental pavers
AS/NZS 4456		Masonry units and segmental pavers - Method of test
AS/NZS 4456.10	1997	Method 10: Determining resistance to salt attack
AS/NZS 4505	1998	Domestic garage doors
AS 4508	1999	Thermal resistance of insulation for ductwork used in building airconditioning
AS/NZS 4600	1996	Cold-formed steel structures
AS/NZS 4680	1999	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
AS 5601	2002	Gas installation code
SAA HB29	1998	Telecommunications Cabling Handbook
SAA HB33	1992	Domestic open fireplaces
SAA HB40		The Australian Refrigeration and Air Conditioning Code of Good Practice
SAA HB40.1	2001	Reduction of Emissions of Fluorocarbon Refrigerants in Commercial

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137 RIVERVIEW RD., CLAREVILLE NSW

SAA HB40.2	2001	and Industrial Refrigeration and Airconditioning Applications Reduction of Emissions of Fluorocarbons in Residential Airconditioning Applications
SAA MP52	2001	Manual of authorization procedures for plumbing and drainage products
AS/ACIF S008	2001	Requirements for authorised cabling products
AS/ACIF S009	2001	Installation Requirements for Customer Cabling (Wiring Rules)
APAS-0015/1	2001	Full gloss alkyd enamel for exterior and interior use (buildings)
APAS-0015/2	2001	Full gloss alkyd enamel for interior use only (buildings)
APAS-0115	2001	Lightly pigmented solvent borne ranch finish for exterior timber
APAS-0200/1	2001	One pack semi gloss pigmented solvent borne paving paint for concrete
APAS-0200/2	2001	One pack full gloss pigmented solvent borne paving paint for concrete
APAS-0205	2001	One pack clear moisture cured finish for timber
APAS-0260/1	2001	Interior gloss latex paint (buildings)
APAS-0260/2	2001	Semi gloss interior latex paint in MCR (buildings)
APAS-0260/3	2001	Low gloss interior latex paint in MCR (buildings)
APAS-0260/4	2001	Washable flat finish for interior use (buildings)
APAS-0280/1	2001	Gloss exterior latex paint in MCR (buildings)
APAS-0280/2	2001	Semi gloss latex paint, exterior (buildings)
APAS-0280/3	2001	Flat or low gloss exterior latex finish in MCR (buildings)
APAS-0280/5	2001	Heavily pigmented low gloss latex ranch finish for exterior timber
APAS-2916	2001	Organic zinc rich coating for protection of steel
ASTM C534	2001	Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form
AWRAP/A 202	1993	Mandatory Woolmark Specifications for building insulation material
BCA 3.1.3.2(b)		Acceptable construction - Site preparation - Termite risk management - Installation of termite barriers
BCA 3.3.3.5		Acceptable construction - Masonry - Masonry accessories - Lintels supporting roofs and masonry walls
BCA 3.4.2.2		Acceptable construction - Framing - Steel framing - General
BCA 3.4.4.4		Acceptable construction - Structural steel members - Corrosion protection
CBPI TN 21A	1985	The Design of Freestanding Clay-Brick Walls
CBPI TN 21B	1985	Brick Beam Garden Fences

19 SCHEDULES

19.1 SCHEDULE OF EXTERNAL FINISHES

Schedule

Element	Sub-strata	Material	Finish	Colour	Supplier
Level 1 walls	Steel frame	Custom Orb	Colorbond	Bushland	Lysaght
Level 2 walls	Steel frame	Custom Orb	Colorbond	Bushland	Lysaght
Level 3 walls	Steel frame	Custom Orb	Colorbond	Bushland	Lysaght
Window	Aluminium	Powdercoat	Duralloy	Charcoal	Dulux
Roof	Zincalume	Custom Orb	Colorbond	Woodland	Lysaght
Fascia	Zincalume	Sheet steel	Colorbond	Woodland	Lysaght
Steel columns	Galvanised	Paint	Gloss enamel	Charcoal	Dulux
Steel beams	Galvanised	Paint	Gloss enamel	Charcoal	Dulux

PROPOSED NEW RESIDENCE FOR R. & S. JONES
137 RIVERVIEW RD., CLAREVILLE NSW

19.2 SCHEDULE OF INTERNAL FINISHES

Finish Codes

Element	Code	Description	Supplier
General	TBS	To be selected	
Sub strata	PB	Sheet plasterboard	Flush set
	VB	Villa board	
	AFG	Aluminium framed glazing	
	SPB	Structural particleboard	
	FC	Structural fibre cement	
	STR	Steel & timber handrail	As specified
	TST	Solid timber stair tread	Blackbutt
Finish	SGLP	Semi-gloss latex interior	Dulux
	FGLP	Full gloss latex interior	Dulux
	PC	Powdercoat	Duralloy Dulux
	TO	Tung Oil	Floorseal Feast Watson
	CPT	Carpet	To be selected
	SFL	Sheet flooring	To be selected
	CTW	Ceramic wall tiles Type 1	Full height To be selected
	CTF1	Ceramic floor tiles Type 1	To be selected
	CTW	Ceramic wall tiles Type 2	Full height To be selected
	CTF2	Ceramic floor tiles Type 2	To be selected
	CTW	Ceramic wall tiles Type 3	Full height To be selected
	CTF3	Ceramic floor tiles Type 3	To be selected
	FJ	Full height joinery	No finish to substrata behind joinery
	BJ	Bench height joinery	No finish to substrata behind joinery
Skirting	MDF	MDF board skirting	100 high splayed top
	CT	Ceramic floor tile	1 tile high
	STS	Solid timber	100 high splayed top Blackbutt
Cornice	ASA	Aluminium shadow angle	Part 235 Rondo
	TS	Taped and set cornice.	

Door Codes

Flush door panels

Panel type	P1	Hollow core interior - single leaf - hinged
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Finishes

Finish type	F1	Paint - Full gloss solvent borne
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Door frames

Frame code	DF1	
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Material	Ezy jamb without head	
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Overall size

Profile type

Prefinish

Hardware

Code	Type	Proprietary item
L1	Passage latchset, no locking function, operated by handles both sides	Lockwood 3572 - satin chrome
L2	Privacy snib	Madinoz TT
H1	Lever handle	Madinoz L45R

PROPOSED NEW RESIDENCE FOR R. & S. JONES
137 RIVERVIEW RD., CLAREVILLE NSW

Schedule

Room No.		1.01	1.02	1.04	1.05
Room name		Bed 3	Bed 4	Hall	Store
North wall	Substrate	PB	PB/AFG/FJ		PB
	Finish	SGLP	SGLP/PC		SGLP
	Colour	TBS	TBS		TBS
	Skirting	MDF	MDF		MDF
West wall	Substrate	AFG	AFG		PB
	Finish	PC	PC		SGLP
	Colour	Charcoal	Charcoal		TBS
	Skirting				MDF
South wall	Substrate	PB/AFG	PB	PB	PB
	Finish	SGLP/PC	SGLP	SGLP	SGLP
	Colour	TBS	TBS	TBS	TBS
	Skirting	MDF	MDF	MDF	MDF
East wall	Substrate	PB/FJ	PB		PB
	Finish	SGLP	SGLP		SGLP
	Colour	TBS	TBS		TBS
	Skirting	MDF	MDF		MDF
Floor	Substrate	SPB	SPB	SPB	SPB
	Finish	CPT	CPT	CPT	CPT
	Colour	TBS	TBS	TBS	TBS
Ceiling	Type	PB	PB	PB	PB
	Finish	SGLP	SGLP	SGLP	SGLP
	Colour	White	White	White	White
	Cornice	ASA	ASA	ASA	ASA
Door	No.		D1.01		D1.02
	Opening		2400 x 825		2400 x 825
	Frame		DF1		DF1
	Finish		F1		F1
	Panel		P1		P1
	Handing		RHS		RHS
	Leaf size		2400 x 820		2400 x 820
	Finish		FGLP		FGLP
	Hardware		L1/H1		L1/H1

PROPOSED NEW RESIDENCE FOR R. & S. JONES
137 RIVERVIEW RD., CLAREVILLE NSW

Room No.		2.01	2.02	2.04	2.05	2.06
Room name		Bed 2	Bed 1	Bath	Stair	Dressing
North wall	Substrate	PB	PB/AFG/FJ	VB	PB	PG
	Finish	SGLP	SGLP/PC	CWT1	SGLP	SGLP
	Colour	TBS	TBS	TBS	TBS	TBS
	Skirting	MDF	MDF		MDF	MDF
West wall	Substrate	AFG	AFG	VB		PG
	Finish	PC	PC	CWT1		SGLP
	Colour	Charcoal	Charcoal	TBS		TBS
	Skirting					MDF
South wall	Substrate	PB/AFG	PB	VB/AFG	PB/STR	PB/FJ
	Finish	SGLP/PC	SGLP	CWT1/PC	SGLP	SGLP
	Colour	TBS	TBS	TBS	TBS	TBS
	Skirting	MDF	MDF			MDF
East wall	Substrate	PB/FJ	PB	VB		PB/FJ
	Finish	SGLP	SGLP	CWT1		SGLP
	Colour	TBS	TBS	TBS		TBS
	Skirting	MDF	MDF			MDF
Floor	Substrate	SPB	SPB	FC	SPB/TST	SPB
	Finish	CPT	CPT	CFT1	CPT/TO	CPT
	Colour	TBS	TBS	TBS	TBS	TBS
Ceiling	Type	PB	PB	PB	PB	PB
	Finish	SGLP	SGLP	SGLP	SGLP	SGLP
	Colour	White	White	White	White	White
	Cornice	ASA	ASA	ASA	ASA	ASA
Door	No.		D2.01	D2.04		D2.02
	Opening		2400 x 825	2400 x 825		2400 x 825
	Frame		DF1	DF1		DF1
	Finish		F1	F1		F1
	Panel		P1	P1		P1
	Handing		RHS	RHS		LHS
	Leaf size		2400 x 820	2400 x 820		2400 x 820
	Finish		FGLP	FGLP		FGLP
	Hardware		L1/H1	L1/L2/H1		L1/H1

PROPOSED NEW RESIDENCE FOR R. & S. JONES
137 RIVERVIEW RD., CLAREVILLE NSW

Room No.		2.07	2.08	2.09	3.01
Room name		En Suite	Laundry	Entry	Living
North wall	Substrate	VB/AFG	VB/FJ	AFG	PB/AFG
	Finish	CWT2/PC	SGLP	PC	SGLP/PC
	Colour	TBS	TBS	Charcoal	TBS
	Skirting		CT/CFT3		MDF
West wall	Substrate	VB	VB/FJ		PB/AFG
	Finish	CWT2			SGLP/PC
	Colour	TBS			TBS
	Skirting				
South wall	Substrate	VB	VB/BJ	PB	PB/AFG
	Finish	CWT2	SGLP	SGLP	SGLP/PC
	Colour	TBS	TBS	TBS	TBS
	Skirting		CT/CFT3	MDF	MDF
East wall	Substrate	VB	VB/AFG/BJ	PB	
	Finish	CWT2	SGLP/PC	SGLP	
	Colour	TBS	TBS	TBS	
	Skirting			MDF	
Floor	Substrate	FC	FC	SPB	SPB
	Finish	CFT2	CFT3	CPT	CPT
	Colour	TBS	TBS	TBS	TBS
Ceiling	Type	PB	PB	PB	PB
	Finish	SGLP	SGLP	SGLP	SGLP
	Colour	White	White	White	White
	Cornice	ASA	ASA	ASA	ASA
Door	No.	D2.03	D2.05		
	Opening	2400 x 825	2400 x 825		
	Frame	DF1	DF1		
	Finish	F1	F1		
	Panel	P1	P1		
	Handing	LHS	LHS		
	Leaf size	2400 x 820	2400 x 820		
	Finish	FGLP	FGLP		
	Hardware	L1/L2/H1	L1/H1		

PROPOSED NEW RESIDENCE FOR R. & S. JONES
137 RIVERVIEW RD., CLAREVILLE NSW

Room No.		3.02	3.04	3.05	3.06	3.07
Room name		Dining	Kitchen	Stair	Guest WC	Entry
North wall	Substrate	PB/AFG	PB/BJ	STR	VB	PB
	Finish	SGLP/PC	SGLP		CWT2	SGLP
	Colour	TBS	TBS		TBS	TBS
	Skirting	MDF	MDF			MDF
West wall	Substrate		PB/BJ		VB	
	Finish		SGLP		CWT2	
	Colour		TBS		TBS	
	Skirting		MDF			
South wall	Substrate		PB/AFG/FJ	PB	VB/AFG	PB
	Finish		SGLP/PC	SGLP	CWT2/PC	SGLP
	Colour		TBS	TBS	TBS	TBS
	Skirting					MDF
East wall	Substrate	PB/AFG	PB/AFG/FJ		VB	AFG
	Finish	SGLP/PC	SGLP/PC		CWT2	PC
	Colour	TBS	TBS		TBS	
	Skirting		MDF			
Floor	Substrate	SPB	SPB	TST	FC	
	Finish	CPT	SFL	TO	CFT2	
	Colour	TBS	TBS		TBS	
Ceiling	Type	PB	PB	PB	PB	PB
	Finish	SGLP	SGLP	SGLP	SGLP	SGLP
	Colour	White	White	White	White	White
	Cornice	ASA	ASA	ASA	ASA	ASA
Door	No.				D3.01	
	Opening				2400 x 825	
	Frame				DF1	
	Finish				F1	
	Panel				P1	
	Handing				LHS	
	Leaf size				2400 x 820	
	Finish				FGLP	
	Hardware				L1/L2/H1	

19.3 SCHEDULE OF APPLIANCES, FITTINGS & ACCESSORIES

Schedule of appliances

Dishwasher	Manufacturer	To be supplied by owner
	Type	
	Colour	
	Built-in	Yes
	Hot & cold	To be connected
Wall oven	Manufacturer	To be supplied by owner
	Type	Miele H316 B or Ilve 600 series
	Colour	Stainless steel
	Natural Gas	To be connected
	Electric	To be connected
Cook top	Manufacturer	To be supplied by owner
	Type	
	Colour	
	Natural Gas	To be connected
	Electric	To be connected
Range hood	Manufacturer	To be supplied by owner
	Type	
	Colour	
	Ducted	To be installed with exterior grille
Microwave	Manufacturer	To be supplied by owner
	Type	
	Colour	
Refrigerator	Manufacturer	To be supplied by owner
	Type	
	Colour	
	Cold water	To be connected
Washing machine	Manufacturer	To be supplied by owner
	Type	
	Colour	
	Hot & cold	To be connected
Clothes dryer	Manufacturer	To be supplied by owner
	Type	
	Colour	
	Ducted	To be installed with exterior grille
Hot water system	Manufacturer	Rheem
	Type	411315
	Rating	3.5 STARS
	Electric	To be connected

Schedule of fittings

Kitchen sink	Manufacturer	To be provided by owner
	Type / Finish	
Laundry sink	Manufacturer	To be provided by owner
	Type / Finish	
En suite basin	Supplier	To be provided by owner
	Type / Colour	
En suite toilet pan and cistern	Manufacturer	To be provided by owner
	Type / Colour	
Bathroom basin	Manufacturer	To be provided by owner
	Type / Colour	
Bathroom toilet pan and cistern	Manufacturer	To be provided by owner
	Type / Colour	
Bathroom bath tub	Manufacturer	To be provided by owner
	Type / Colour	
Kitchen sink mixer	Supplier	To be provided by owner
	Type / Finish	
En suite basin mixer set	Manufacturer	To be provided by owner
	Type / Finish	
En suite shower mixer set	Manufacturer	To be provided by owner
	Type / Finish	
En suite shower head	Manufacturer	To be provided by owner
	Type / Finish	
	Rating	AAA
Bathrooms basin mixer set	Manufacturer	To be provided by owner
	Type / Finish	
Bathrooms shower mixer set	Manufacturer	To be provided by owner
	Type / Finish	
Bathroom shower head	Manufacturer	To be provided by owner
	Type / Finish	
	Rating	AAA
Laundry mixer set	Manufacturer	To be provided by owner
	Type / Finish	

PROPOSED NEW RESIDENCE FOR R. & S. JONES
137 RIVERVIEW RD., CLAREVILLE NSW

Schedule of accessories

En suite shower screen	Manufacturer	To be provided by owner
	Type	Sheer frameless 2100(h)
	Configuration	Fixed 600(w) panel with 600(w) hinged door and 300(w) side panel
En suite and Bathroom mirror	Manufacturer	Pilkington Australia
	Type	No-Mist
	Finish	Frameless
En suite and Bathroom towel rail	Manufacturer	To be supplied by owner
	Type	To be selected
	Installation	
En suite and Bathroom toilet paper holder	Manufacturer	To be supplied by owner
	Type	To be selected
	Installation	
Bathroom shower screen	Manufacturer	To be supplied by owner
	Type	Sheer frameless 2100(h)
	Configuration	Fixed 900(w) panel with 600(w) hinged door and 300(w) side panel

annexure 4

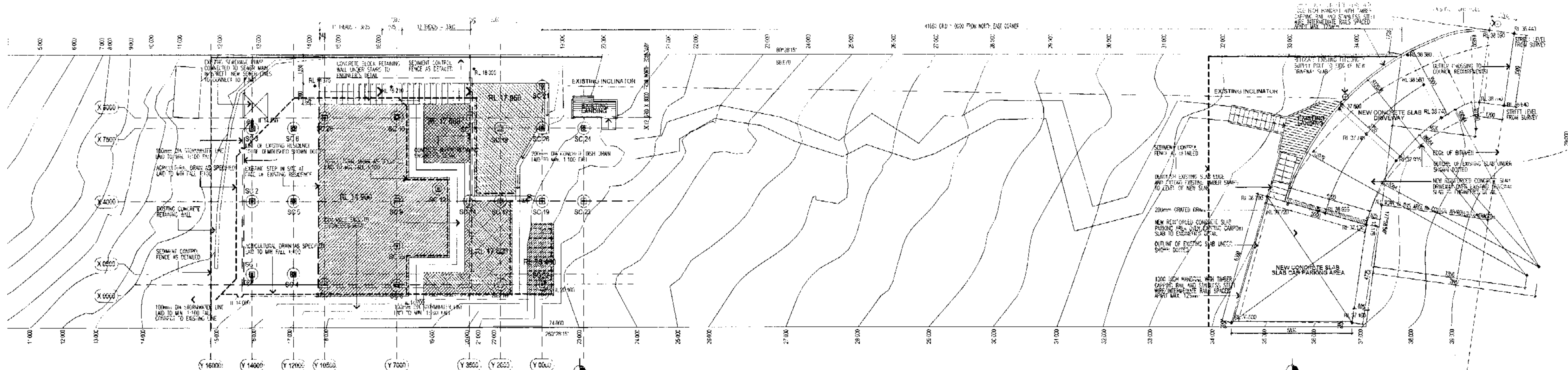
building code of australia summary

construction certificate documentation
certificate number C-04-127
premises – 137 Riverview Road, Clareville

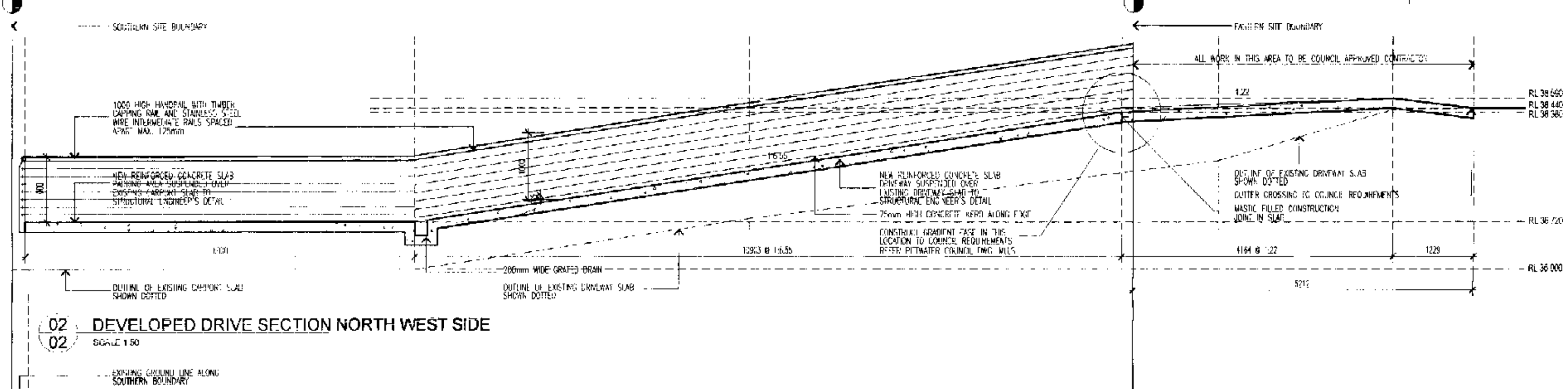
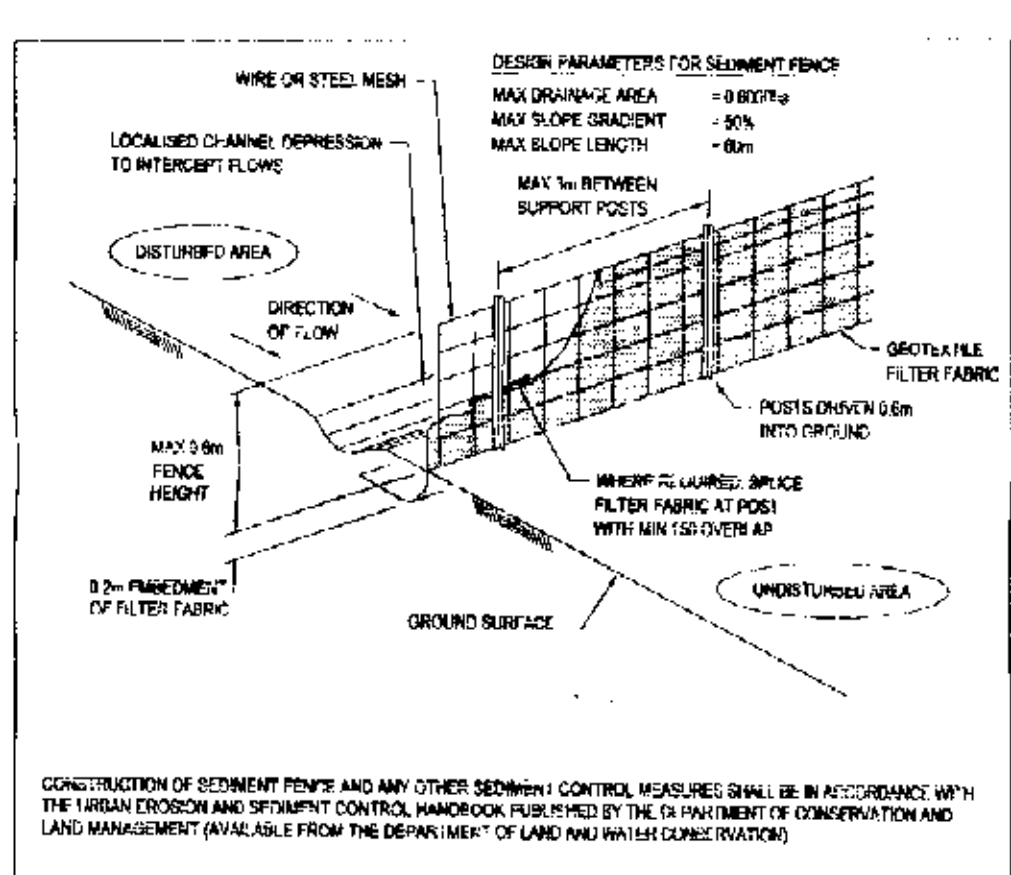
Building Code of Australia – Compliance Details

(Building Code of Australia 2004)

<i>Classification</i>	1a
<i>3.1 – Site Preparation</i>	Covered by engineer details and notation in spec re: termite treatment.
<i>3.2 - Footing and Slabs</i>	See engineering details
<i>3.3 - Masonry</i>	See engineering details
<i>3.4 – Framing</i>	See engineering details
<i>3.5 – Roof & wall cladding</i>	Notation in specification
<i>3.6 - Glazing</i>	Notation in specification
<i>3.7 – Fire Safety</i>	Notation in specification – BCA 3.7.3 is not applicable to gas fireplace.
<i>3.8 - Health & amenity</i>	Notation in specification re: wet areas and mechanical exhaust
<i>3.9 – Safe Movement and Access</i>	Notation in specification – Plans also indicate installation of smooth faced panels to inside of Level 3 balustrade where more than 4m above ground below (to comply with 3.9.2).
<i>NSW2 – Energy efficiency</i>	Notation in plans/specification regarding external doors/windows, internal lining materials and hot water system. We have also been advised there will be no air-conditioning installed to any rooms provided with exhaust fans.
<i>Other matters</i>	Refer to Council letter dated 17/1/03 confirming property is not bushfire affected.



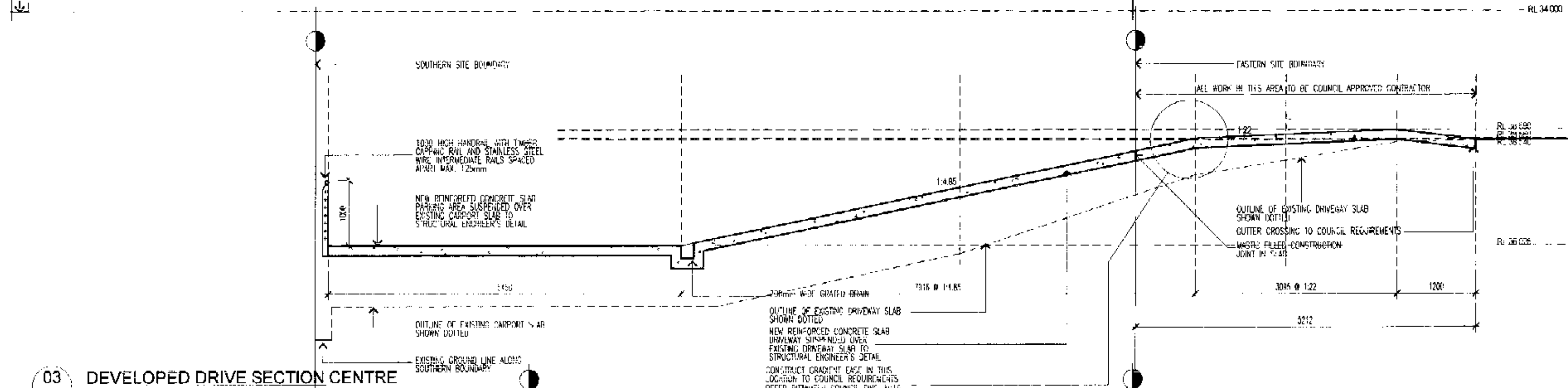
01 SETOUT AND SITE WORKS PLAN
SCALE 1:100



02 DEVELOPED DRIVE SECTION NORTH WEST SIDE
SCALE 1:50

05 SEDIMENT AND EROSION CONTROL
SCALE 1:100

1. Limit grading to those areas required to contain construction activities.
2. Minimise erosion and steepness of slopes and graded areas.
3. Limit the time during which unprotected graded areas are exposed to wind and rain.
4. Intercept, divert and safely dispose of clean run off flowing onto all areas including sub-drains.
5. Reduce run off velocities by maintaining lengths of flow path with gentle gradients and by creating roughening to dissipate energy.
6. Apply temporary measures to all disturbed areas including soil stock piles which will remain exposed for 14 days or more.
7. Progress and maintain all disturbed areas with permanent vegetation as each stage of development is completed.
8. Trap sediment as close to the source as possible.
9. Locate sediment traps or filters below all disturbed areas to intercept and detain sediment before run off.
10. Locate sediment traps above environmentally sensitive areas such as streams, floodplains and steep slopes.
11. Subsurface drainage catchment is to be smaller units, all size appropriate to the type of sediment control measure proposed.
12. Use sediment traps or filters as the most effective structure to control concentrated run off.
13. Use sediment traps as the most effective means of controlling sheet run off flows.
14. Locate multiple sediment basins or more than one that drain in parallel not in series to reduce the risk of failure.
15. Direct uphill water around building site.
16. Limit entry / exit to one point and stabilize.
17. Strip and stockpile topsoil.
18. Show all building materials within the sediment fence envelope.
19. Connect pumping to stormwater lines initial entry roof is finished.
20. Check all controls after rain and maintain in working order.
21. Re-spread topsoil and revegetate all bare areas.
22. Install sediment traps in accordance with the detail below and in the locations shown on the drawings.



03 DEVELOPED DRIVE SECTION CENTRE
SCALE 1:50

STREET LEVELS DOCUMENT CERTIFICATION

I AM A QUALIFIED REGISTERED ARCHITECT
I HOLD THE FOLLOWING QUALIFICATIONS:
B ARCH (ONS), NSW, GRAD DIP L.D., NSW
NSW BOARD OF ARCHITECTS REGISTRATION NO. 3507
I AM APPROPRIATELY QUALIFIED TO PROVIDE
THE FOLLOWING CERTIFICATIONS:
I HEREBY STATE THAT THE PLANS, SECTIONS AND DETAILS
SHOWN ON THIS DRAWING COMPLY WITH THE
COUNCIL'S POLICY (DOP 63) "UNWEAVERED AND INTERNAL
ROADWAYS" AND TO THE STREET LEVELS AS ADVISED
BY THE COUNCIL'S LETTER DATED 05 MARCH 2004
AND THE COUNCIL'S DRAWING "M11"

WARWICK WERNER
NAME: SIGNATURE: DATE: 24/09/04

EROSION & SEDIMENT CONTROL DOCUMENT CERTIFICATION

I AM A QUALIFIED REGISTERED ARCHITECT
I HOLD THE FOLLOWING QUALIFICATIONS:
B ARCH (ONS), NSW, GRAD DIP L.D., NSW
NSW BOARD OF ARCHITECTS REGISTRATION NO. 3507
I AM APPROPRIATELY QUALIFIED TO PROVIDE
THE FOLLOWING CERTIFICATIONS:
I HEREBY STATE THAT THE PLANS, SECTIONS AND DETAILS
SHOWN ON THIS DRAWING COMPLY WITH THE
REQUIREMENTS OF THE NSW DEPT. OF LANDS AND WATER
CONSERVATION'S "URBAN EROSION AND SEDIMENT
CONTROL MANUAL"

WARWICK WERNER
NAME: SIGNATURE: DATE: 24/09/04

NO.	REVISION	DATE	DRAWN	REVIEWED	DATE	DRAWN	REVIEWED
1	ISSUED FOR CONSTRUCTION CERTIFICATE	24/09/04	WW	RC			
2							
3							
4							
5							
6							
7							
8							
9							
10							

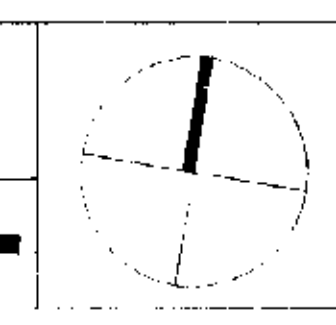
FOR CONSTRUCTION CERTIFICATE

Structural Engineer
D'AMBROSIO CONSULTING PTY. LIMITED
4/153 VICTORIA RD. GLADSVILLE NSW 2047
TELEPHONE (02) 9879 9877

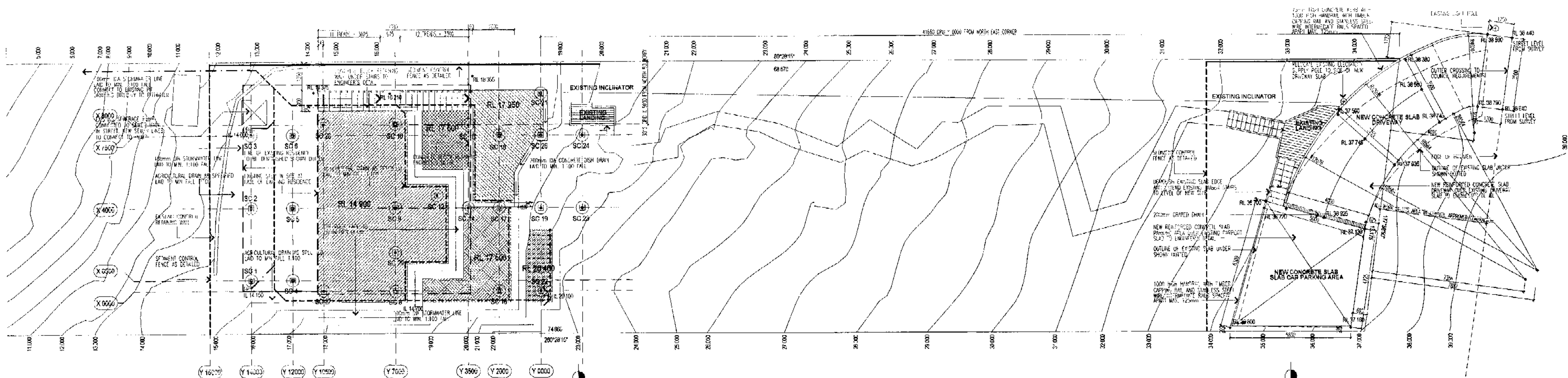
PROPOSED NEW RESIDENCE
137 RIVERVIEW RD. CLAREVILLE NSW
FOR
R & S. JONES

Architect
Warwick Werner Architect
4 WARRIEWOOD ROAD
CLAREVILLE NSW 2047
AUSTRALIA
TELEPHONE (02) 9879 9877
FACSIMILE (02) 9879 9877
EMAIL: WW@WWW.WARNERARCHITECT.COM.AU
FIRM: WWA 07/02/779

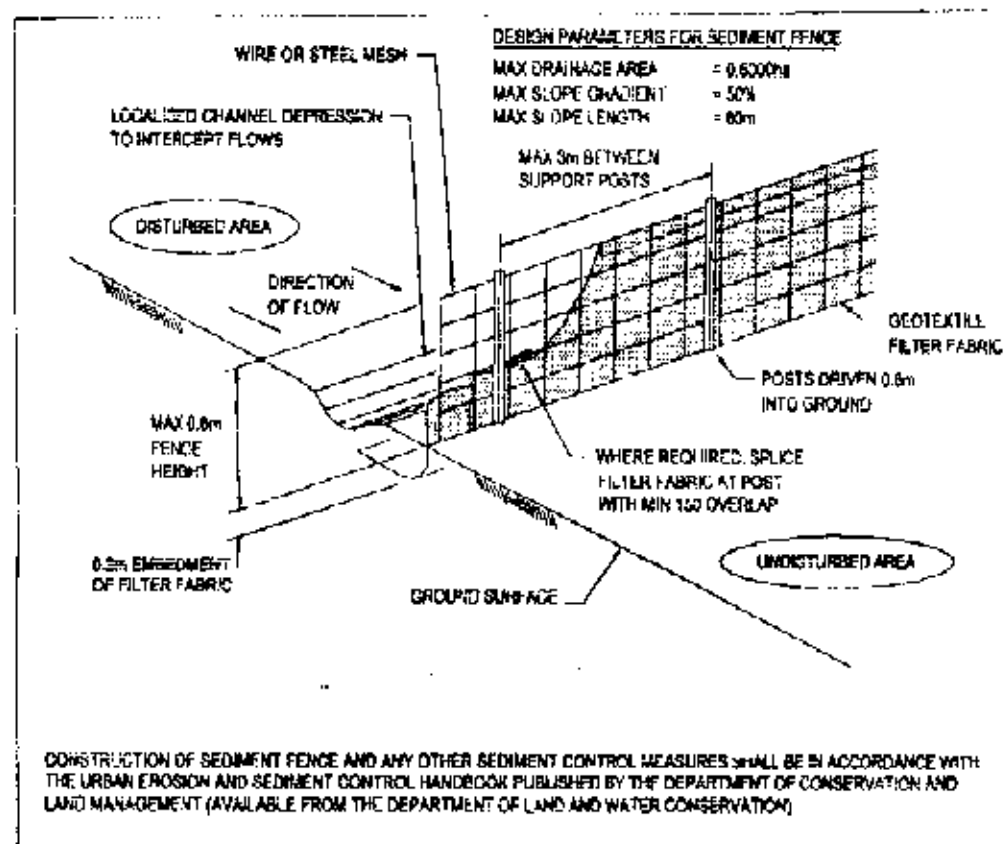
SITING WORKS DEVELOPED DRIVEWAY SECTIONS			
Project No.	Date	Scale	Drawing No.
WD-02	24/09/04	1:100, 1:50	WD-02
Drawn	Reviewed	Revision	
WW	WW		



4 WARRIEWOOD ROAD CLAREVILLE NSW 2047
 TEL: (02) 9879 9877 FAX: (02) 9879 9877
 WWW.WARNERARCHITECT.COM.AU

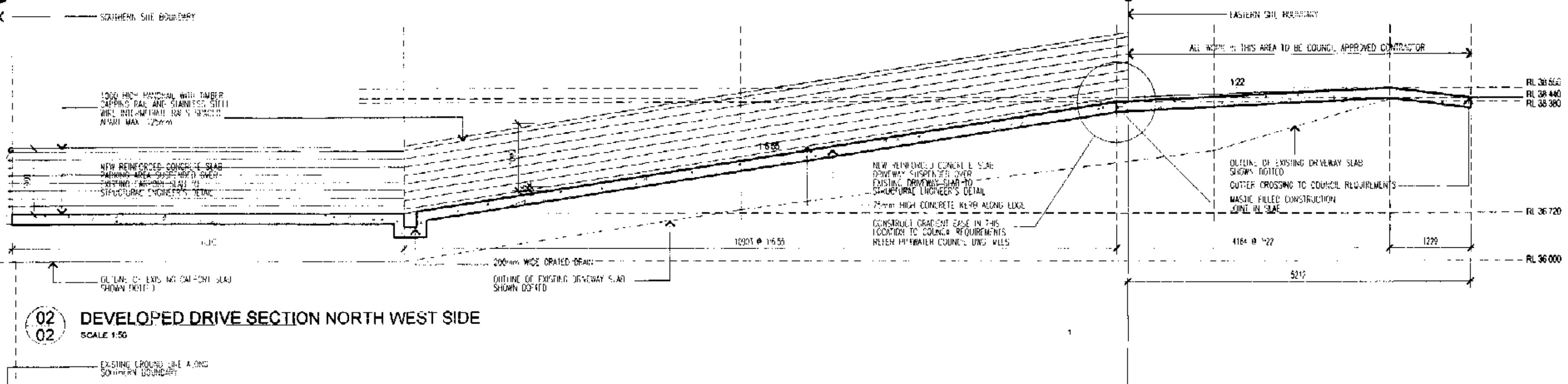


01
02 SETOUT AND SITE WORKS PLAN
SCALE 1:100

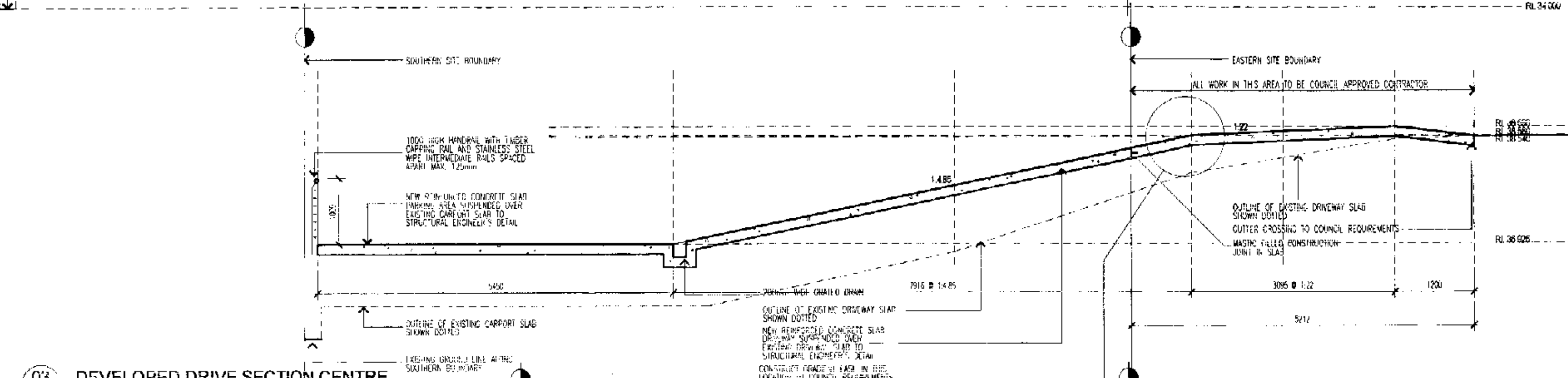


05
02 SEDIMENT AND EROSION CONTROL
NOT TO SCALE

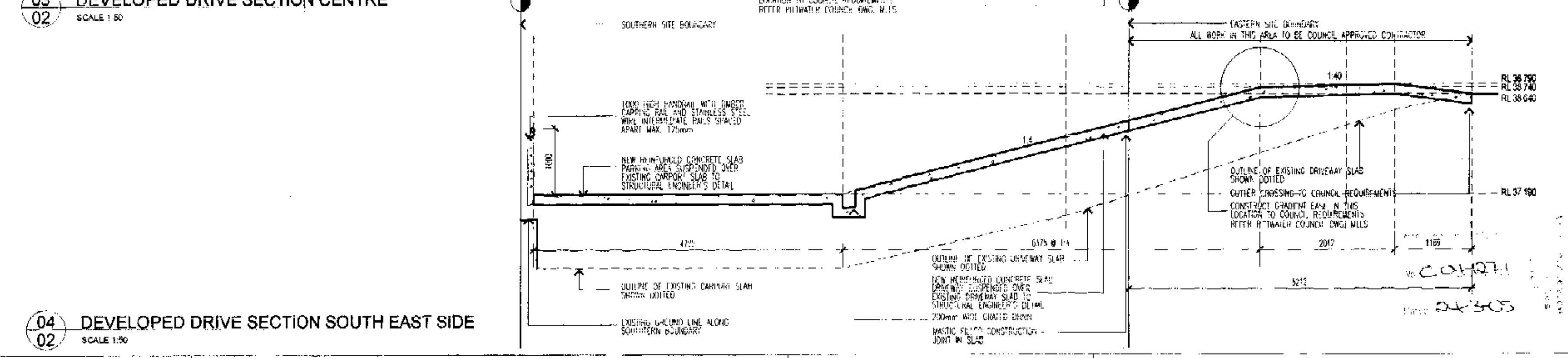
1. Limit grading to those areas involved in current construction activities.
2. Minimise lengths and steepness of slopes and graded areas.
3. Limit the time during which unprotected graded areas are exposed to wind and rain.
4. Intercept, divert and safely dispose of clean run off flowing into all areas including roads.
5. Reduce run off velocities by minimising lengths of flow paths with gentle gradients and by providing rough linings to steeper channels.
6. Apply temporary mulch to all disturbed areas including soil stock piles which will remain exposed for 14 days or more.
7. Progressively stabilise all disturbed areas with permanent vegetation as each stage of development is complete.
8. Trap sediment as close to the source as possible.
9. Locate sediment traps or filters below all disturbed areas to intercept and detain sediment before it runs off.
10. Locate sediment filters above environmentally sensitive areas such as streams, floodplains and steep slopes.
11. Sub-surface drainage catchments into smaller units, also appropriate to the type of sediment control measure proposed.
12. Use sediment traps or basins as the most effective structures to control concentrated run off.
13. Use sediment filters as the most effective means of controlling sheet run off flows.
14. Locate multiple sediment basins or basins in series so that they drain in parallel not in series to reduce the risk of failure.
15. Divert upland water around building site.
16. Limit entry of soil to one point and stabilise.
17. Blue and stockpile topsoil.
18. Store all building materials within the sediment fence envelope.
19. Control gutters to stormwater lines immediately not in use.
20. Check all controls after rain and maintain in working order.
21. Re-spread topsoil and revegetate all bare areas.
22. Install sediment traps in accordance with the detail below and in the locations shown on the drawings.



02
02 DEVELOPED DRIVE SECTION NORTH WEST SIDE
SCALE 1:50



03
02 DEVELOPED DRIVE SECTION CENTRE
SCALE 1:50



04
02 DEVELOPED DRIVE SECTION SOUTH EAST SIDE
SCALE 1:50

DOCUMENT CERTIFICATION

I AM A QUALIFIED Plumber & Drainlayer
I HOLD THE FOLLOWING QUALIFICATIONS:
Lic 18875

I AM APPROPRIATELY QUALIFIED TO PROVIDE
THE FOLLOWING CERTIFICATIONS:

I HEREBY STATE THAT THE PLANS, SECTIONS AND DETAILS
SHOWN ON THIS DRAWING COMPLY WITH THE
REQUIREMENTS OF SECTION 5.1.2 DRAINAGE OF THE
BUILDING CODE OF AUSTRALIA (2019) AND
AS/NZS 3500.3.2 - STORMWATER DRAINAGE

NAME DATE SIGNATURE
RAY SECUR 9/1/24

NO.	REVISION	DATE	DRAWN	REVIEWED	NO.	REVISION	DATE	DRAWN	REVIEWED
1	ISSUED FOR CONSTRUCTION	24/09/24	RAY	RAY					
DRAWING STATUS									
DATE	SEPT 04								

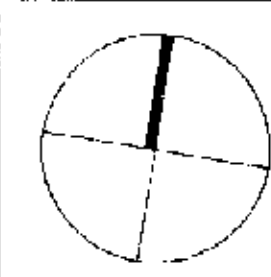
FOR CONSTRUCTION CERTIFICATE

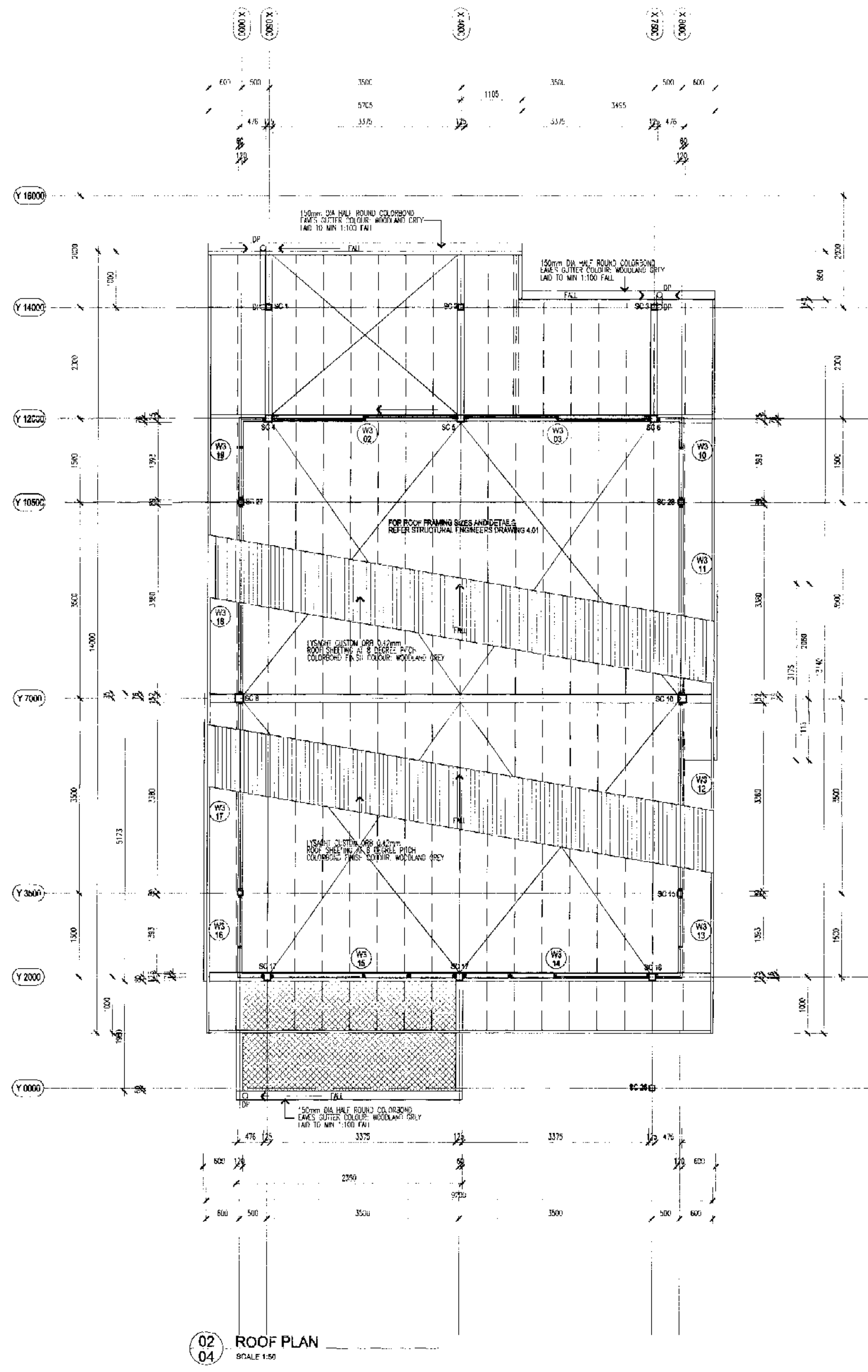
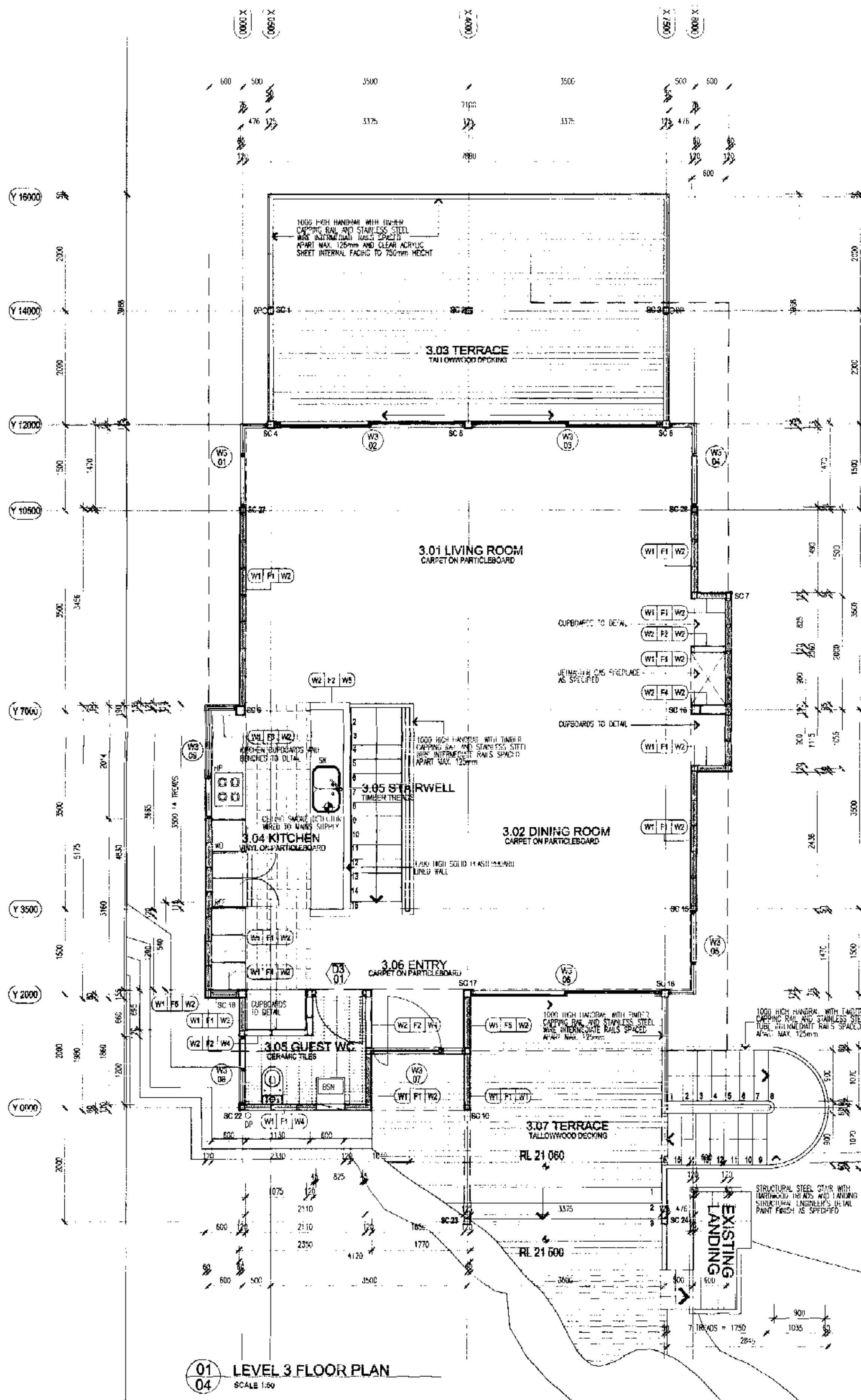
Structural Engineer
D'AMBROSIO CONSULTING PTY. LIMITED
4/153 VICTORIA RD, GLADESVILLE NSW 2047
TELEPHONE (02) 9879 5577

PROPOSED NEW RESIDENCE
137 RIVERVIEW RD, CLAREVILLE NSW
FOR
R & S. JONES

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TELEPHONE (02) 9818 5405
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MOBILE (0422) 008 130
EMAIL: warr@warwickwerner.com.au
WARWICK WERNER ARCHITECT
PRINTED: A20 077 722 179

Drawing Title
SITE WORKS
DEVELOPED DRIVEWAY SECTIONS
Project No. Date Scale Drawing No.
SEPT 04 1:100, 1:50 WD - 02
Drawn by WW
Reviewed by WW





WALL AND FRAME TYPES		
W1	EXTERIOR WALL LINING LIGHT CUSTOM ORE 0.42mm THICK 2x4 LUMBER STEEL SHEETING COLORBOND FINISH - COLOUR BUSHLAND ISOLATION 40 LIGHT DUTY BREATHER FOL	AS/NZS 2728:1987 AS/NZS 4200.1
W2	INTERIOR WALL LINING 13mm PLASTERBOARD	AS 2586:1998
W3	INTERIOR WALL LINING 13mm PLASTERBOARD 6mm STRUCTURAL PLYWOOD SHEETING	AS 3745:1994 AS 2269:1994
W4	INTERIOR WALL LINING 13mm WATER RESISTANT PLASTERBOARD FULL HEIGHT CERAMIC TILES	AS 3746:1994
W5	INTERIOR WALL LINING 13mm WATER RESISTANT PLASTERBOARD	AS 3746:1994
W6	INTERIOR WALL LINING 13mm WATER RESISTANT PLASTERBOARD 6mm STRUCTURAL PLYWOOD SHEETING FULL HEIGHT CERAMIC TILES	AS 3746:1994 AS 2269:1994
W7	EXTERIOR WALL LINING LIGHT CUSTOM ORE 0.42mm THICK 2x4 LUMBER STEEL SHEETING COLORBOND FINISH - COLOUR BUSHLAND ISOLATION 40 LIGHT DUTY BREATHER FOL 6mm STRUCTURAL PLYWOOD SHEETING	AS/NZS 2728:1987 AS/NZS 4200.1 AS 2269:1994 AS 1590 PART 3:1989
F1	60mm LIPPED STEEL STUD FRAMING GLASSWOL INSULATION R-VALUE 3.5	AS 1397:2001 AS 1590 PART 3:1989
F2	60mm LIPPED STEEL STUD FRAMING	AS 1397:2001
F3	180mm LIPPED STEEL STUD FRAMING GLASSWOL INSULATION R-VALUE 3.5	AS 1397:2001 AS 1590 PART 3:1989
F4	150mm LIPPED STEEL STUD FRAMING	AS 1397:2001
F5	60mm LIPPED STEEL STUD FRAMING 25mm NON COMBUSTIBLE TYPING CHANNELS GLASSWOL INSULATION R-VALUE 3.5	AS 1397:2001 AS 1590 PART 3:1989

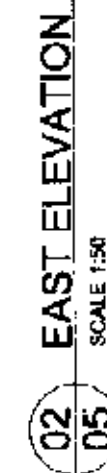
FOR CONSTRUCTION CERTIFICATE					
DATE	SEPT 04	DATE	SEPT 04	DATE	SEPT 04
REVISION		REVISION		REVISION	
DATE		DATE		DATE	
DRAWN		DRAWN		DRAWN	
REVIEWED		REVIEWED		REVIEWED	
NO.		NO.		NO.	

Structural Engineer
D'AMBROSIO CONSULTING PTY. LIMITED
4/153 VICTORIA RD. GLADESVILLE NSW 2047
TELEPHONE (02) 9879 5877

Project
PROPOSED NEW RESIDENCE
137 RIVERVIEW RD. CLAREVILLE NSW
FOR
R.&S.JONES

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EMAIL info@warwickwerner.com.au
PTY LIMITED ALN 871 225 778

Drawing Title LEVEL 3 FLOOR PLAN ROOF PLAN			
Project No.	Date	Scale	Drawing No.
WD-04	SEP 04	1:50	WD - 04
Drawn	Reviewed	Revision	
WV	WV		



FOR CONSTRUCTION CERTIFICATE

114

Architect	
Landscape Architect	

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	Drawing Title
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Project No.	Date	Scale	Drawing No.
	SEPT 04	1:50	WD - 05A
Drawn	Reviewed	Revision	

WD - 05 A



FOR CONSTRUCTION CERTIFICATE

Protected

R. & S. JONES

WARWICK WERNER ARCHITECTS
PTY LIMITED ACN 977 722 775

Drawing Title		SOUTH ELEVATION NORTH ELEVATION	
Project No.	Date SEPT 04	Scale 1:30	Drawing No. WD - 06A
Drawn WW	Reviewed WW	Revision	

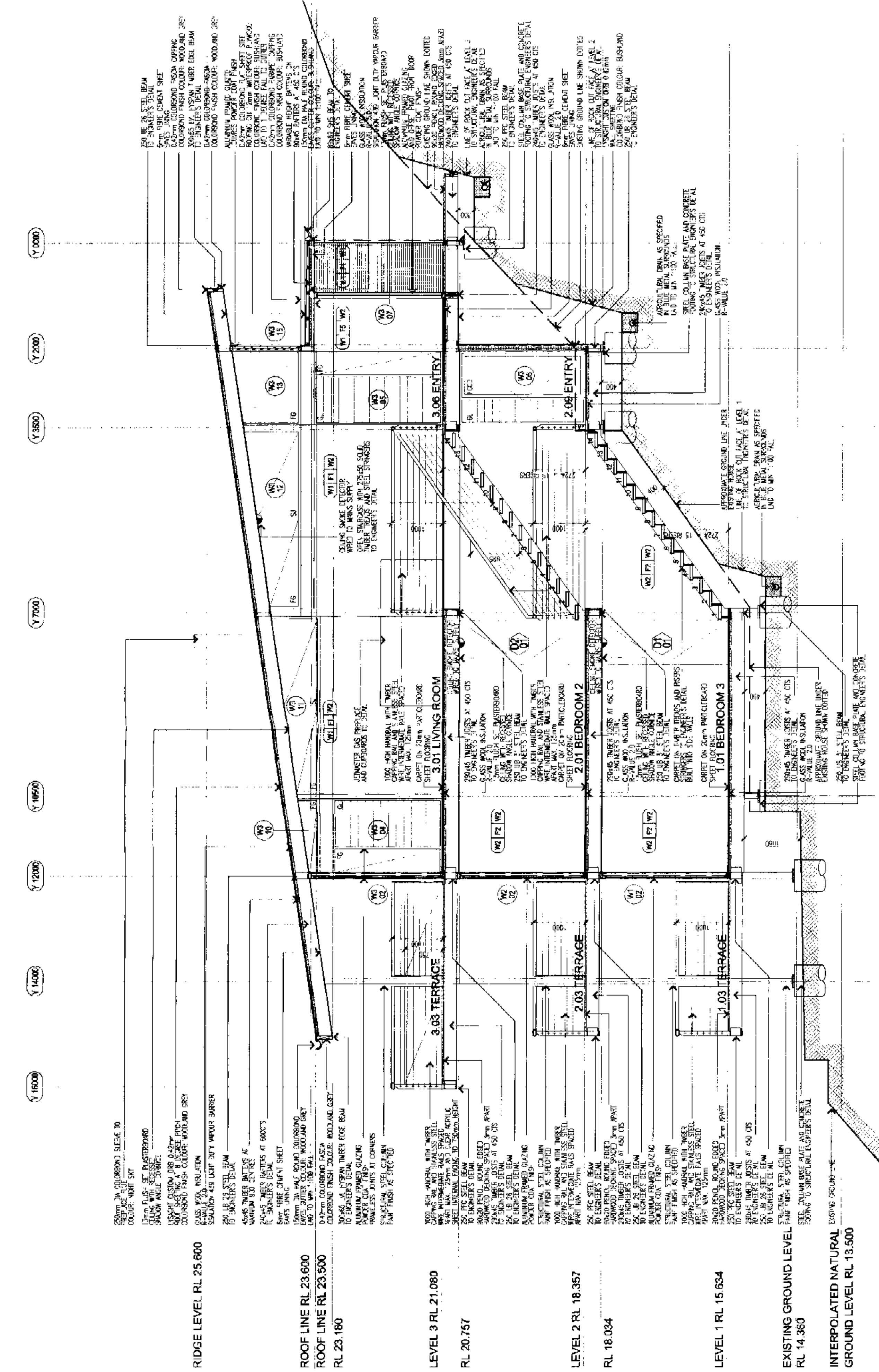
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Structural Engineer
D'AMBROSIO CONSULTING PTY. LIMITED
4/153 VICTORIA RD, GLADESVILLE NSW 2047
TELEPHONE (02) 9679 5677

Project
PROPOSED NEW RESIDENCE
137 RIVERVIEW RD. CLAREVILLE NSW
FOR
R.S.JONES

Architect
Landscaping Architect
4 WANAWONG ROAD
CARLETON PL NSW 2107
TELEPHONE (02) 9610 8444
FAX (02) 9610 8445
EMAIL: info@warwickwerner.com.au

Drawing Title
**SECTION A-A
SECTION B-B**
Project No. 137 Date 28/07/14 Scale 1:50 Drawing No. **WD - 07**
Drawn: WH Reviewed: WH





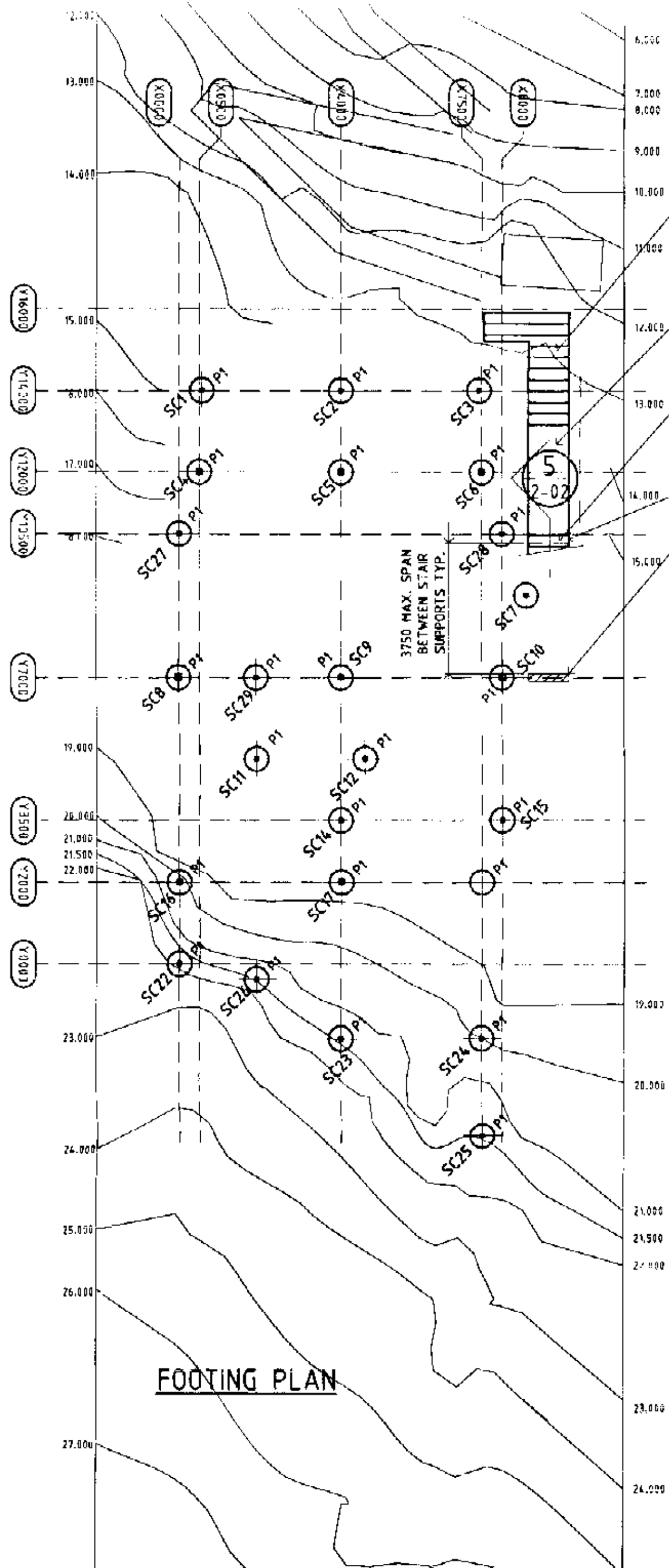
WARWICK WERNER
NAME SIGNATURE DATE 16/03/05

I AM A QUALIFIED REGISTERED ARCHITECT
I HOLD THE FOLLOWING QUALIFICATIONS:
B.Arch (HONS), NSW, GRAD.DIP.L.D., NSW
NSW BOARD OF ARCHITECTS REGISTRATION No. 3507
I AM APPROPRIATELY QUALIFIED TO PROVIDE
THE FOLLOWING CERTIFICATIONS:

I HEREBY STATE THAT THE PLANS, SECTIONS AND DETAILS SHOWN ON THIS DRAWING COMPLY WITH PITTSWATER COUNCIL'S DEVELOPMENT CONTROL PLAN NO. 23 "LANDSCAPE AND VEGETATION MANAGEMENT"

WARWICK WERNER
NAME SIGNATURE DATE 16/03/05

Drawing Title				LANDSCAPE PLAN			
Project No.		Date		Scale		Drawing No.	
03P704		SEP04		1:100		WD - 08 A	
Client		Reviewed		Revised			
WV		GWT					
							



CONCRETE STAIRS ON GROUND
100 THICK STAIR THROAT
REINFORCE WITH RFB2 MESH CENTRAL

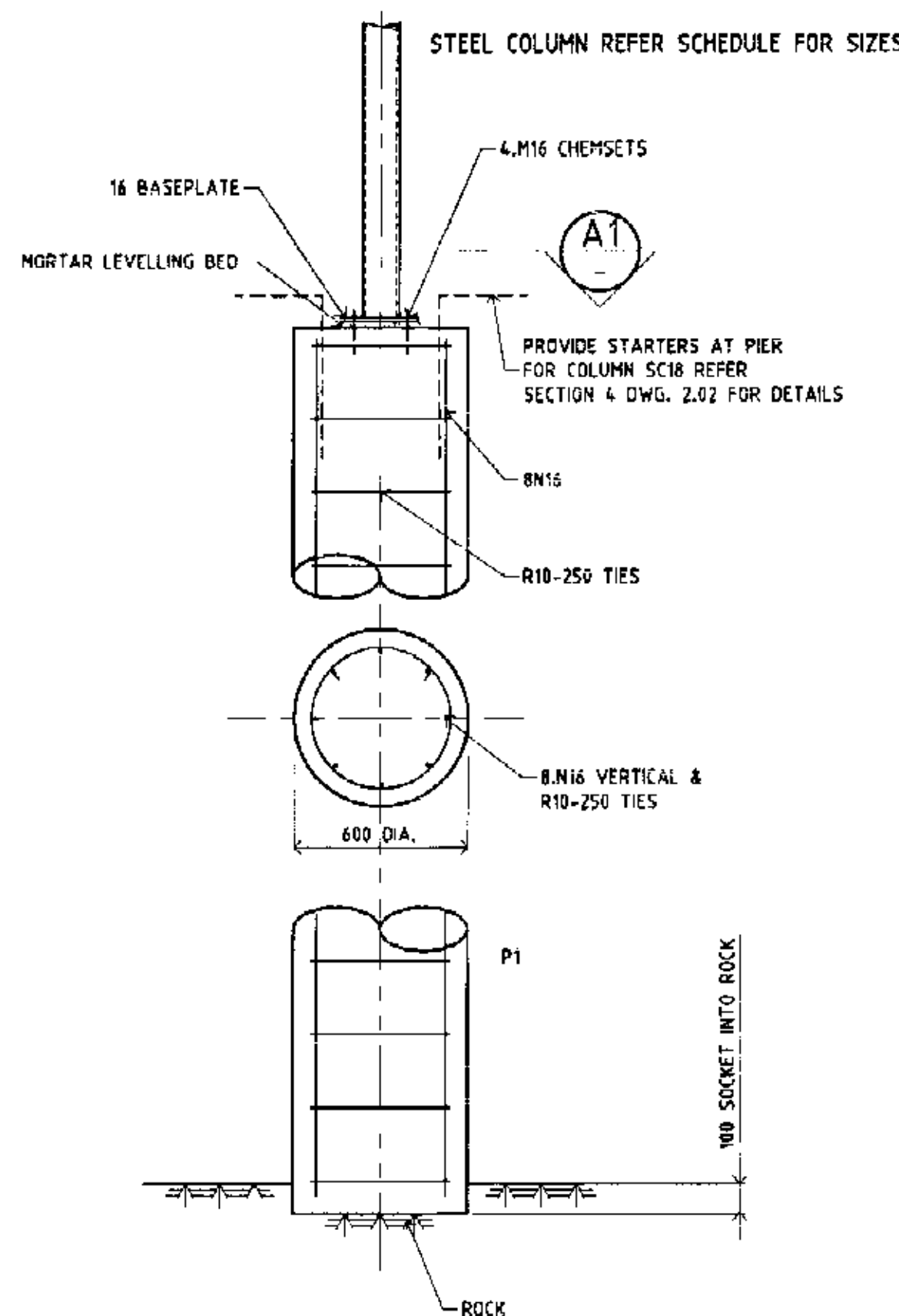
100 THICK LANDING SLAB
REINFORCE WITH RFB2 MESH TOP (30 TOP COVER)

CONCRETE STAIRS SUSPENDED
150 THICK STAIR THROAT
REINFORCE WITH N12-150 MAIN REINFORCEMENT & N12-250 CROSS REINFORCEMENT

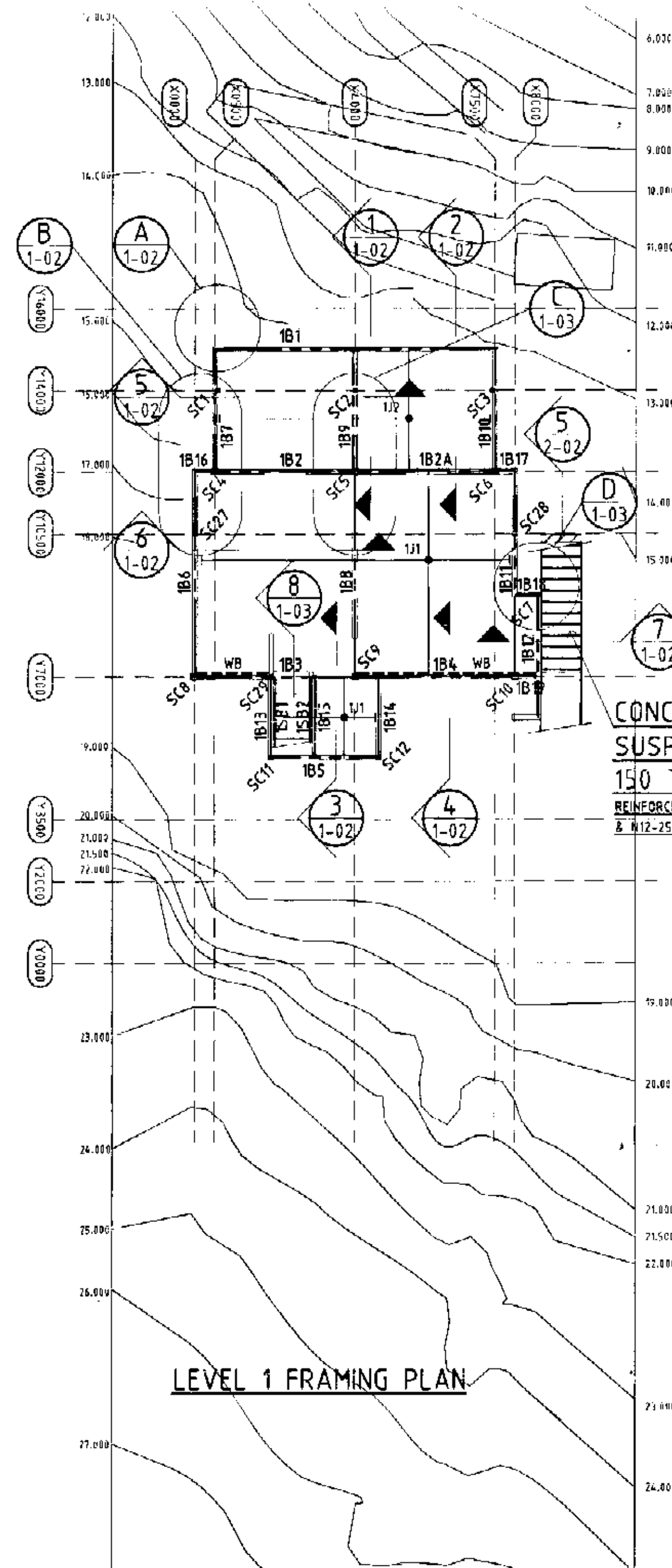
190 REINFORCED BLOCKWALLS TO SUPPORT STAIR BUILT OFF ROCK

MEMBER	SCHEDULE	
TAG	MEMBER	SIZE
SC1 TO SC3	100 x 100 x 6.0 S.H.S.	STEEL COLUMNS
SC4 TO SC6	125 x 125 x 6.0 S.H.S.	STEEL COLUMNS
SC7, SC11, SC12 & SC29	89 x 89 x 6.0 S.H.S.	STEEL COLUMNS
SC8 & SC10	150 x 150 x 9.0 S.H.S.	STEEL COLUMNS
SC9	125 x 125 x 6.0 S.H.S.	STEEL COLUMN
SC13 TO SC21	REFER DRAWING 2.01 FOR DETAILS	STEEL COLUMNS
SC22 TO SC28	REFER DRAWING 3.01 FOR DETAILS	STEEL COLUMNS
1B1, 1B7 & 1B10	230 PFC GALVANISED	STEEL BEAMS
1B2A, 1B2 TO 1B4 & 1B8	250 UB 26	STEEL BEAMS
1B5, 1B6, 1B11, 1B13 & 1B14	250 PFC	STEEL BEAMS
1B9	2 / 230 PFC	STEEL BEAMS
1B12, 1B15, 1B18 & 1B19	2 / 290 x 45 (F7)	TIMBER BEAMS
1J1	290 x 45 (F7) AT 450 MAX. CTS.	TIMBER JOISTS
1J2	240 x 45 (F7) TREATED PINE AT 450 MAX. CTS.	TIMBER JOISTS
WB	PLYWOOD WALL BRACING (REFER SCHEDULE)	WALL BRACING
1SB1 & 1SB2	REFER DRAWING 2.01 FOR DETAILS	STEEL STRINGER BEAMS

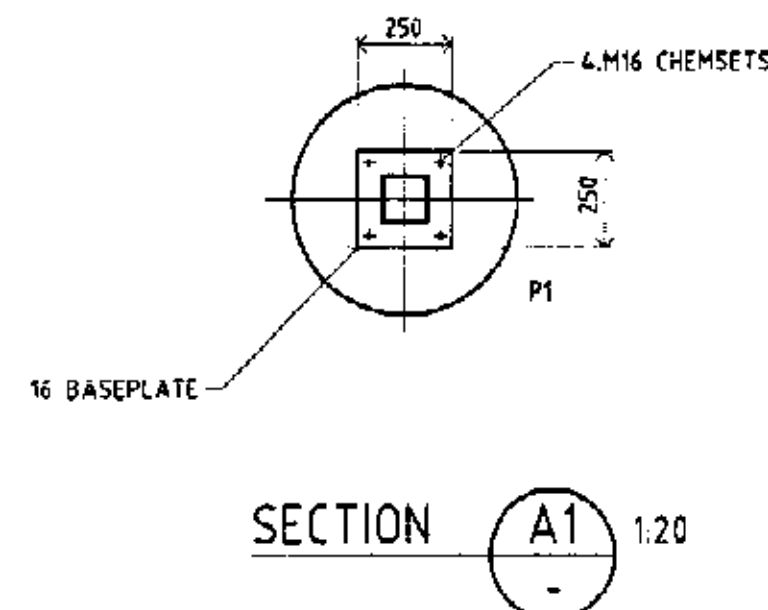
ALL STEELWORK TO BE HOT DIP GALVANISED U.N.O.



TYPICAL PIER DETAIL 1:20
PIERS 'P1'



CONCRETE STAIRS SUSPENDED
150 THICK STAIR THROAT
REINFORCE WITH N12-150 MAIN REINFORCEMENT & N12-250 CROSS REINFORCEMENT



SECTION A1 1:20

CONSTRUCTION NOTES

Foundations

1. Footings have been designed for an allowable bearing pressure of 600 KPa. Risk
2. The builder shall obtain approval from the supervising engineer/inspector as to the suitability of the foundation material prior to placing concrete.
3. Any weak or defective areas of foundation shall be removed and replaced with sound granular material compacted in layers each not more than 150mm thick, to achieve a min. dry density ratio of 92% - standard compaction.

Concrete

1. All concrete works and materials are to be in accordance with AS3600 Concrete Structures Code (2001 Edn) & BCA Part 8.3 (4).
2. Concrete compressive strength (f_{ck}) shall be as follows

Element	FT	slump	max. agg.
Footings	25	80	20
slab on ground	32	80	20

Addition of water on site to concrete shall not be permitted.

3. Reinforcement is to be fixed so as to achieve the following clear covers:

Element	Formed or finished	cover mm surfaces abt adjacent ground
Footings	50	75
Columns	internal 40 external 45	50 45
Walls	internal 30 external 40	50 45
Beams	internal 30 external 40	50 45
Slabs/Band beams	internal 20 external 40	30 45
Slabs on ground	with membrane without membrane	30 50
Concrete blockwork	against ground not against ground	45 50

4. Concrete shall be must cured for a minimum of 3 days following placement of concrete. Alternative methods of curing may be acceptable, provided approval from the supervising engineer has been obtained.

5. Splices in reinforcement are to be made only where shown on drawings, except where written approval has been obtained from the engineer.

6. U.N.O. provide 10mm minimum and laps to fabric and lap bars as noted below. Securely fix reinforcement of all laps and intersections with 125mm black uncoated wire.

BAR DIA.	LAP LENGTH	BAR DIA.	LAP LENGTH
N12	47d	N24	150d
N16	47d	N28	150d
N20	47d	N32	140d

General

1. Read these drawings in conjunction with all architectural and other consultants' drawings and specifications and such other written instructions as may be issued during the course of the contract. U.N.O. obtain all dimensions from the architectural drawings. Refer any discrepancies in these documents to the architect before proceeding with the work.

2. Check and be responsible for the correctness of all dimensions and report any discrepancy immediately to the architect. Do not scale dimensions from the drawings.

3. Ensure stability of the works during construction, and that of the adjacent structures, including excavations in the vicinity. Temporarily brace all structural steelwork until masonry or stud shear walls have been erected. Ensure no part of the structure is overstressed.

4. Ensure all workmanship and materials are in accordance with the requirements of the current SAA codes with amendments and the by-laws and ordinances of the relevant building authority and the specifications.

Structural Steel

1. All workmanship and materials shall be in accordance with AS1210 & BCA Part 8.3 (4) except where varied by the contract documents.
2. Holes shall be 4mm contiguous (fillet), all bolts galvanneal 20mm diameter and all gusset plates to be 10mm thick unless noted otherwise.
3. Bolt welds where shown shall be complete penetration butt welds.
4. The builder shall provide all rights and drill all holes necessary for fixing of steelwork and ensure that the structure is kept in a stable condition during erection.
5. Structural steelwork shall have the surfaces clean and treated as follows:
Unless noted otherwise, have at least clean AS1627.1 class 1 and provide 1 coat of a zinc phosphate primer such as Dulux ZP in accordance with manufacturers requirements.

Structural Timber

1. Materials and workmanship shall comply with AS1722 Timber Engineering Code and AS1684 Light Timber Framing Code.
2. All timber used shall have been stress graded by visual or mechanical means in accordance with the appropriate Australian Standards.
3. Holes for bolts, unless noted otherwise (U.N.O.) shall be made oversize as follows:
Bolt diameter 15mm or less - 20mm oversize
Bolt diameter 16mm and greater - 30mm oversize
4. Specialised metal fasteners such as Gungnall plates, Tri-Link etc. shall be of proven type and shall have had working loads determined in accordance with the procedure specified in AS1684.
5. At the practical completion of the contract and again at the end of the maintenance period and if necessary during that period, the contractor shall re-tighten all bolts to nominal. Bolts that will be inaccessible after completion of the project shall be re-tightened immediately after being built.
6. Trusses shall be constructed only by a fabricator approved by the supervising engineer. Design shall be in accordance with AS1722 and to the loadings, profiles and together with requirements specified in the drawings. Design of trusses shall be by a qualified structural engineer experienced in timber design. Shop drawings of trusses, together with all necessary information for checking the strength of truss members and connectors shall be submitted not less than fourteen days prior to commencement of fabrication. Fabrication shall not commence unless permission to do so has been given.
7. Edge distances for fasteners in timber (from ends and sides) shall be in accordance with AS1722.

8. All workmanship and materials shall be in accordance with AS3716-Masonry Structures Code & BCA Part 8.3 (4).
9. Mortar for the masonry shall be proportioned as follows:
Generally:
Sand & 4 part Cement: 1 part, Lime - part
Admixture - standard dose
Below damp proof coursing and in retaining walls:
Sand: 3 part, Cement: 1 part, Lime - part
Admixture - standard dose
10. Brickwork or blockwork supporting concrete or steel members shall be traversed smooth and separated at the bearing surface by 2 layers of Allo.
11. Reinforced blockwork shall be core filled with concrete compressive strength (f_{ck}) of 25 MPa, max. 18 mm aggregate and 100 along typical U.N.O. All blocks to have a minimum grade of f₂₈ 20.
12. Provide clean out blocks to all core filled blockwork.

Excavation Adjacent to Existing Buildings

1. Builder to maintain stability of adjoining buildings. Do not excavate below level of adjoining footings without written consent of engineer.
2. Builder to allow to provide temporary and/or permanent shoring to prevent collapse of ground during excavation works.

PLAN OR DOCUMENT CERTIFICATION

I am a qualified **STRUCTURAL ENGINEER**

I hold the following qualifications or licence No. **NPER3 (STRUCTURAL)**

Further I am appropriately qualified to certify this document of the project.

I hereby state that these plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia and/or relevant Australian/industry standards.

ANGELO D'AMBROSIO *31/05/04* *A. Ambrosio*
Name Date Signature

Jack Hodgson
Name Date Signature

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ANGELO D'AMBROSIO *31/05/04* *A. Ambrosio*
Name Date Signature

Jack Hodgson
Name Date Signature

REFER TO DWG. 1.01 FOR CONSTRUCTION NOTES

ISSUED FOR CONSTRUCTION CERTIFICATE

13.08.04

Architect
WARWICK WERNER ARCHITECT PTY. LTD.
4 WANAWONG ROAD,
CAREEL BAY, N.S.W. 2107
TEL (02) 9918 5455 FAX: (02) 9918 5462

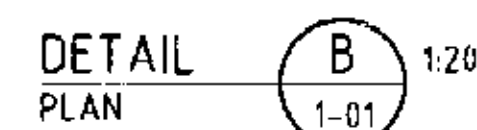
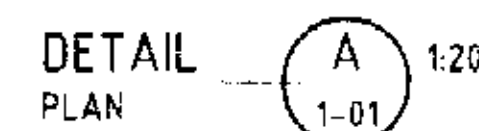
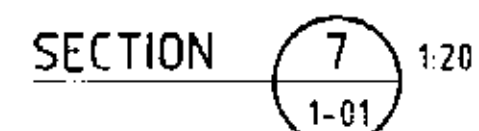
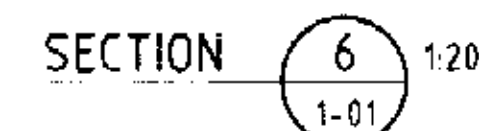
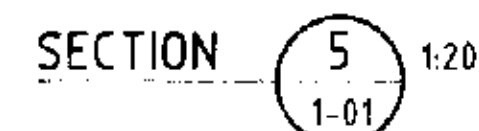
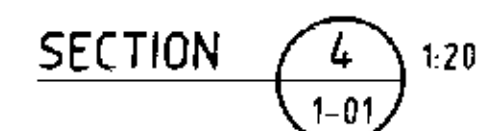
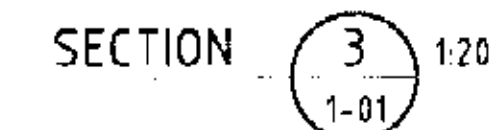
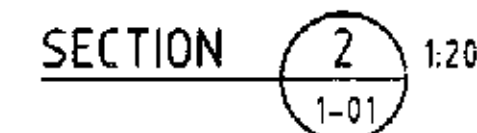
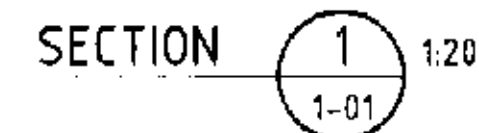
Project:
PROPOSED NEW RESIDENCE
137 RIVERVIEW ROAD
CLAREVILLE N.S.W.
FOR : MR & MRS R. & S. JONES

D'AMBROSIO CONSULTING
SUITE 4/53 VICTORIA ROAD
GLADESVILLE NSW 2111
AUSTRALIA
PHONE (02) 9879 5577
FAX (02) 9879 5588

Structural Engineers
Title:
FOOTING PLAN, LEVEL 1
FRAMING PLAN & DETAILS

STRUCTURAL DRAWING

Issue No.	Drawn	Drawn By
A.D.A.	CHRIS. W.	S4443
Scale	Date	Drawn By
1:100 U.N.O.	20.06.04	1.01
File No.	File Name	File No.
F:\dwg\jones\54443\101.dwg		
Checked	Checked By	Checked By
	B.E. (Hons) M.E. Aust.	NPER3 (Structural)



PLAN OR DOCUMENT CERTIFICATION

I am a qualified **STRUCTURAL ENGINEER**

I hold the following qualifications or licence No: **NPER3 (STRUCTURAL)**

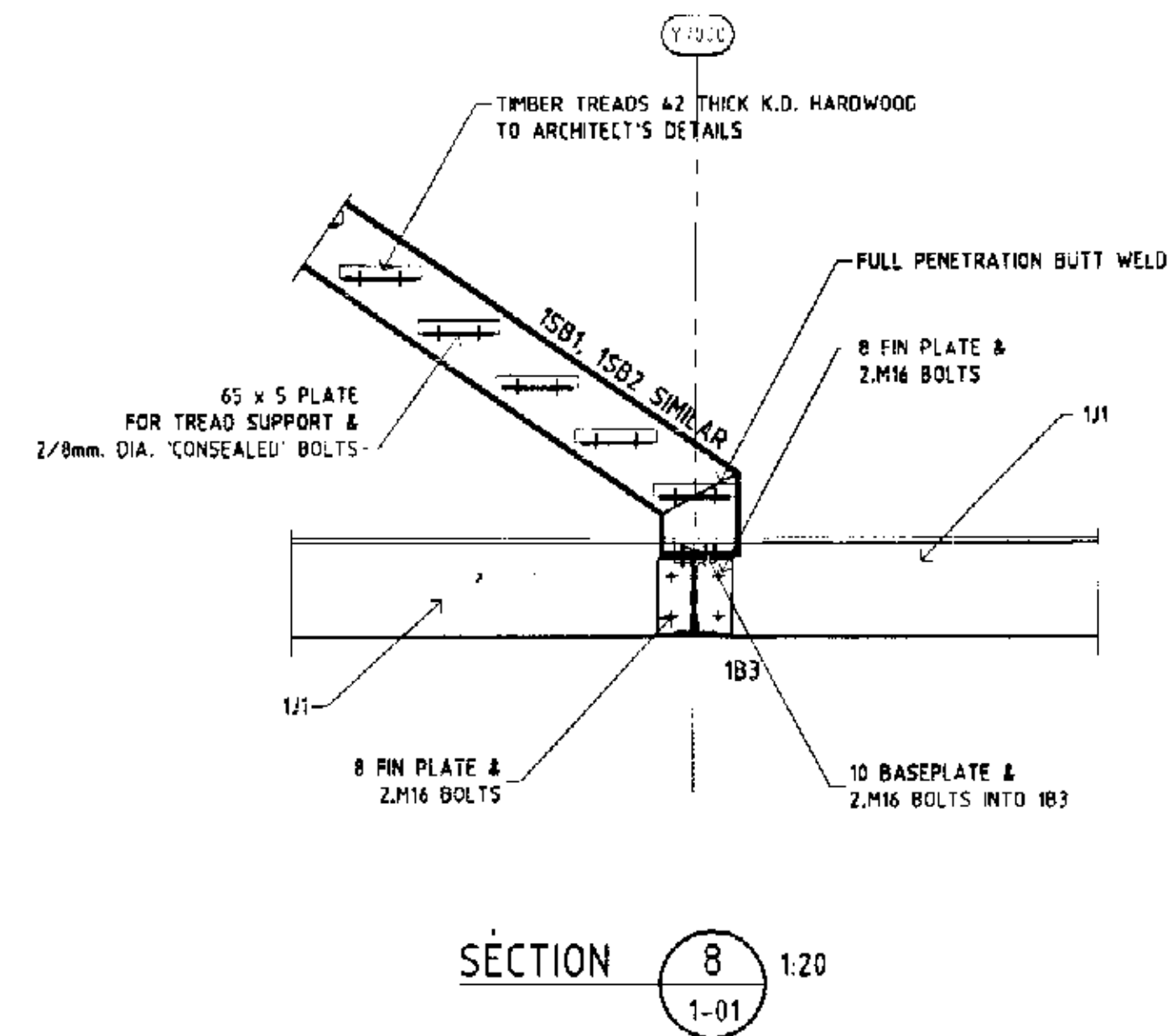
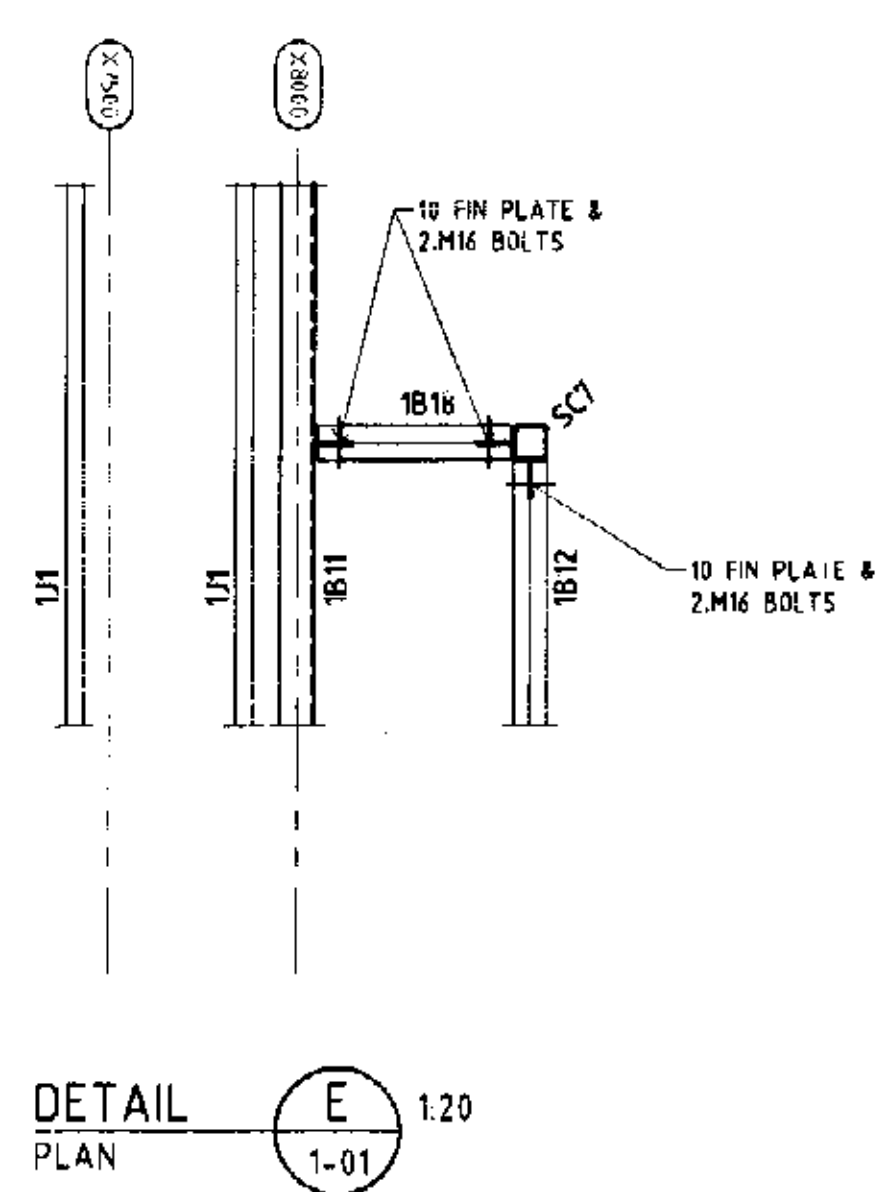
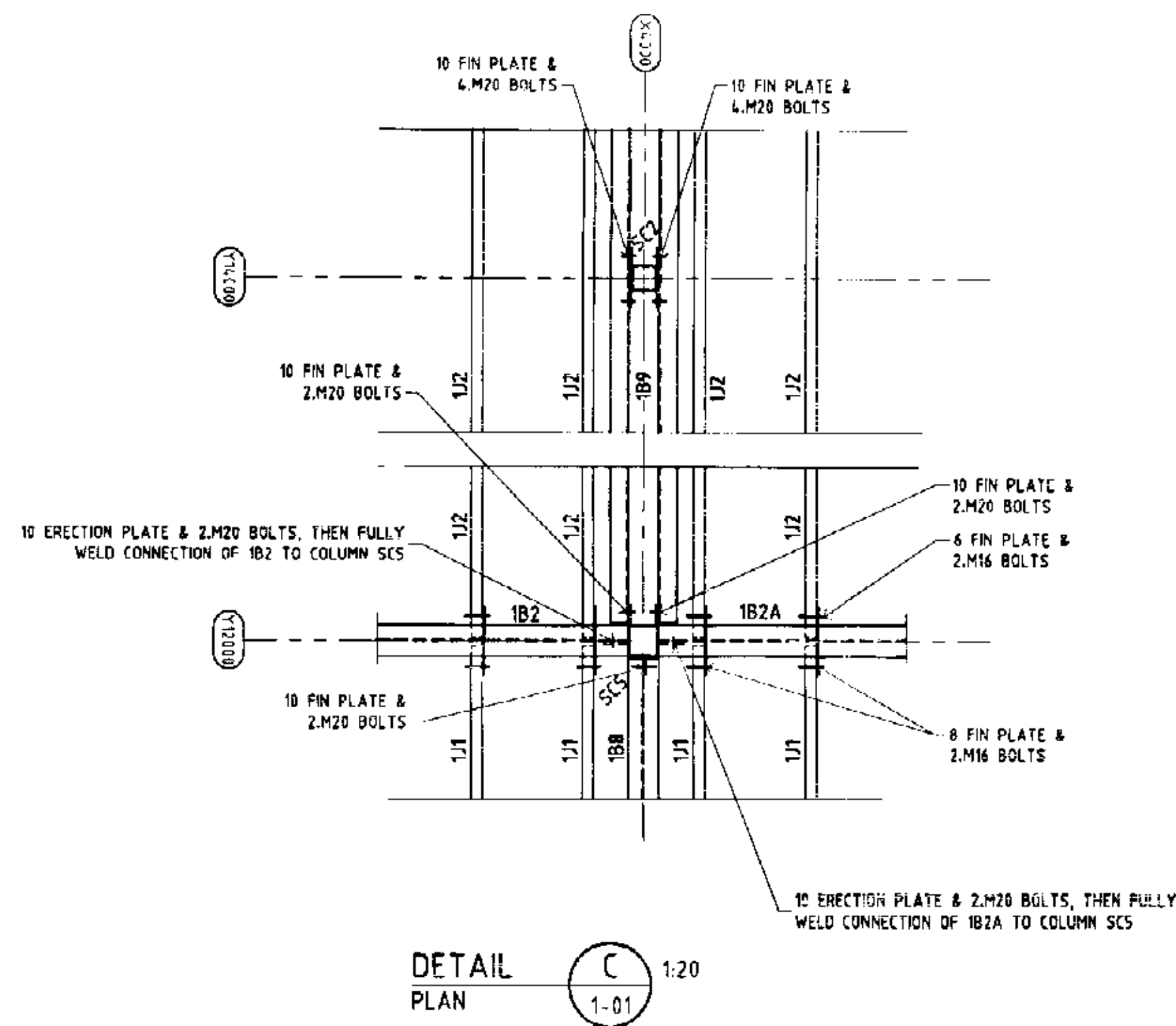
Further I am appropriately qualified to certify this component of the project.

I hereby state that the plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia and/or relevant Australian regulatory standards.

ANGELO D'AMBROSIO *AN* *10/04* *A. D'Ambr.*
Name Date Signature

e.g. Licensed Builder, Electrical Contractor, Engineer, Landscape Architect, Geotechnical Engineer, etc.

Designer A.J.J. A.	Drawn CHRIS. W.	Job No 54443
Scale 1:100 U.N.O.	Date 20.06.04	Dwg. No. 1.02
Doc. No. P/dwg/1025/54443/102.cwg		Issue A
Comments [Handwritten notes]	B.E. (Hons); M.E. - Asst. NPER3 (Structural)	



DECLARATION OF COMPETENCE CERTIFICATION
 I am a qualified Civil & Structural Engineer. I hold the following qualifications: M. Eng. (Civil & Structural) No. 149788. Further, I am appropriately qualified to certify the geotechnical component of the project.
 I hereby state that the geotechnical content of these plans or details comply with the requirements of development consent and the provisions of the Building Code of Australia and/or applicable Australian industry standards.
 JACK HODGSON
 Name Date Signature

PLAN OR DOCUMENT CERTIFICATION
 STRUCTURAL ENGINEER
 I am a qualified **STRUCTURAL ENGINEER**
 I hold the following qualifications or licence No. **NPER3 (STRUCTURAL)**
 Further I am appropriately qualified to certify this component of the project.
 I hereby state that these plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia and/or relevant Australian industry standards.
 ANGELO D'AMBROSIO
 Name Date Signature
 * as Licensed Builder, Electrical Contractor, Engineer, Landscape Architect, Geotechnical Engineer, etc.

REFER TO DWG. 1.01 FOR CONSTRUCTION NOTES

ISSUED FOR CONSTRUCTION CERTIFICATE 13.08.04
 (SEAL/ENDORSEMENT) (DATE) (SIGNED)

Architect
WARWICK WERNER ARCHITECT PTY. LTD.
 4 WANAWONG ROAD,
 CAREEL BAY, N.S.W. 2107
 TEL: (02) 9918 5455 FAX: (02) 9918 5462

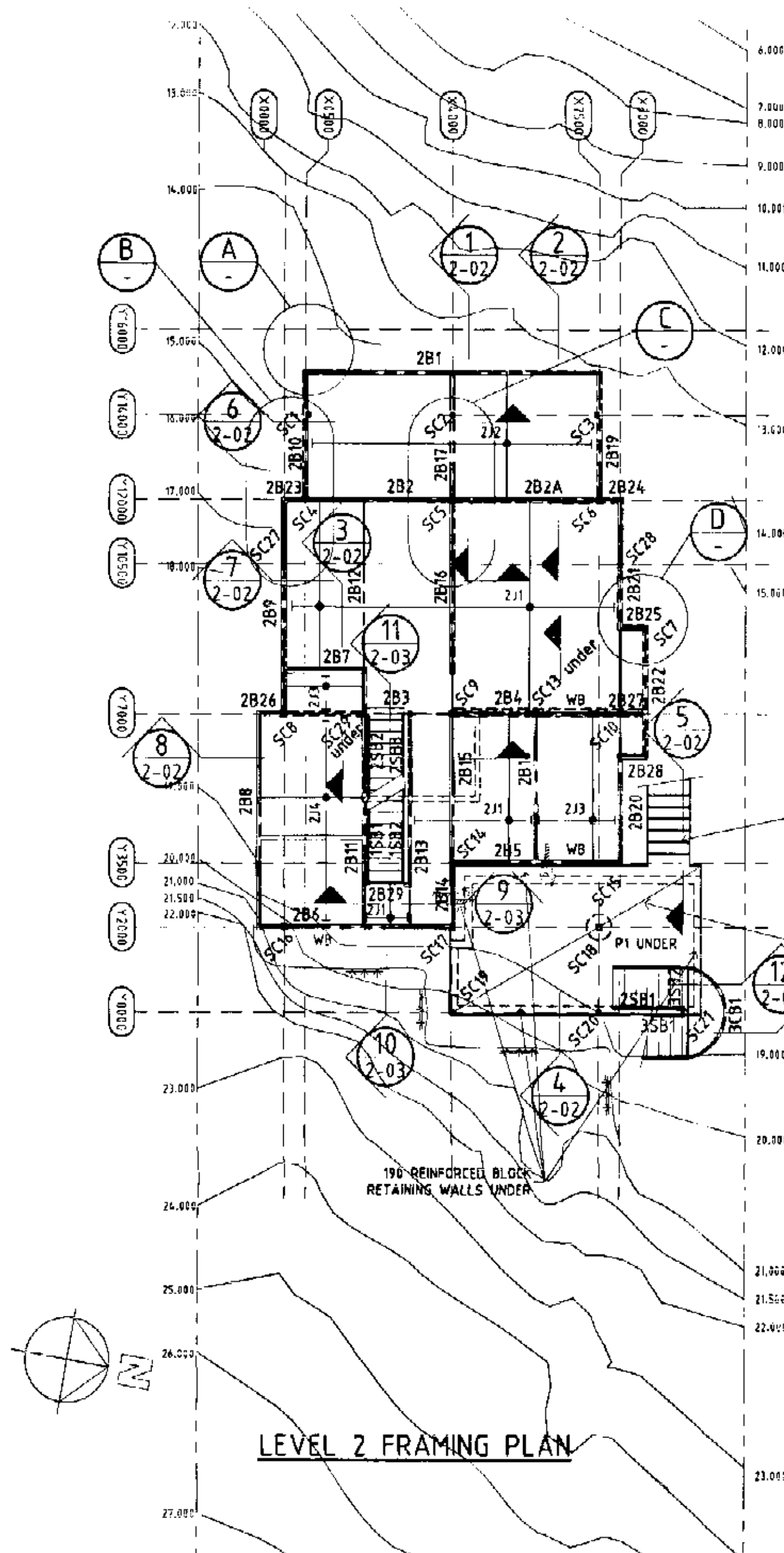
Project:
PROPOSED NEW RESIDENCE
137 RIVERVIEW ROAD
CLAREVILLE N.S.W.
FOR : MR & MRS R. & S. JONES

D'AMBROSIO CONSULTING
 SUITE 4/153 VICTORIA ROAD
 GLADESVILLE NSW 2111
 AUSTRALIA
 PHONE (02) 9879 5577
 FAX (02) 9879 5588

STRUCTURAL ENGINEERS
 TITLE:
LEVEL 1 FRAMING DETAILS
SHEET 2.

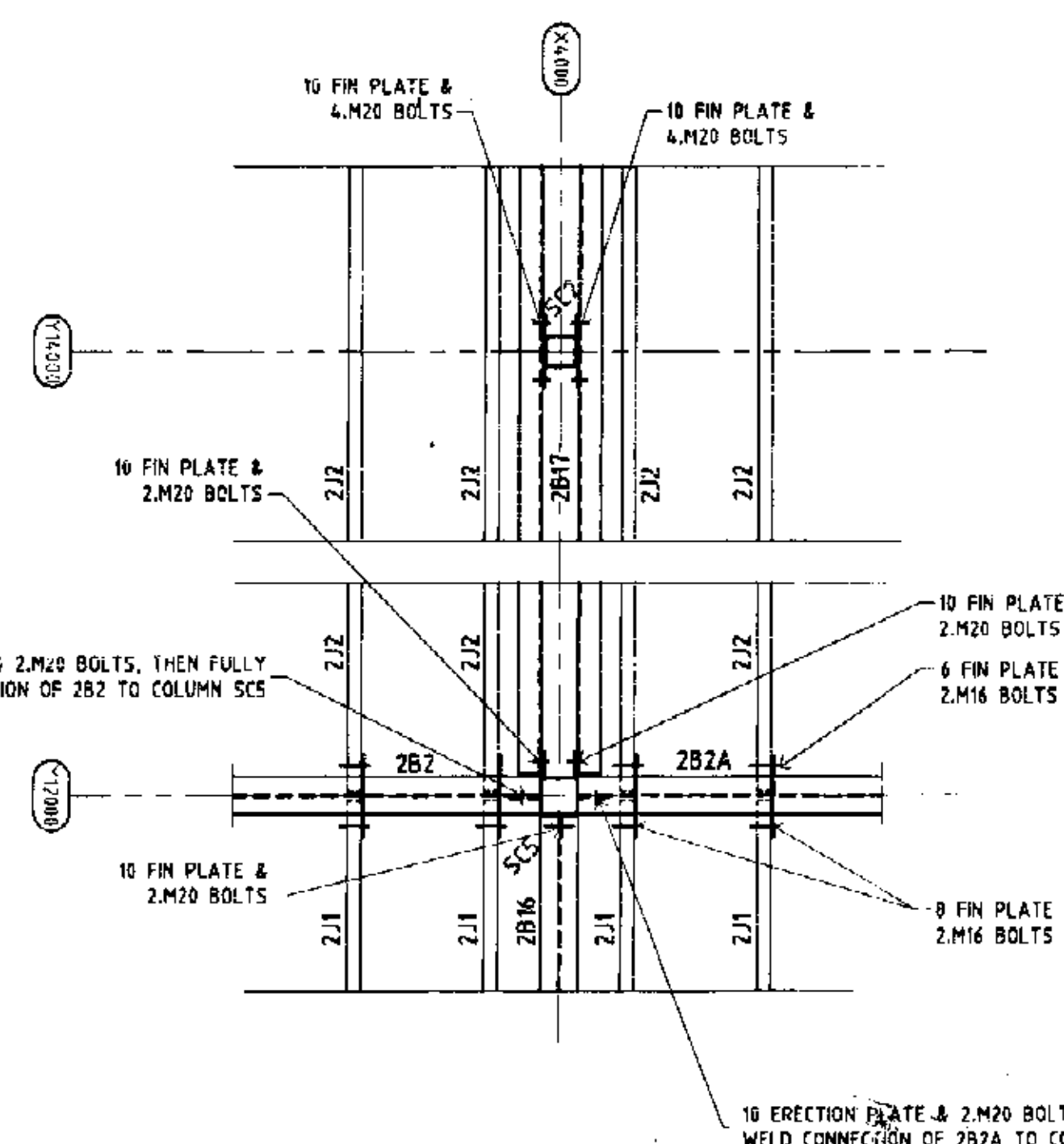
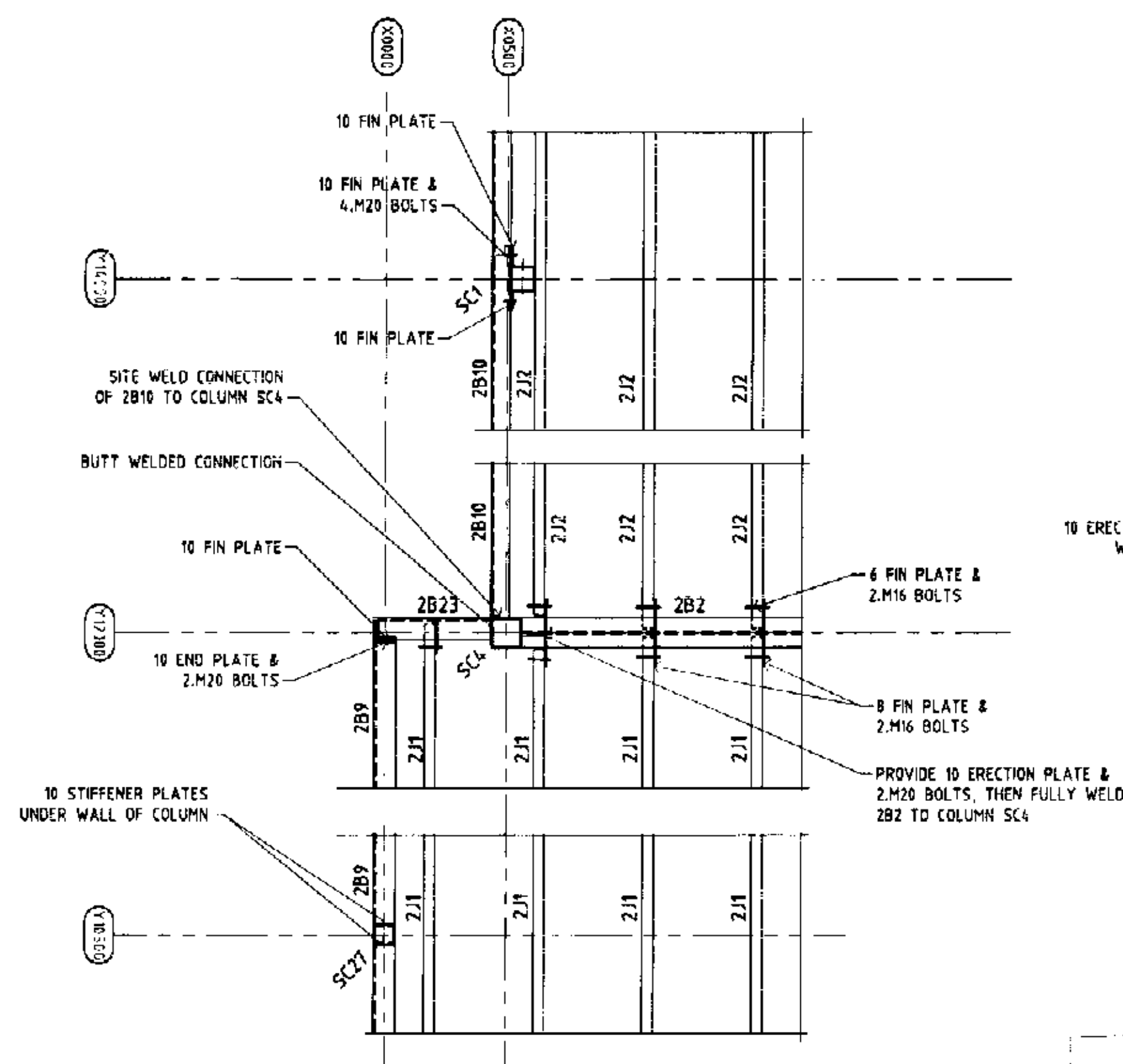
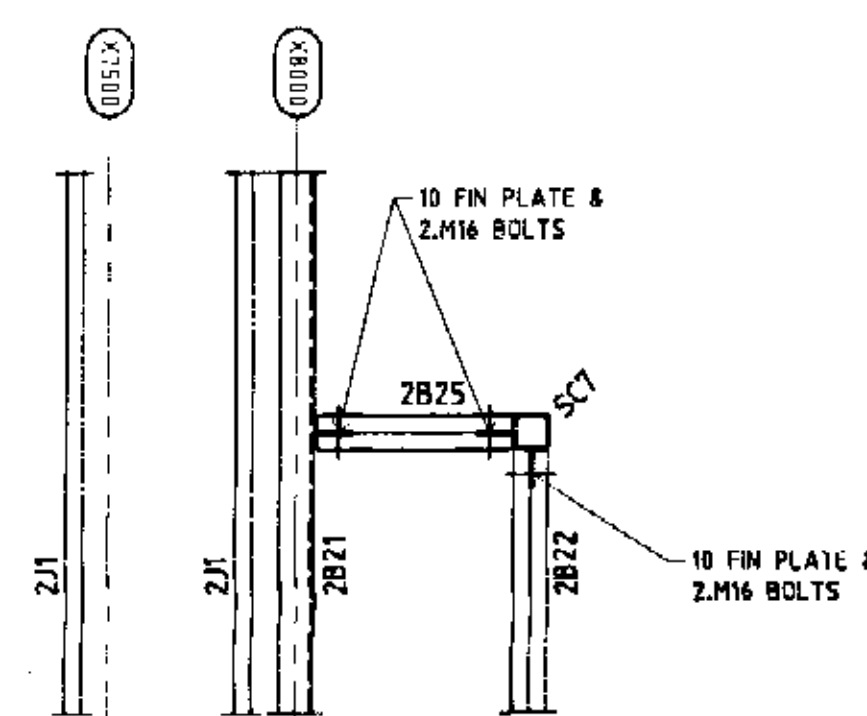
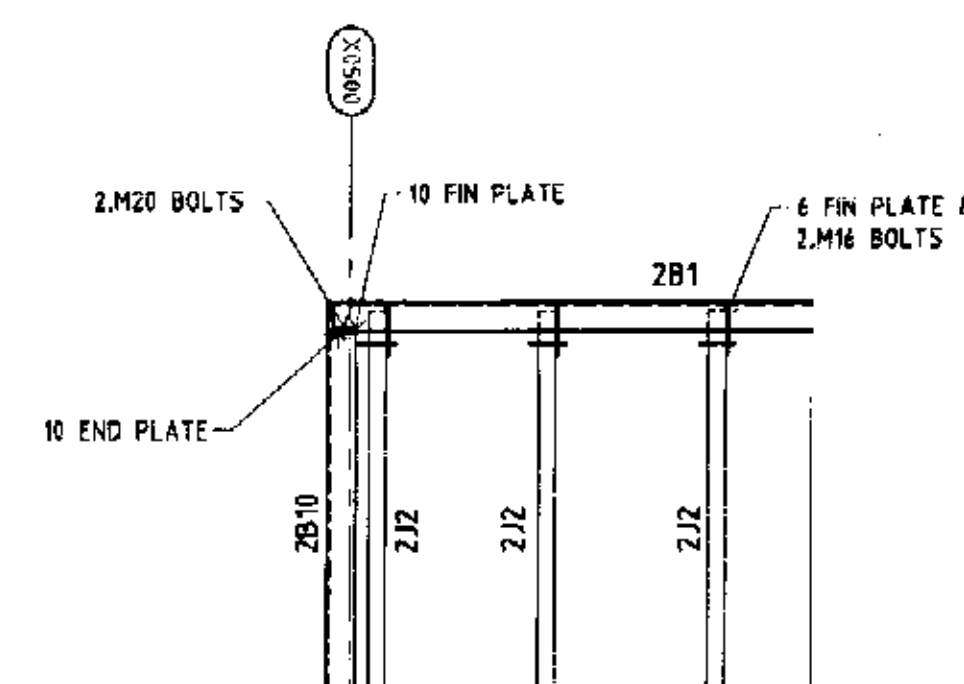
STRUCTURAL DRAWING

Designer A.D.A.	Drawn CHRIS. W.	Job No S4443
Issue 1100 U.N.C.	Date 20.06.04	Dwg. No. 1.03
File P:\dwg\ss\SS4443\103.dwg	Scale 1:100	Sheet A
Checked A. D'Ambrosio	B.E. (Mons): M.I.E. (Aust.) NPER3 (Structural)	



MEMBER SCHEDULE		
TAG	MEMBER SIZE	COMMENTS
SC1 TO SC12 & SC29	REFER DRAWING 1.01 FOR DETAILS	STEEL COLUMNS
SC13, SC16 TO SC18 & SC21	125 x 125 x 6.0 S.H.S.	STEEL COLUMN
SC14, SC15, SC19 & SC20	89 x 89 x 6.0 S.H.S.	STEEL COLUMNS
SC22 TO SC28	REFER DRAWING 3.01 FOR DETAILS	STEEL COLUMNS
ZB1, ZB10 & ZB19	230 PFC	STEEL BEAMS
ZB2A, ZB2 TO ZB4, ZB16 & ZB27	250 UB 26	STEEL BEAMS
ZB21, ZB23, ZB24 & ZB26	250 PFC	STEEL BEAMS
ZB5, ZB6, ZB8, ZB9, ZB11, ZB13, ZB14, ZB21, ZB23, ZB24 & ZB26	250 PFC	STEEL BEAMS
ZB7, ZB14, ZB15, ZB18, ZB20, ZB22	2 / 290 x 45 (F7)	TIMBER BEAMS
ZB12	3 / 290 x 45 (F7)	TIMBER BEAM
ZB17	2 / 230 PFC	STEEL BEAMS
ZJ1	290 x 45 (F7) AT 450 MAX. CTS.	TIMBER JOISTS
ZJ2	240 x 45 (F7) TREATED PINE AT 450 MAX. CTS.	TIMBER JOISTS
ZJ3	250 x 50 (F7) AT 450 MAX. CTS.	TIMBER JOISTS
ZJ4	140 x 45 (F7) AT 450 MAX. CTS.	TIMBER JOISTS
WB	PLYWOOD WALL BRACING (REFER SCHEDULE)	WALL BRACING
1SB1 & 1SB2	250 PFC GALV.	STEEL STAIR BEAMS
2SB1 TO 2SB3	REFER DRAWING 3.01 FOR DETAILS	STEEL STAIR BEAMS
3SB1 & 3SB2	REFER DRAWING 3.01 FOR DETAILS	STEEL STAIR BEAMS
3CB1	REFER DRAWING 3.01 FOR DETAILS	STEEL STAIR BEAM

ALL STEELWORK TO BE HOT DIP GALVANISED U.N.O.



PLAN OR DOCUMENT CERTIFICATION
STRUCTURAL ENGINEER

I am a qualified **STRUCTURAL ENGINEER**

I hold the following qualifications or licence No. **NPER3 (STRUCTURAL)**

Further I am appropriately qualified to certify this component of the project.

I hereby state that these plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia and/or relevant Australian industry standards.

ANGELO D'AMBROSIO 13th Aug 2006 *[Signature]*

Name Date Signature

* e.g. Licensed Builder, Electrical Contractor, Engineer, Landscape Architect, Geotechnical Engineer, etc.

STRUCTURAL ENGINEER CERTIFICATION

I am a qualified **STRUCTURAL ENGINEER** and I hold the following qualifications or licence No. **NPER3 (STRUCTURAL)**. Further I am appropriately qualified to certify the professional responsibility of the project.

I hereby state that the professional content of these plans or details comply with the provisions of development consent and the provisions of the Building Code of Australia and/or appropriate Australian industry standards.

JACK HODGSON 21/08/06 *[Signature]*

Name Date Signature

REFER TO DWG. 1.01 FOR CONSTRUCTION NOTES

ISSUED FOR CONSTRUCTION CERTIFICATE 13.08.06 *[Signature]*

DATE

Architect
WARWICK WERNER ARCHITECT PTY. LTD.
4 WANAWONG ROAD,
CARRELL BAY, N.S.W. 2107
TEL (02) 9918 5455 FAX (02) 9918 5467

Project:
PROPOSED NEW RESIDENCE
137 RIVERVIEW ROAD
CLAREVILLE N.S.W.
FOR : MR & MRS R. & S. JONES

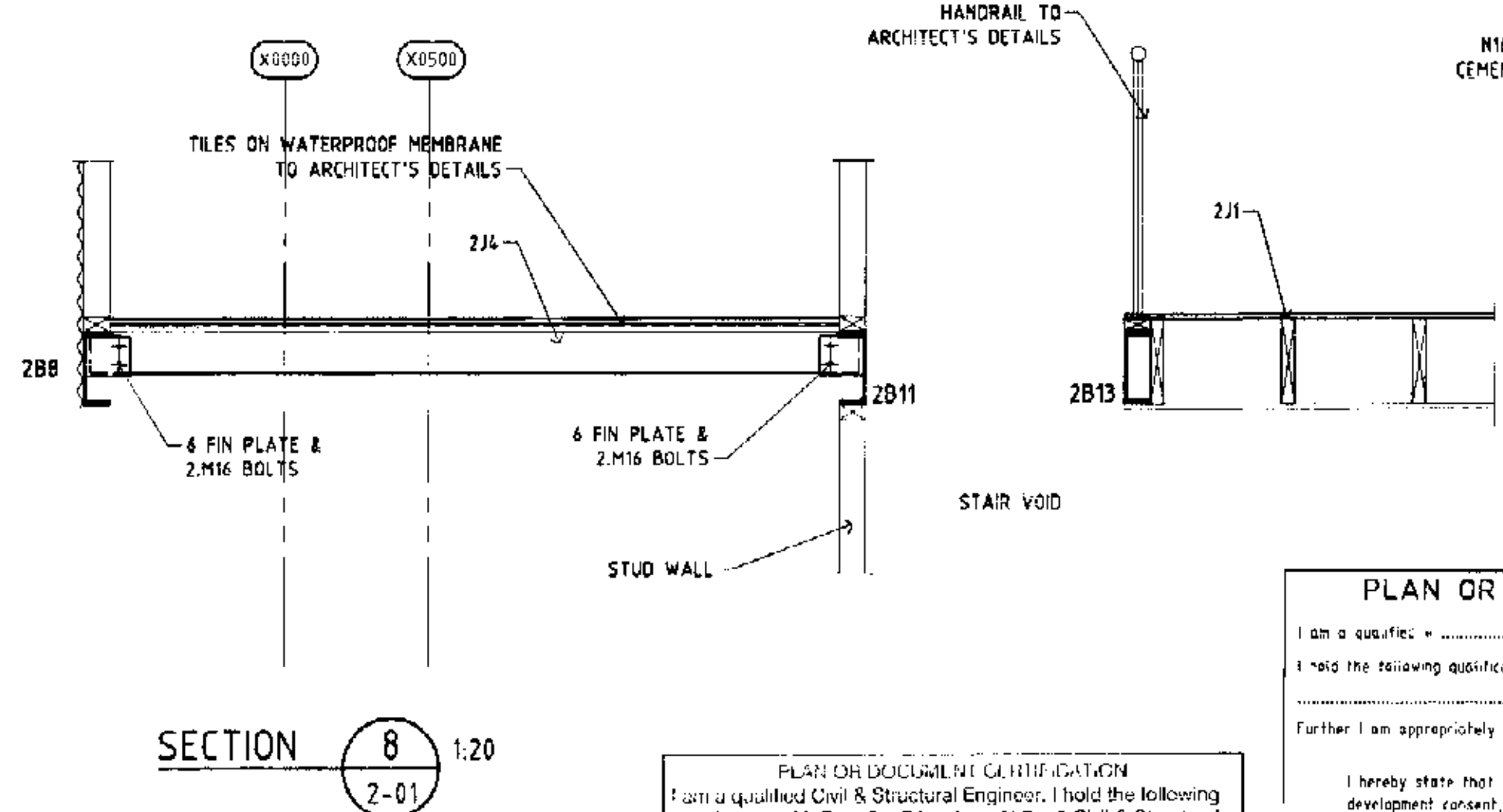
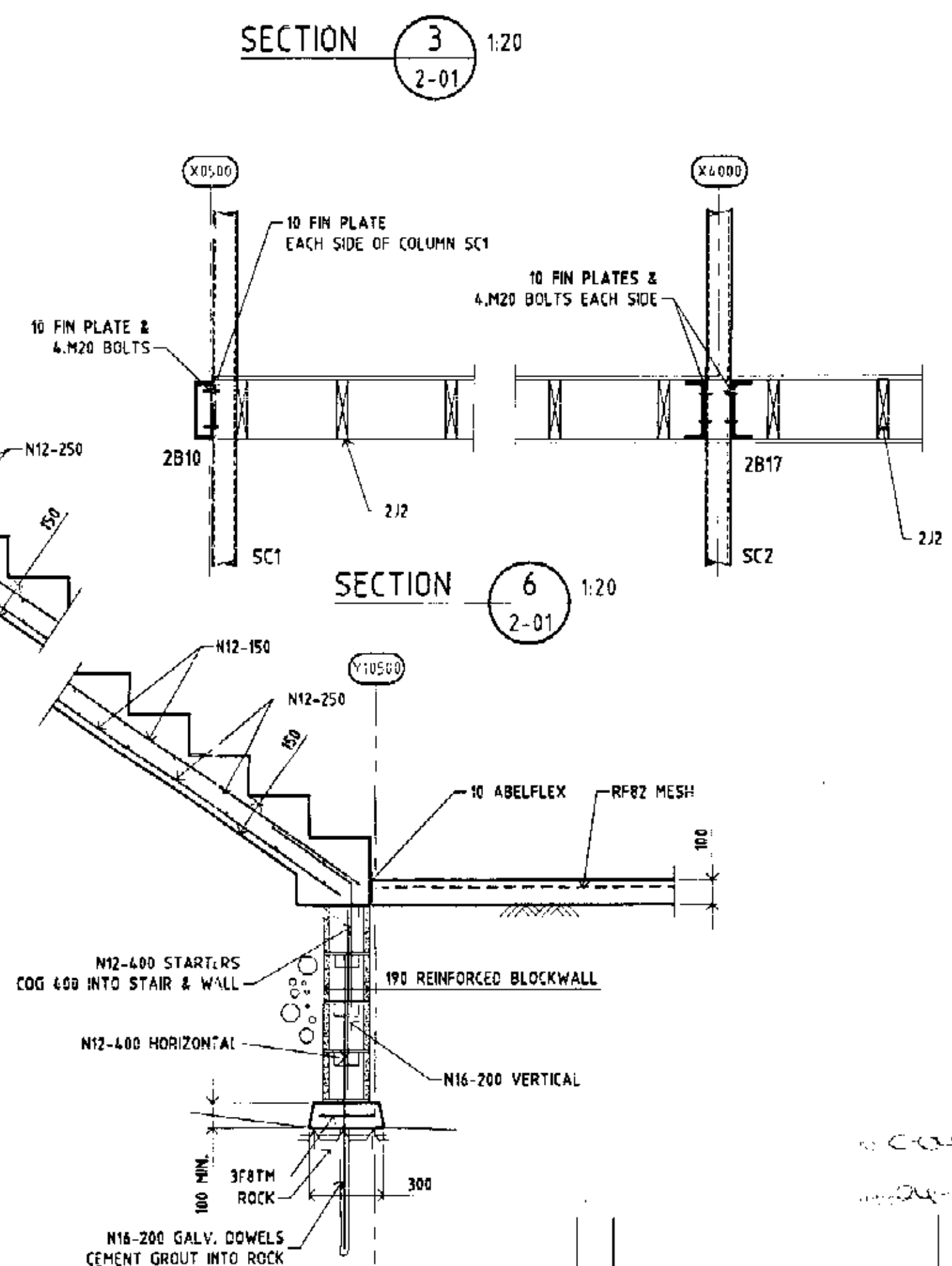
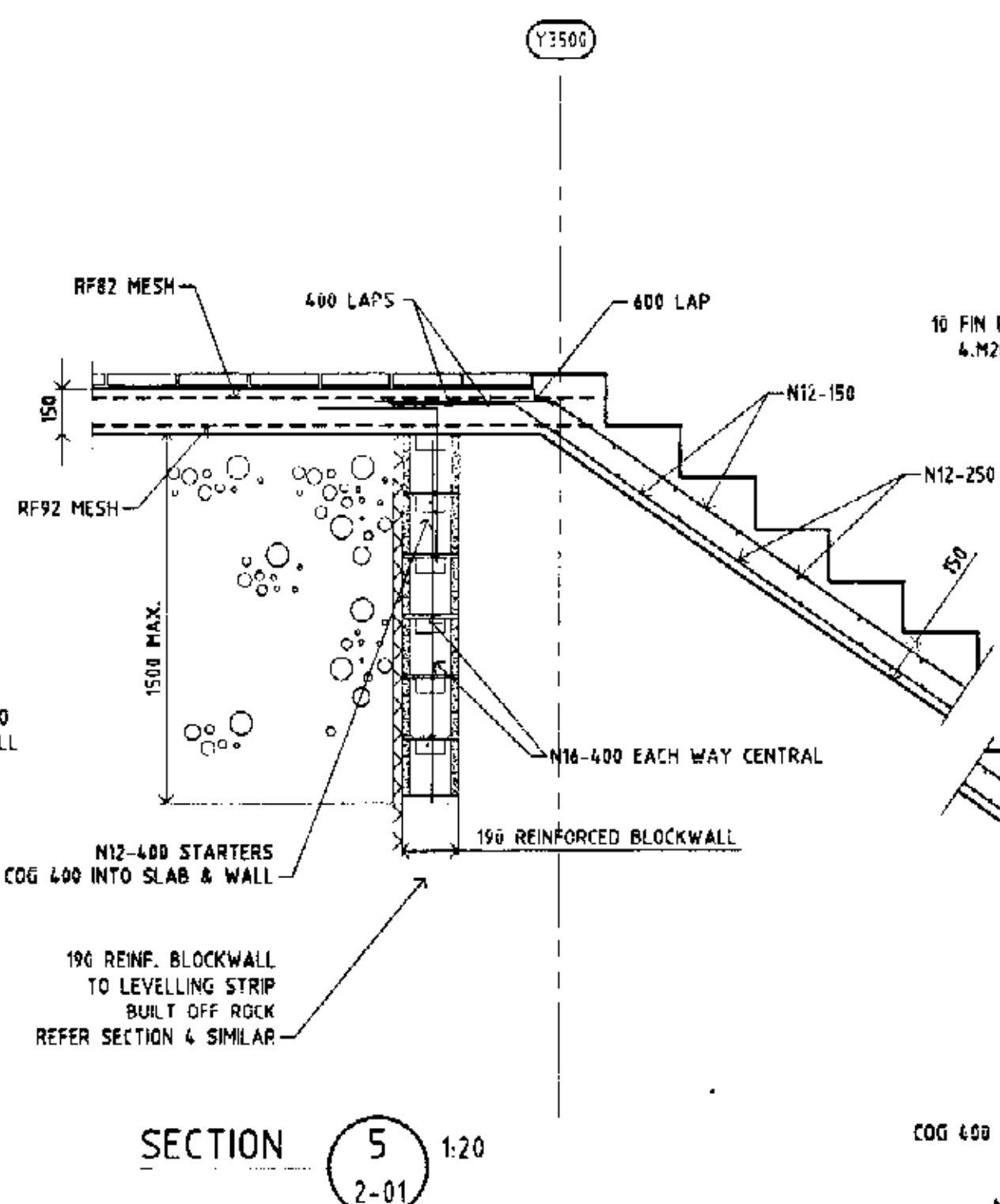
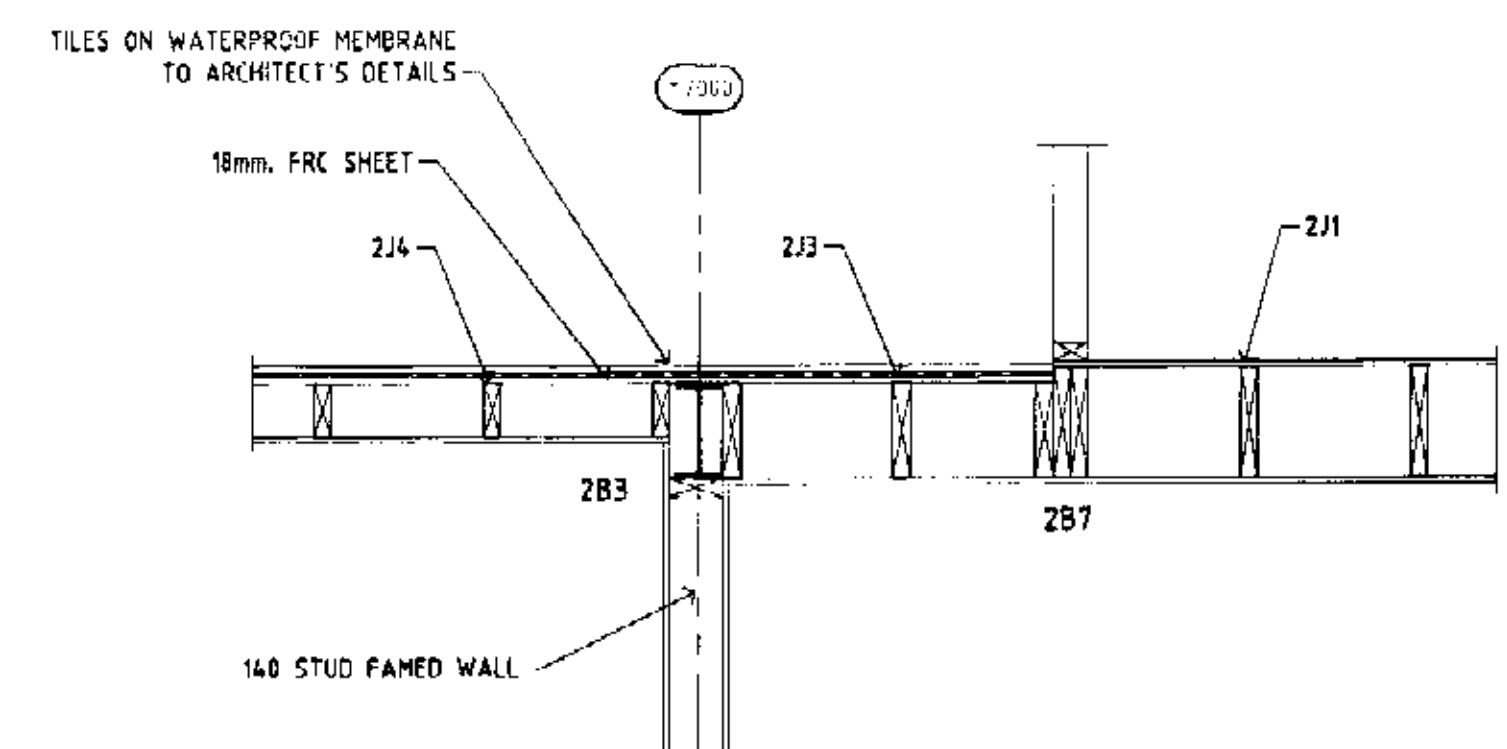
D'AMBROSIO CONSULTING
SUITE 4/153 VICTORIA ROAD
GLADESVILLE NSW 2111
AUSTRALIA
PHONE (02) 9870 5577
FAX (02) 9879 5588

STRUCTURAL ENGINEERS
Title:
LEVEL 2 FRAMING PLAN & DETAILS

STRUCTURAL DRAWING

Designed A.D.A.	Drawn CHRIS. W.	Job No. 54443
Scale 1:100 U.N.O.	Date 20.06.04	Dwg. No. 2.01
File P:\dwg\jobs\54443\201.dwg	Issue A	

Checked
[Signature] B.E. (Honest M.E. - Aust. NPER3 (Structural))



PLAN OR DOCUMENT CERTIFICATION
I am a qualified " **STRUCTURAL ENGINEER** "
I hold the following qualifications or licence No. **NPER3 (STRUCTURAL)**
Further I am appreciably qualified to certify this component of the project.

PLANNING DOCUMENT CERTIFICATION

I am a qualified Civil & Structural Engineer. I hold the following qualifications: M. Eng. Sc. F.I.E. Aust. N. Por 3 Civil & Structural in 1977/78. I am appropriately qualified to certify the geotechnical component of the project.

I hereby state that the geotechnical content of these plans or Details comply with the conditions of professional consent and the provisions of the Building Code of Australia and/or appropriate Australian Standards.

JACK HODGSON *[Signature]*

Name Date Signature

I hereby state that these plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia and/or relevant Australian/industry standards.

ANGELO D'AMBROSIO *B³ 14/04 A. M.*

Name _____ Date _____ Signature _____

I am a Licensed Builder Electrical Contractor (Licence: _____) Landscaper Architect (Qualification) Engineer etc.

REFER TO DWG. 1.01 FOR CONSTRUCTION NOTES

A	ISSUED FOR CONSTRUCTION CERTIFICATE	13.08.06	100
ISSUE AMENDMENT		DATE	CHECKED

Architect
WARWICK WERNER ARCHITECT PTY. LTD.
4 WAAWONG ROAD,
CARLEIL BAY, N.S.W. 2107
TEL: (02) 0018 5155 FAX: (02) 0018 5162

Project:
PROPOSED NEW RESIDENCE
137 RIVERVIEW ROAD
CLAREVILLE N.S.W.
FOR : MR & MRS R. & S. JONES

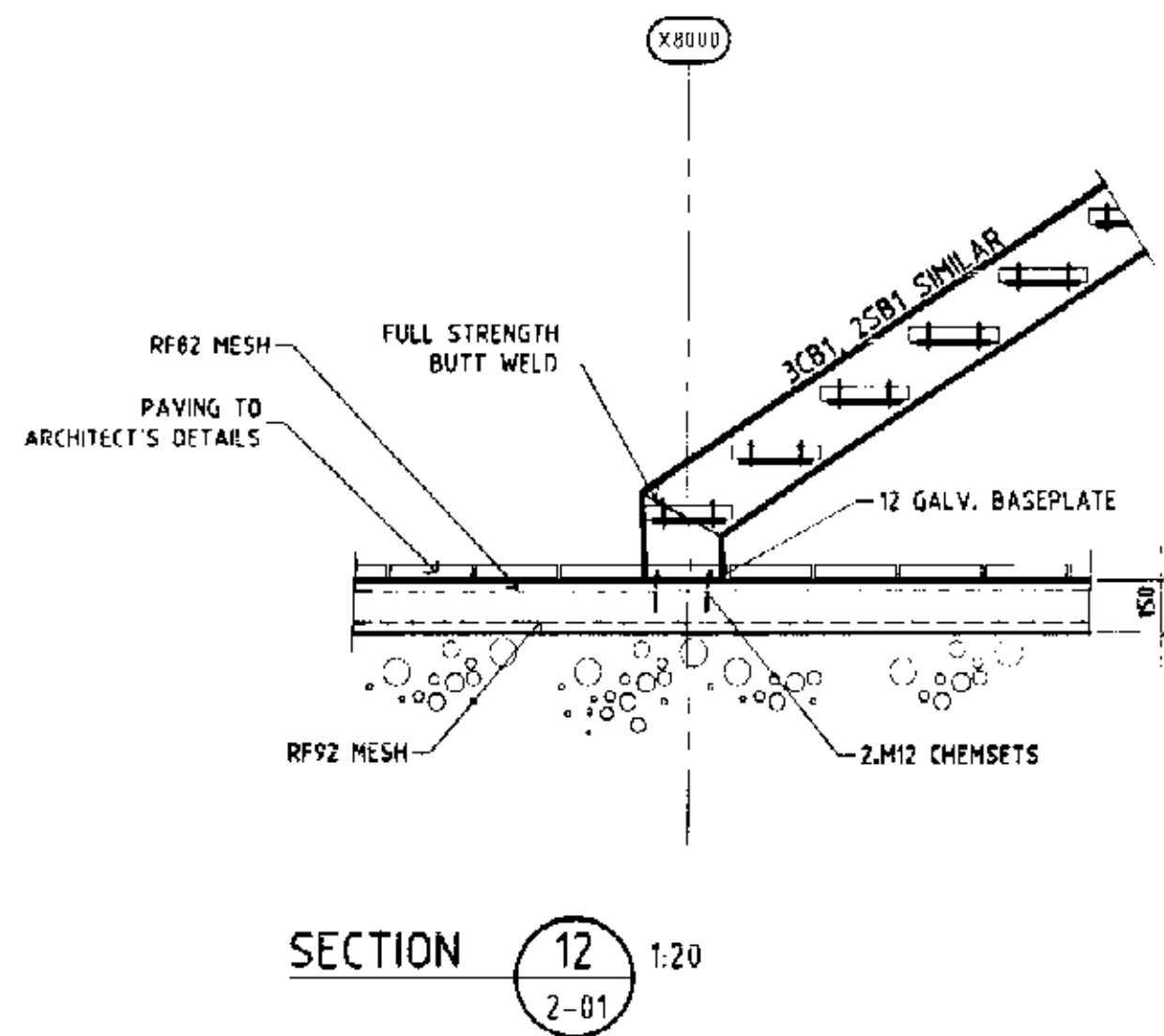
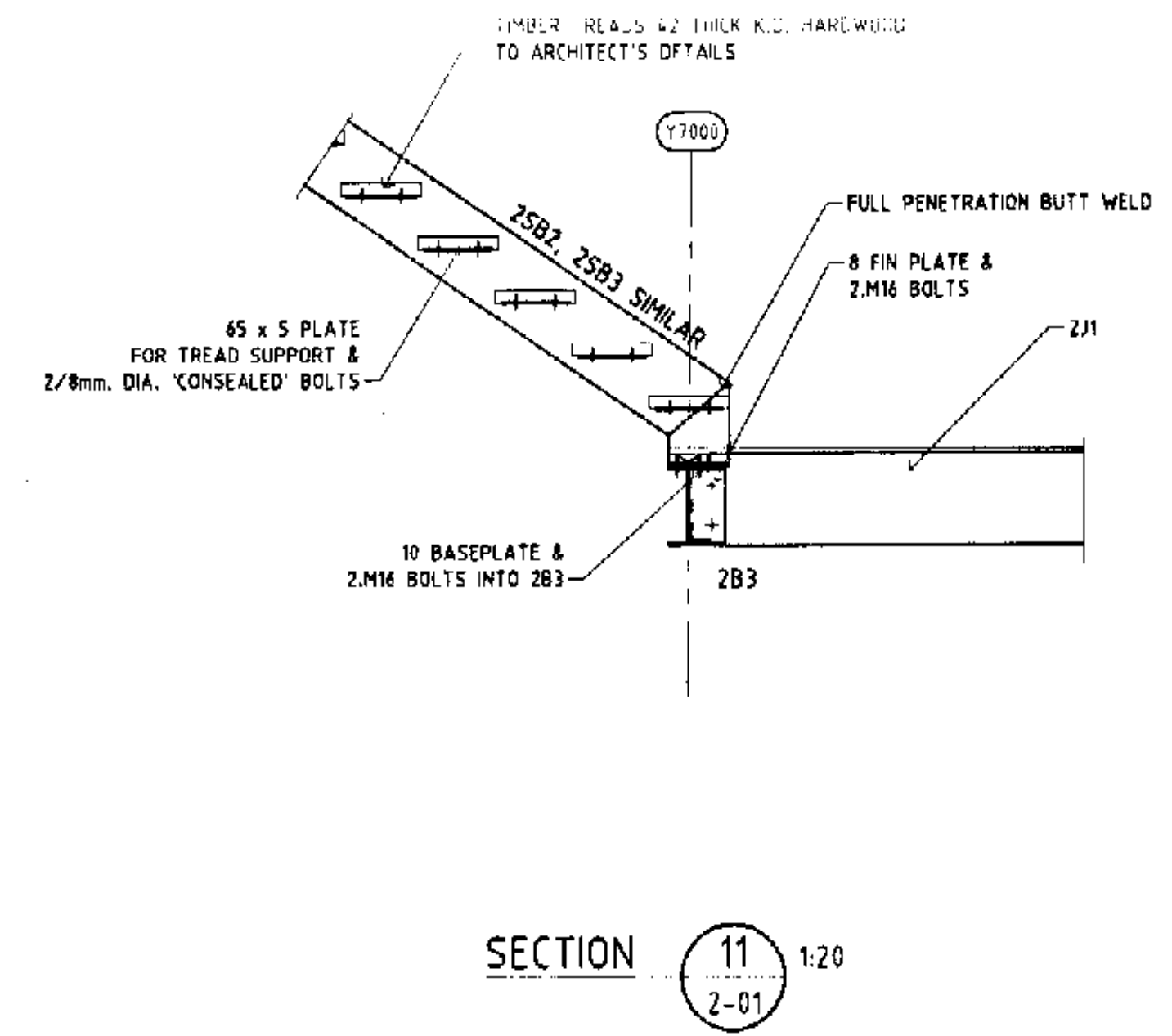
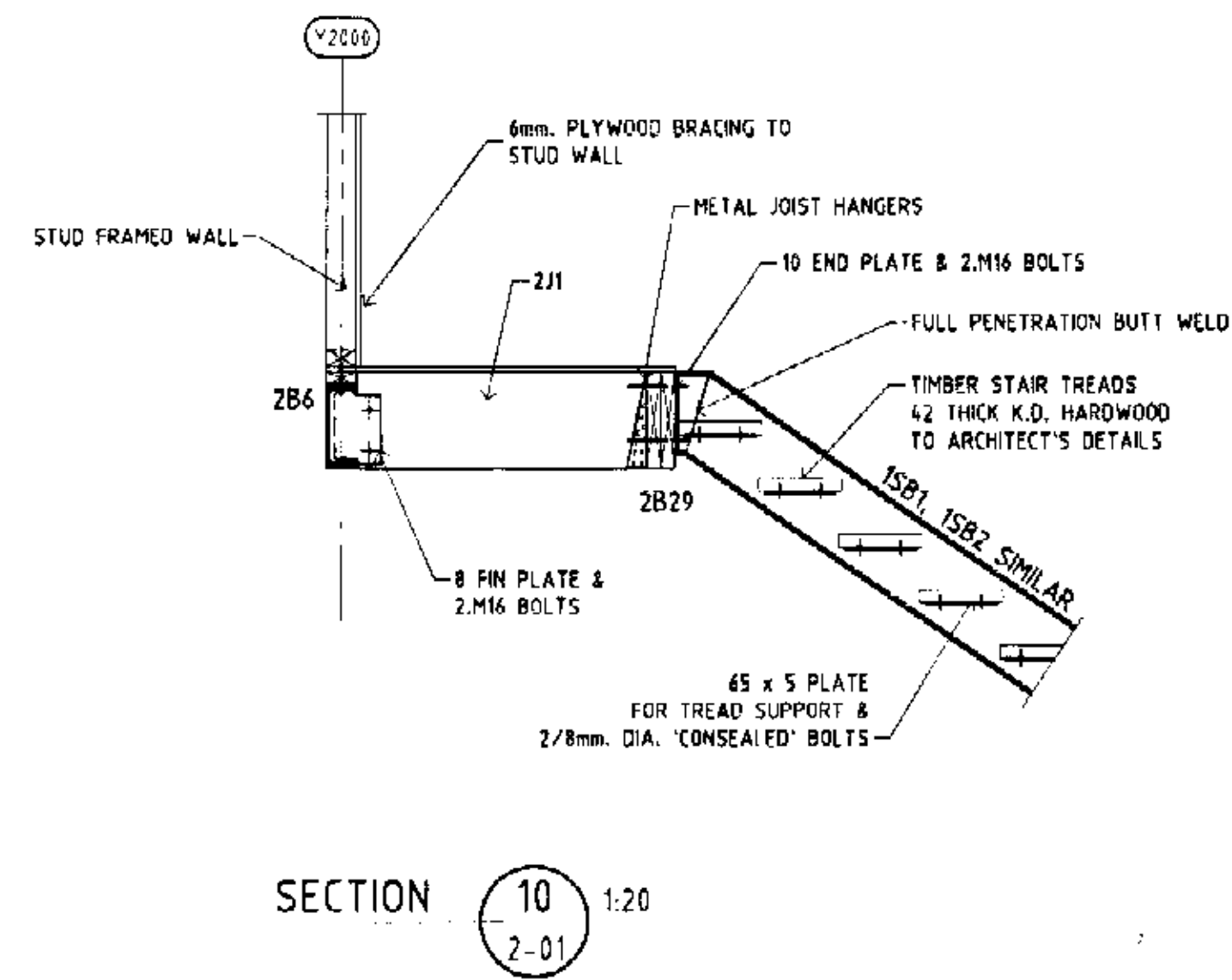
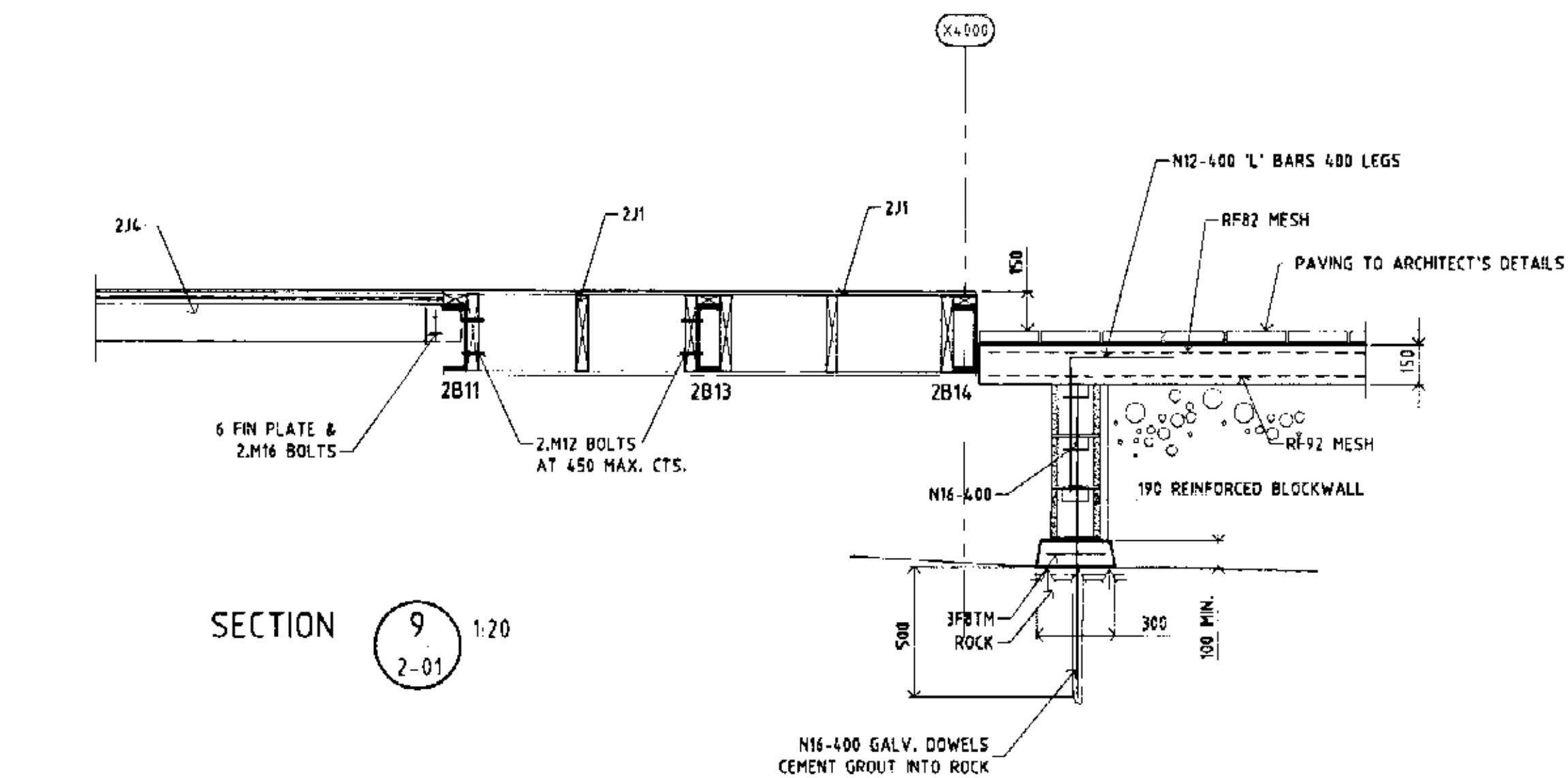
**D'AMBROSIO
CONSULTING**
STRUCTURAL ENGINEERS

SUITE 4/53 VICTORIA ROAD
GLADESVILLE NSW 2111
AUSTRALIA
PHONE (02) 9879 5577
FAX (02) 9879 5588

Title:
LEVEL 2 FRAMING DETAILS
SHEET 1.

STRUCTURAL DRAWING

Designed A.D.A.	Drawn CHRIS. W.	JOB NO. 54443	
Scale 1:20 U.N.O.	Date 20.06.04	Drawn No.	Issue A
Code File F:\dwg\jobs\54443\202.dwg		2.02	
Comments <i>[Signature]</i>		B.E. - Hons: M.E. - Aust. NPER3 (Structural)	



PLAN OR DOCUMENT CERTIFICATION
I am a qualified Professional Engineer or Structural Engineer and I hold the following qualifications: B. Eng. (Hons), B. Sc. (Hons), N. Eng. (Hons) & Structural
No. 149/04. Further, I am appropriately qualified to certify the geotechnical component of the project.
I hereby state that the geotechnical component of these plans or details comply with the conditions of development consent and the provisions of the Building Code of Australia and/or relevant Australian standards.
JACK HODGSON 21/06/04
Name Date Signature

PLAN OR DOCUMENT CERTIFICATION
STRUCTURAL ENGINEER
I am a qualified Professional Engineer or Structural Engineer and I hold the following qualifications: B. Eng. (Hons), B. Sc. (Hons), N. Eng. (Hons) & Structural
No. 149/04. Further, I am appropriately qualified to certify the geotechnical component of the project.
I hereby state that the geotechnical component of these plans or details comply with the conditions of development consent and the provisions of the Building Code of Australia and/or relevant Australian standards.
ANGELO D'AMBROSIO 18/06/04
Name Date Signature

Further I am appropriately qualified to certify this component of the project.
I hereby state that these plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia and/or relevant Australian standards.

ANGELO D'AMBROSIO 18/06/04
Name Date Signature
e.g. Licensed Builder, Electrical Contractor, Engineer, Landscape Architect, Geotechnical Engineer, etc.

REFER TO DWG. 1.01 FOR CONSTRUCTION NOTES

Project: PROPOSED NEW RESIDENCE
137 RIVERVIEW ROAD
CLAREVILLE N.S.W.
FOR : MR & MRS R. & S. JONES

Architect: WARWICK WERNER ARCHITECT PTY. LTD.
4 WANAWONG ROAD,
CAREEL BAY, N.S.W. 2107
TEL: (02) 9918 5455 FAX: (02) 9918 5462

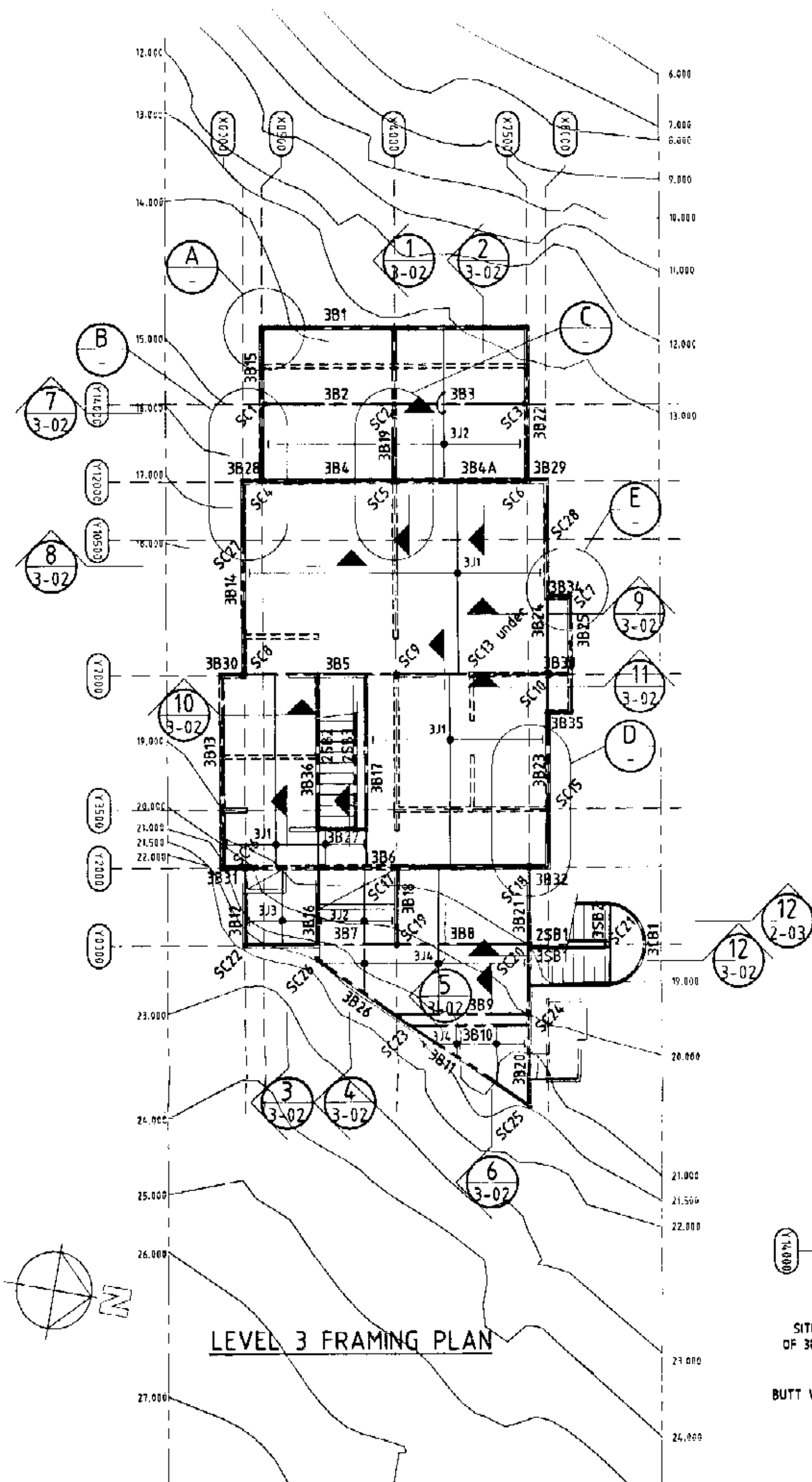
Project: PROPOSED NEW RESIDENCE
137 RIVERVIEW ROAD
CLAREVILLE N.S.W.
FOR : MR & MRS R. & S. JONES

Structural Engineers: D'AMBROSIO CONSULTING
SUITE 4/153 VICTORIA ROAD
GLADESVILLE NSW 2111
AUSTRALIA
PHONE (02) 9879 5577
FAX (02) 9879 5588

Title: LEVEL 2 FRAMING DETAILS
SHEET 2.

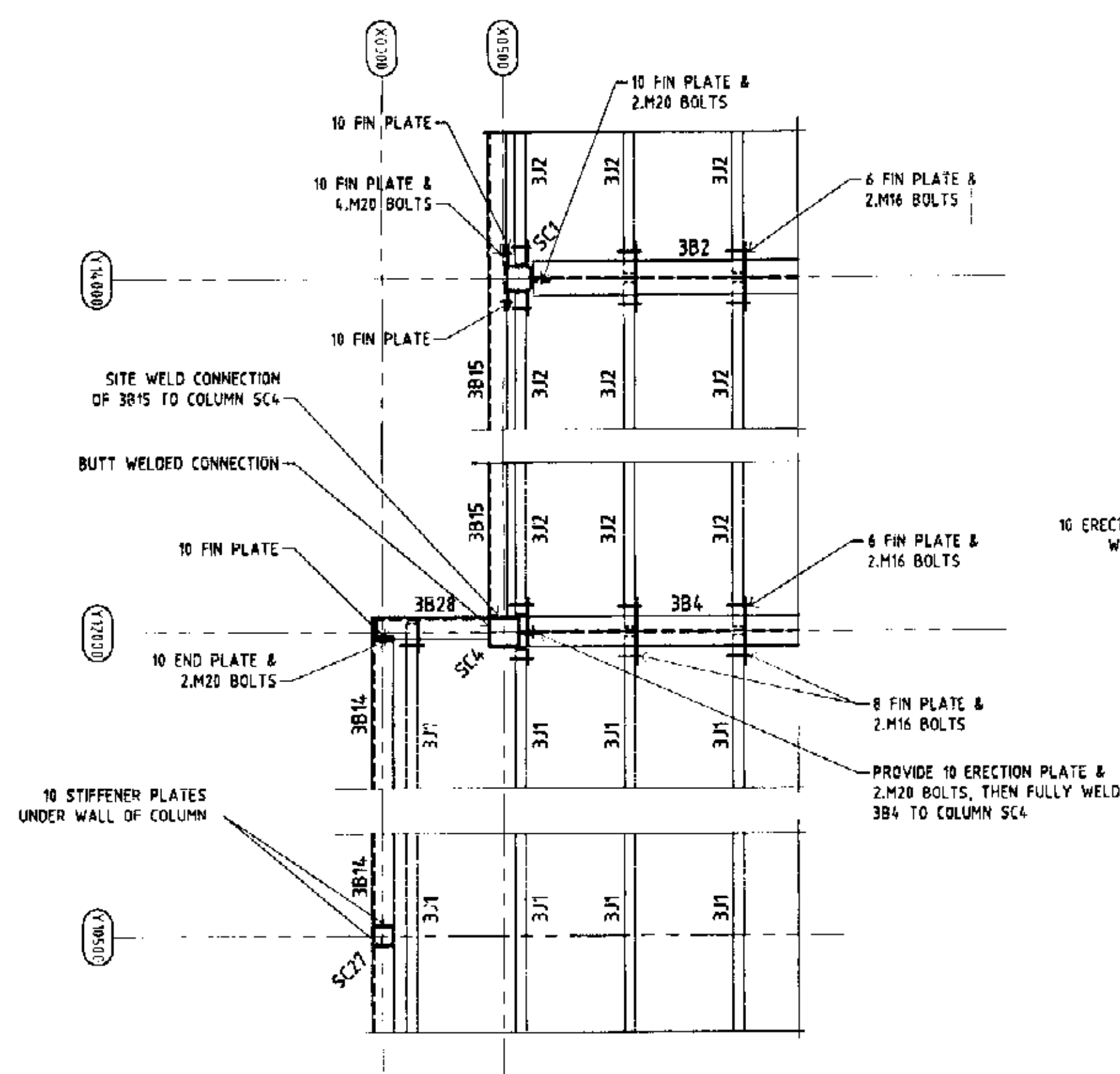
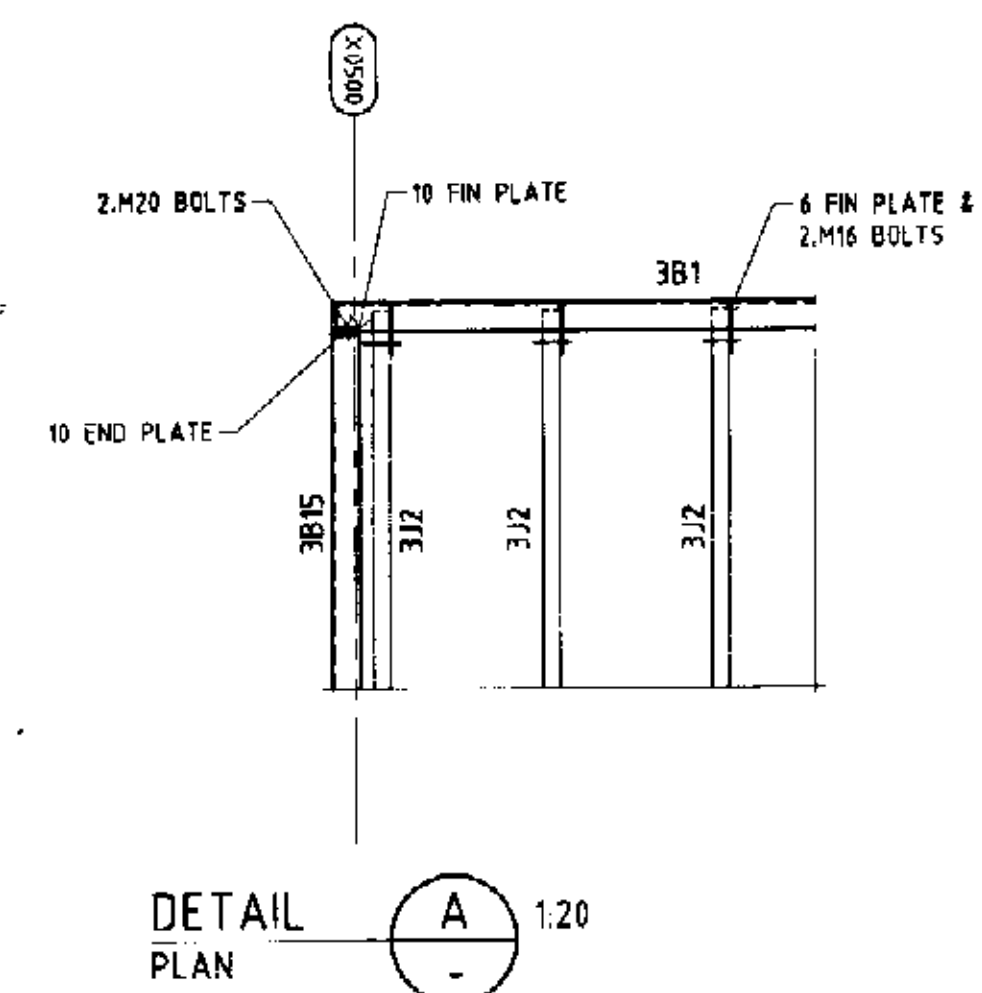
STRUCTURAL DRAWING

Designer: A.D.A.	Drawn: CH-RIS. W.	Scale: 1:20 U.N.O.	Date: 20.06.04	Proj. No.: 54443	Issue: 2.03	Rev. No.: A
File Name: F:\dwg\proj\54443\203.dwg				B.L. (Project) M.E. (Auto) NPER3 (Structural)		



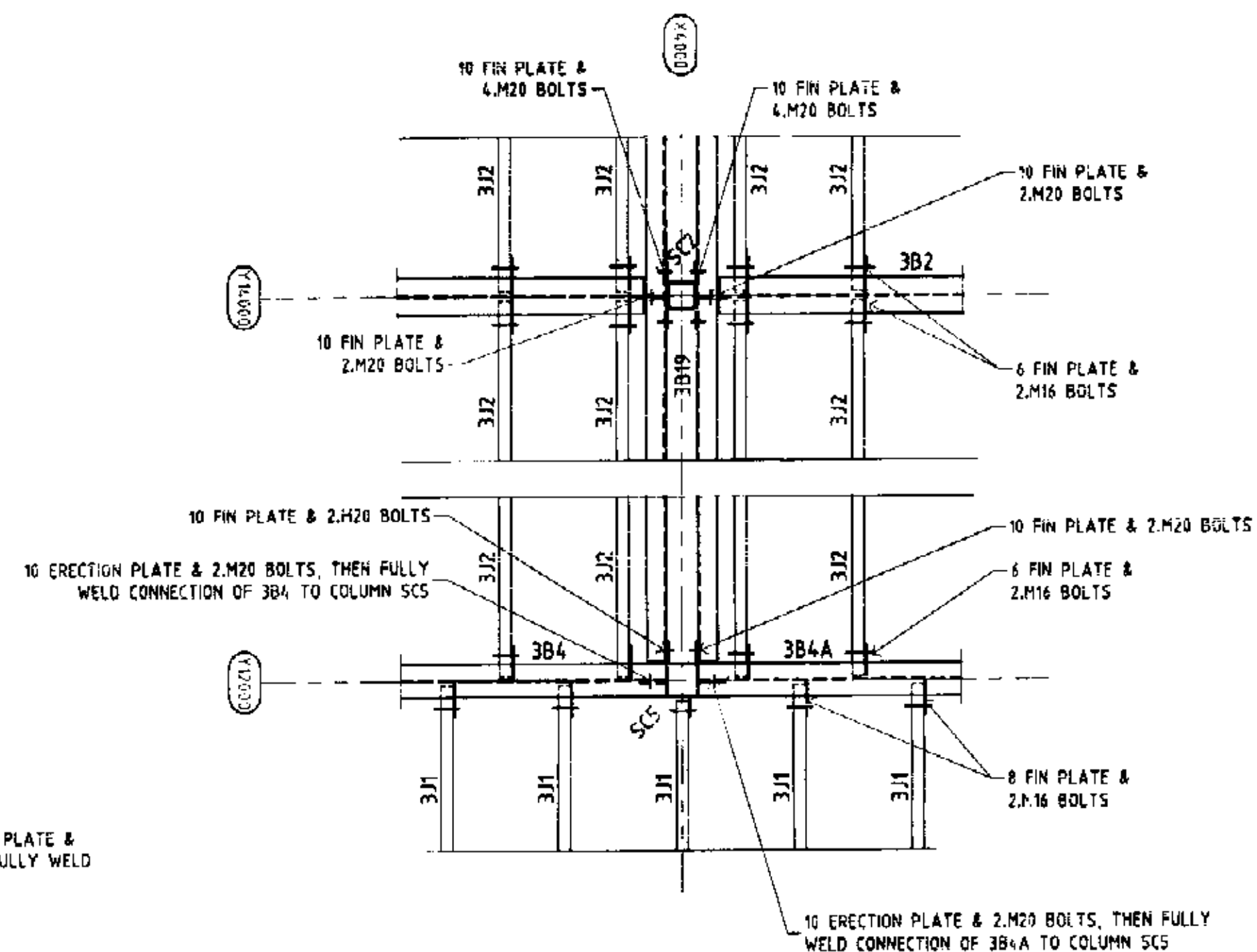
TAG	MEMBER SIZE	COMMENTS
SC1 TO SC21 & SC29	REFER DRAWING 1.01 FOR DETAILS	STEEL COLUMNS
SC22 TO SC28	89 x 89 x 6.0 S.H.S.	STEEL COLUMNS
3B1, 3B11, 3B15, 3B20 TO 3B22 & 3B26	230 PFC	STEEL BEAMS
3B2 & 3B3	200 UB 30	STEEL BEAMS
3B4A, 3B4 & 3B6	250 UB 26	STEEL BEAMS
3B5 & 3B33	250 UB 31	STEEL BEAM
3B7, 3B12 TO 3B14, 3B17, 3B23, 3B24, 3B28 TO 3B32 & 3B36	250 PFC	STEEL BEAMS
3B8	180 UB 22 GALVANISED	STEEL BEAMS
3B9 & 3B10	180 PFC GALVANISED	STEEL BEAMS
3B16, 3B18, 3B25, 3B27, 3B34 & 3B35	2 / 290 x 45 (F7)	TIMBER BEAMS
3B19	2 / 230 PFC	STEEL BEAMS
3J1	290 x 45 (F7) AT 450 MAX. CTS.	TIMBER JOISTS
3J2	240 x 45 (F7) TREATED PINE AT 450 MAX. CTS.	TIMBER JOISTS
3J3	240 x 45 (F7) AT 450 MAX. CTS.	TIMBER JOISTS
3J4	190 x 45 (F7) TREATED PINE AT 450 MAX. CTS.	TIMBER JOISTS
3SB1	230 PFC GALVANISED	STEEL STAIR BEAM
3SB2	180 PFC GALVANISED	STEEL STAIR BEAM
3CB1	230 PFC GALVANISED (CURVED)	STEEL STAIR BEAM
2SB1	230 PFC GALVANISED	STEEL STAIR BEAM
2SB2 & 2SB3	250 x 10 FLAT PLATE	STEEL STAIR STRINGER

ALL STEELWORK TO BE HOT DIP GALVANISED U.N.O.

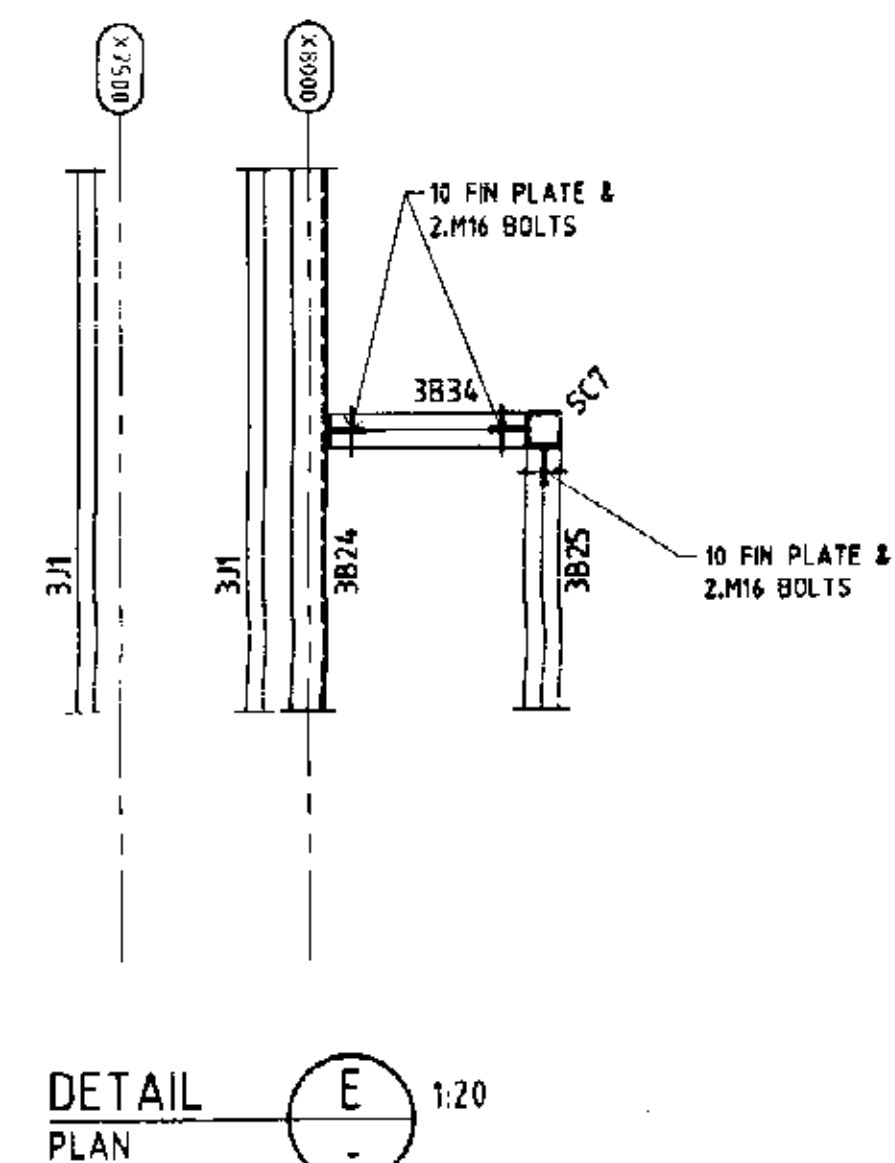


DETAIL PLAN B 1:20

DETAIL PLAN D 1:20 SIMILAR



DETAIL PLAN C 1:20



DETAIL PLAN E 1:20

PLAN OR DOCUMENT CERTIFICATION
STRUCTURAL ENGINEER
 I am a qualified & hold the following qualifications or licence No. **NPBR3 (STRUCTURAL)**
 Further I am appropriately qualified to certify this component of the project.
 I hereby state that these plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia and/or relevant Australian/industry standards.
ANGELO D'AMBROSIO 13/06/04
 Name Date Signature
 * e.g. Licensed Builder, Electrical Contractor, Engineer, Landscape Architect, Geotechnical Engineer, etc.

REFER TO DWG. 1.01 FOR CONSTRUCTION NOTES

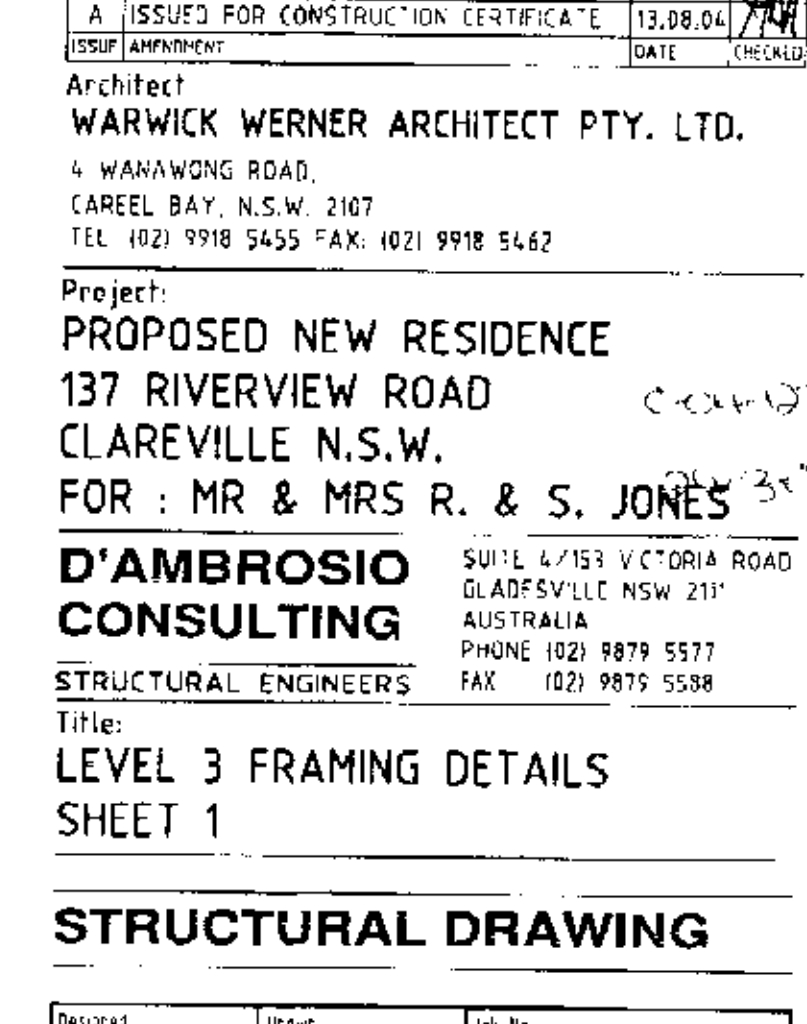
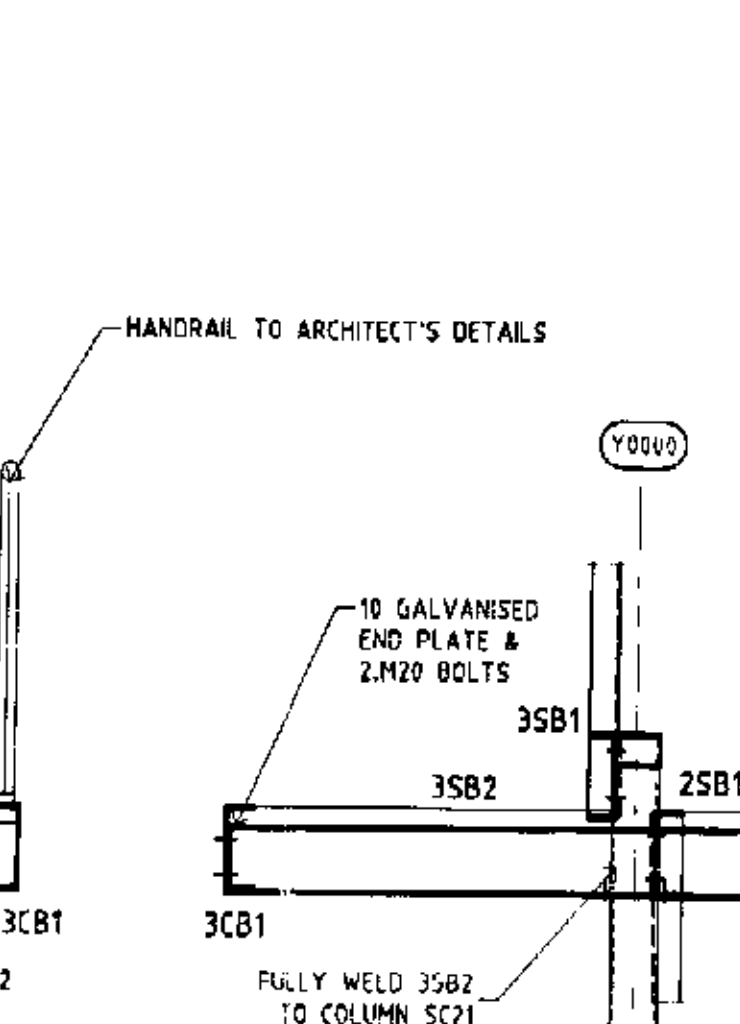
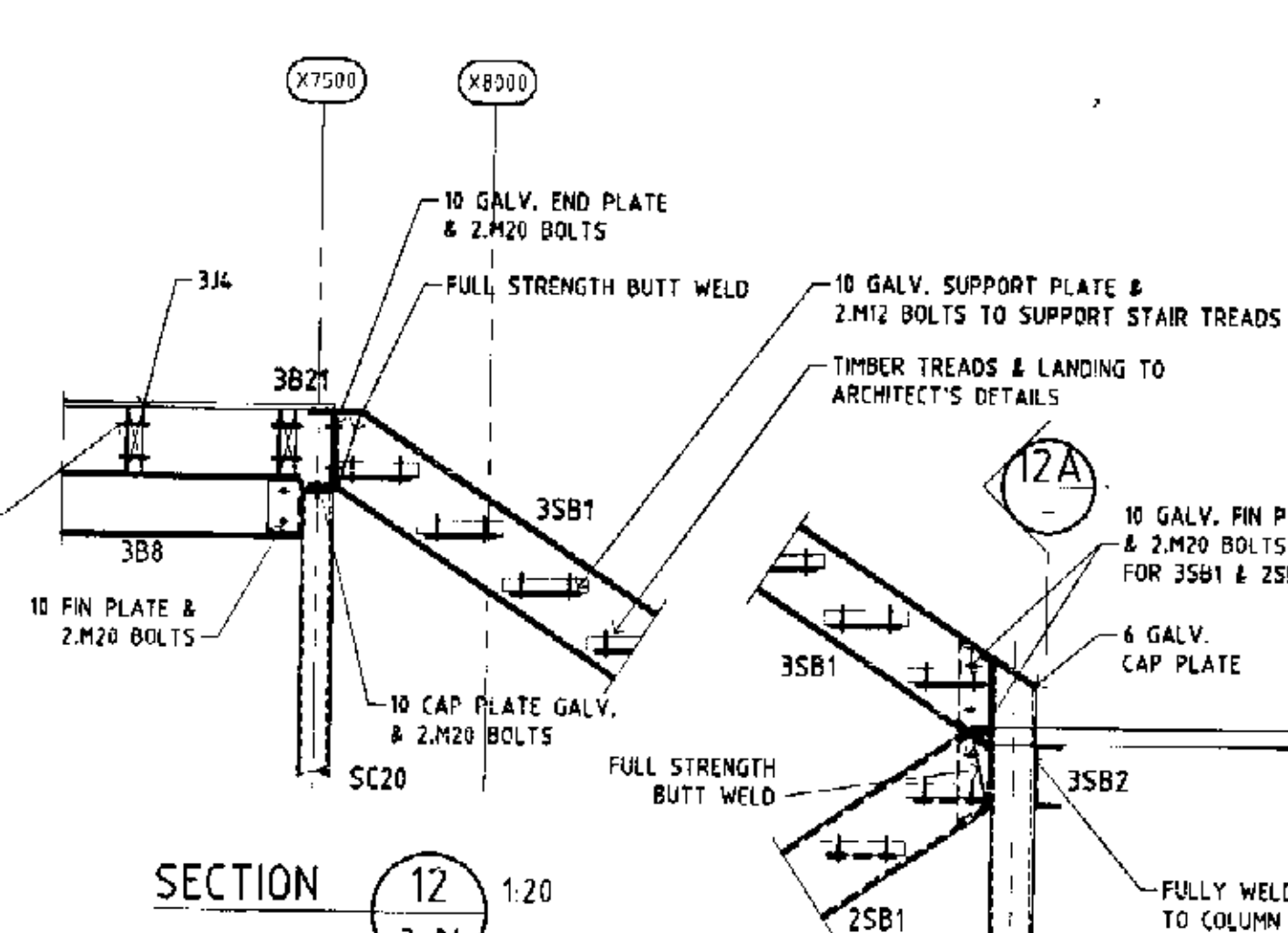
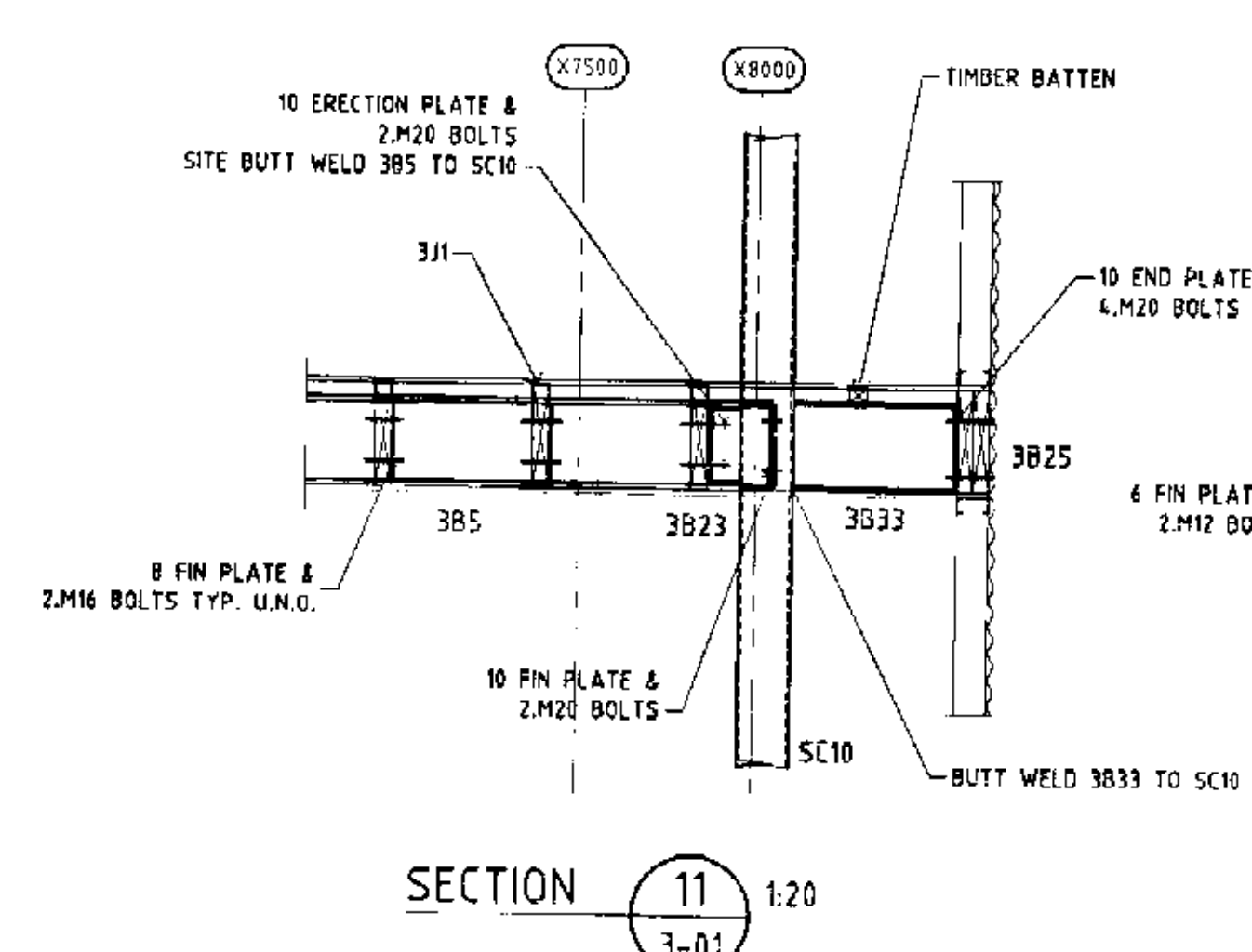
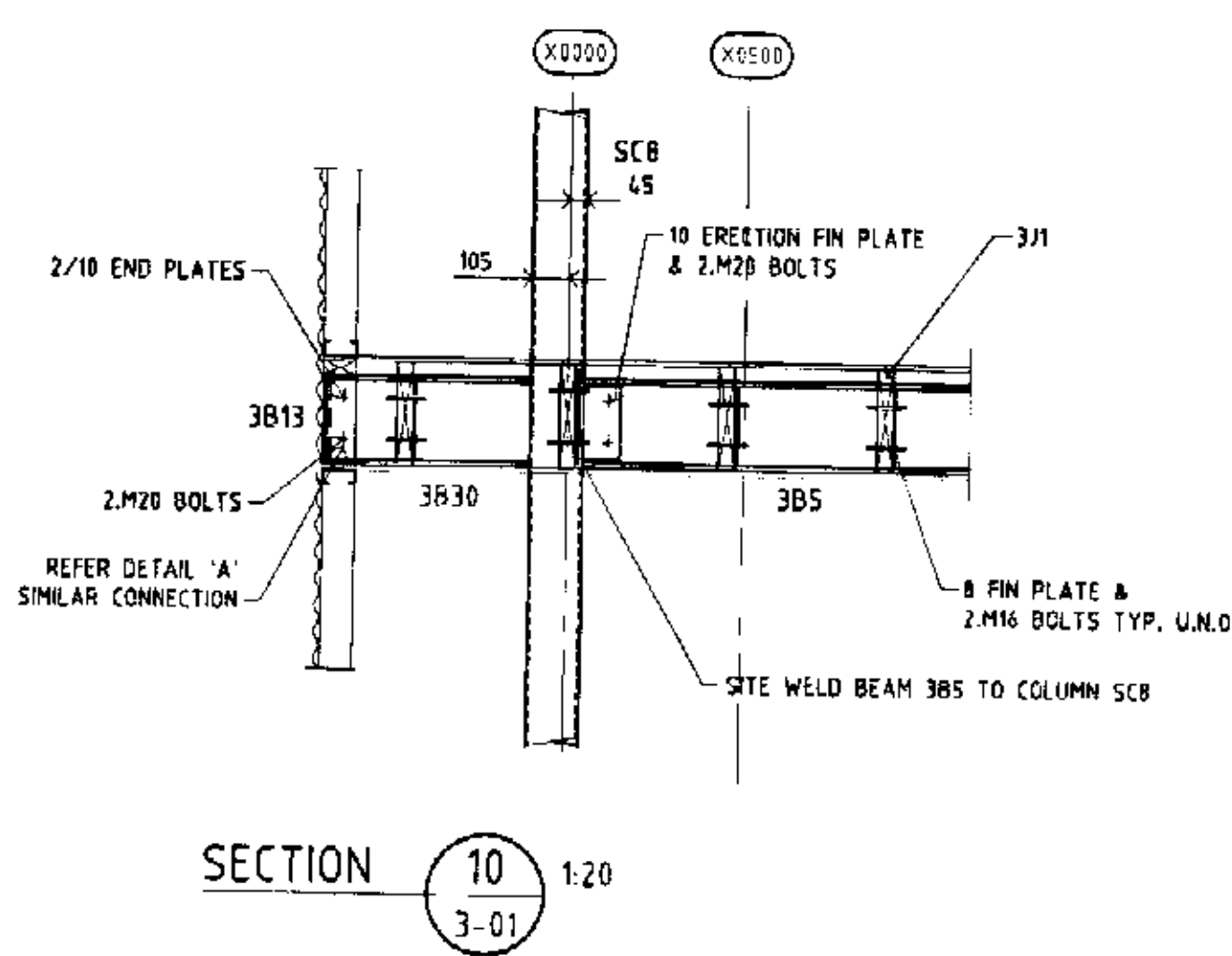
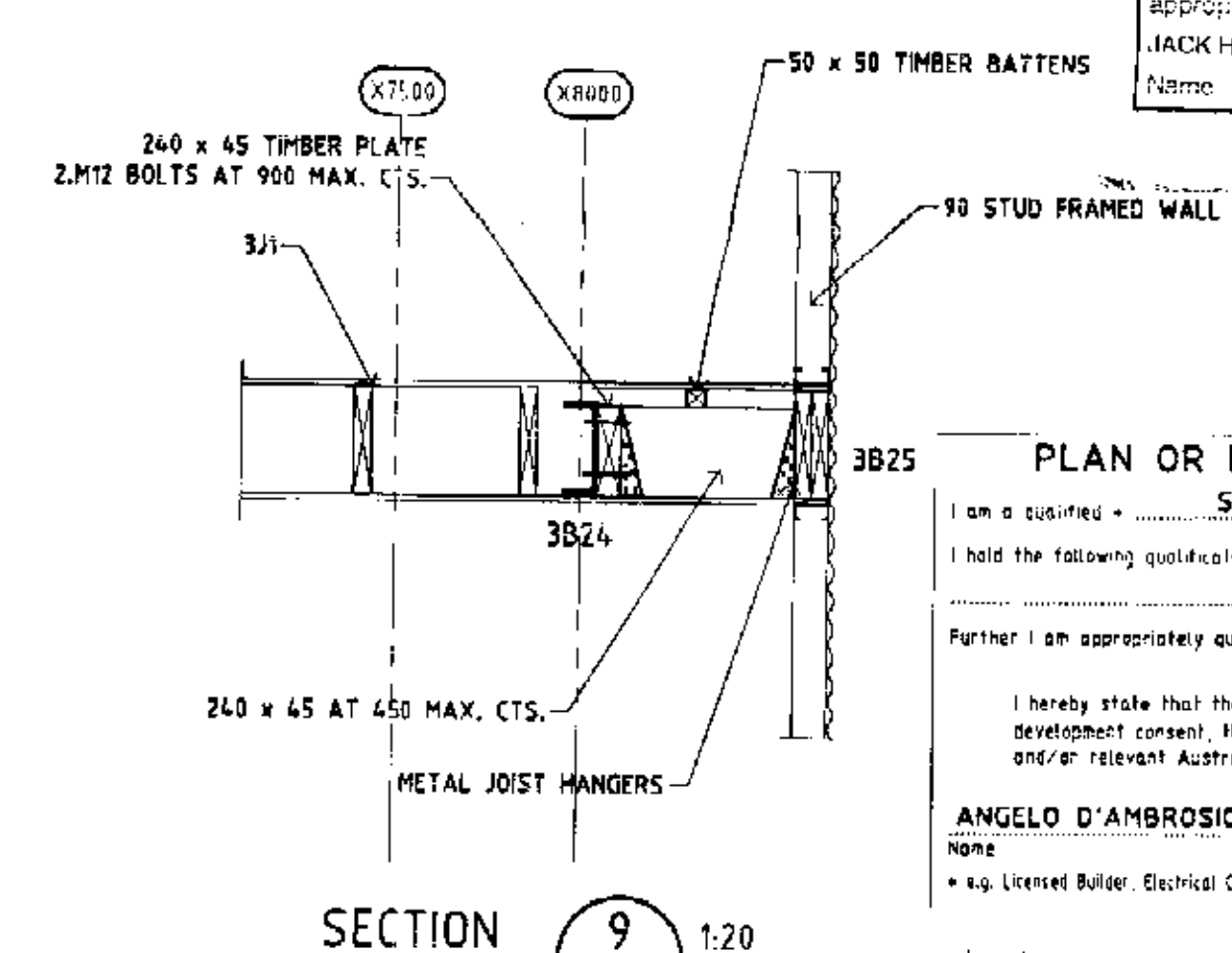
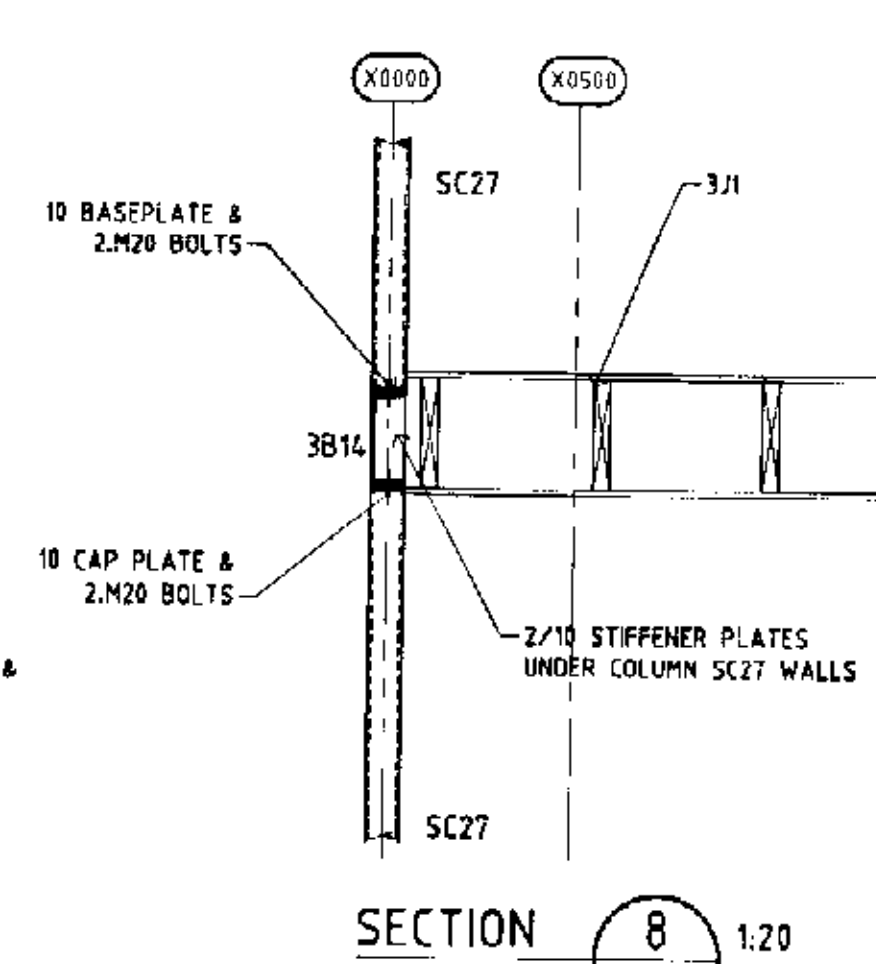
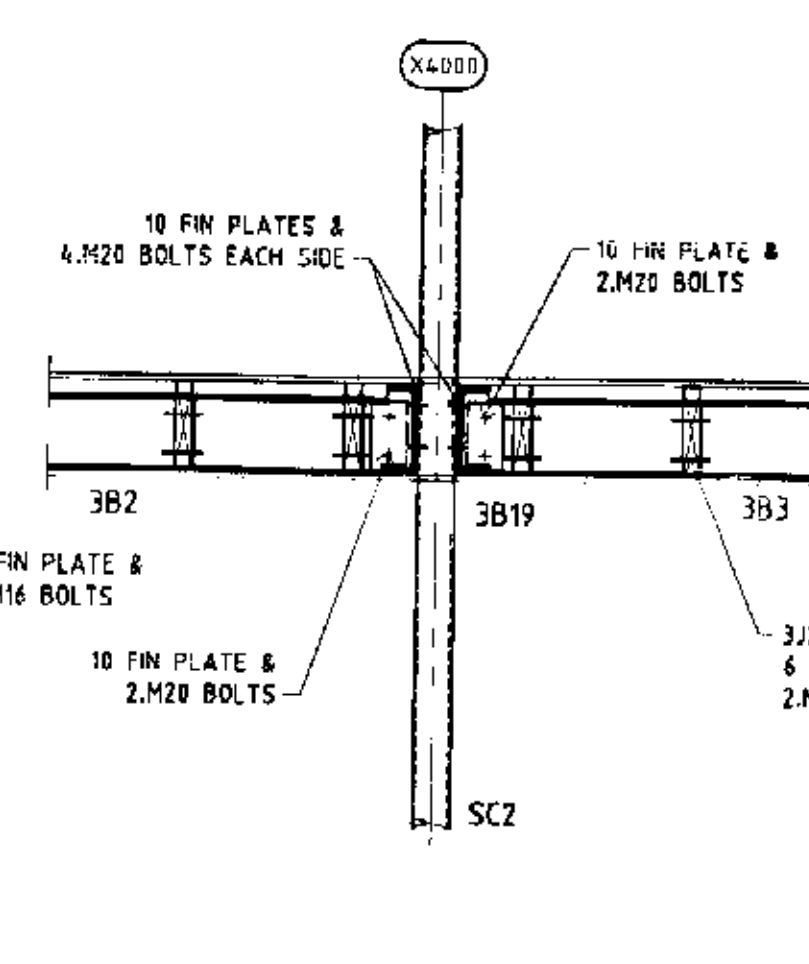
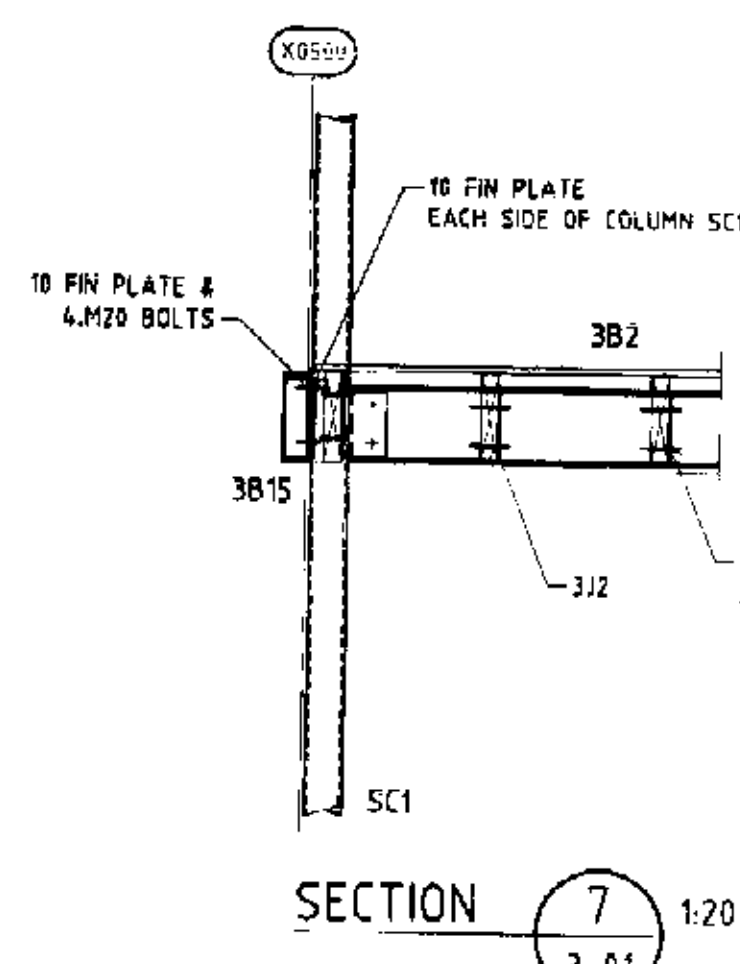
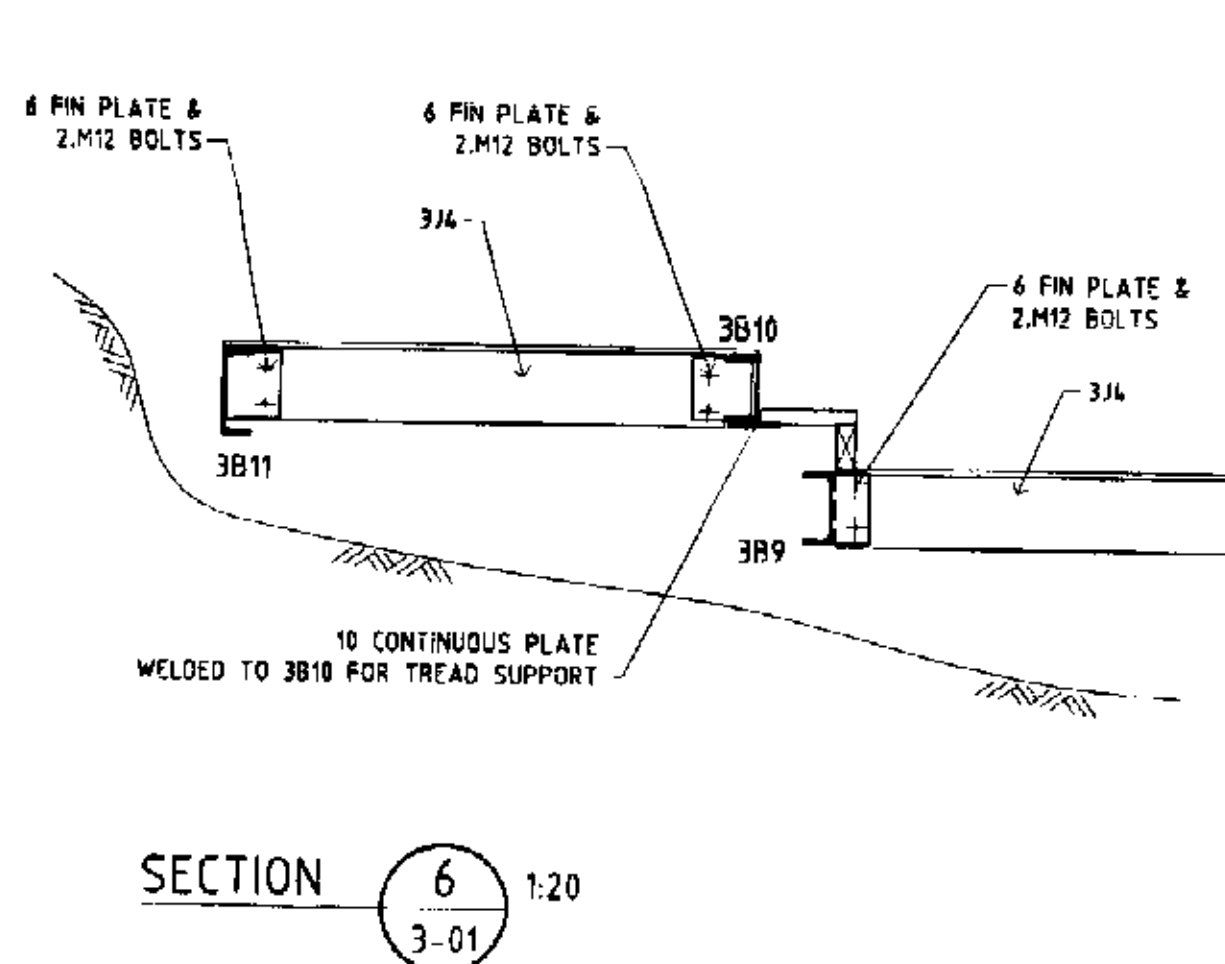
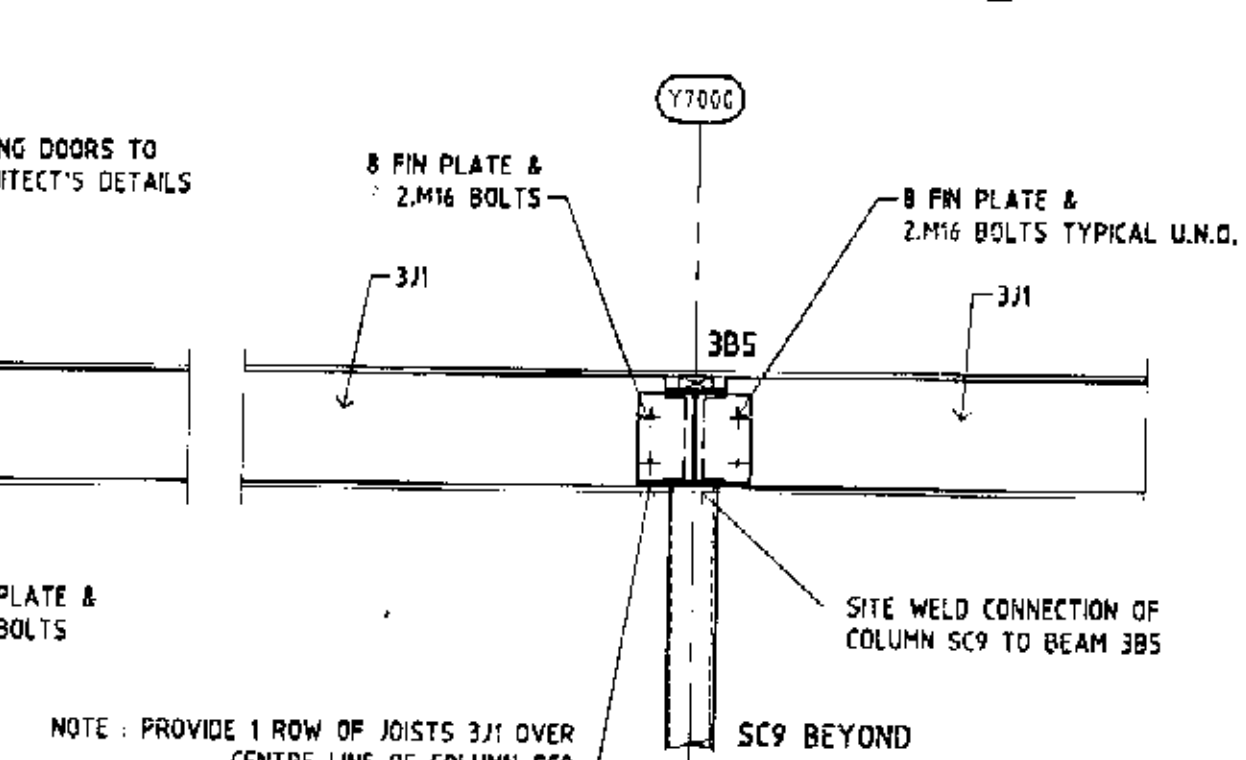
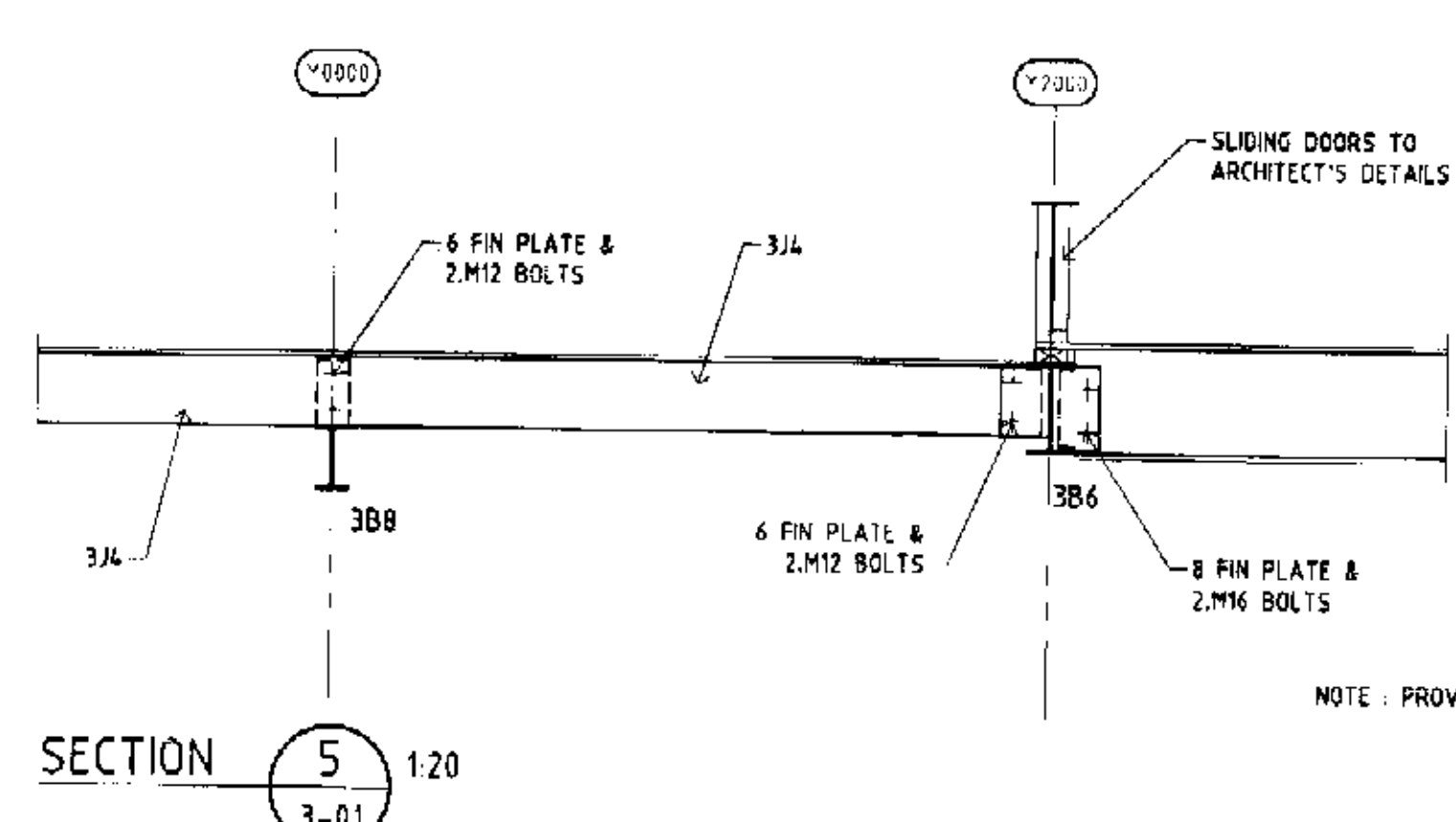
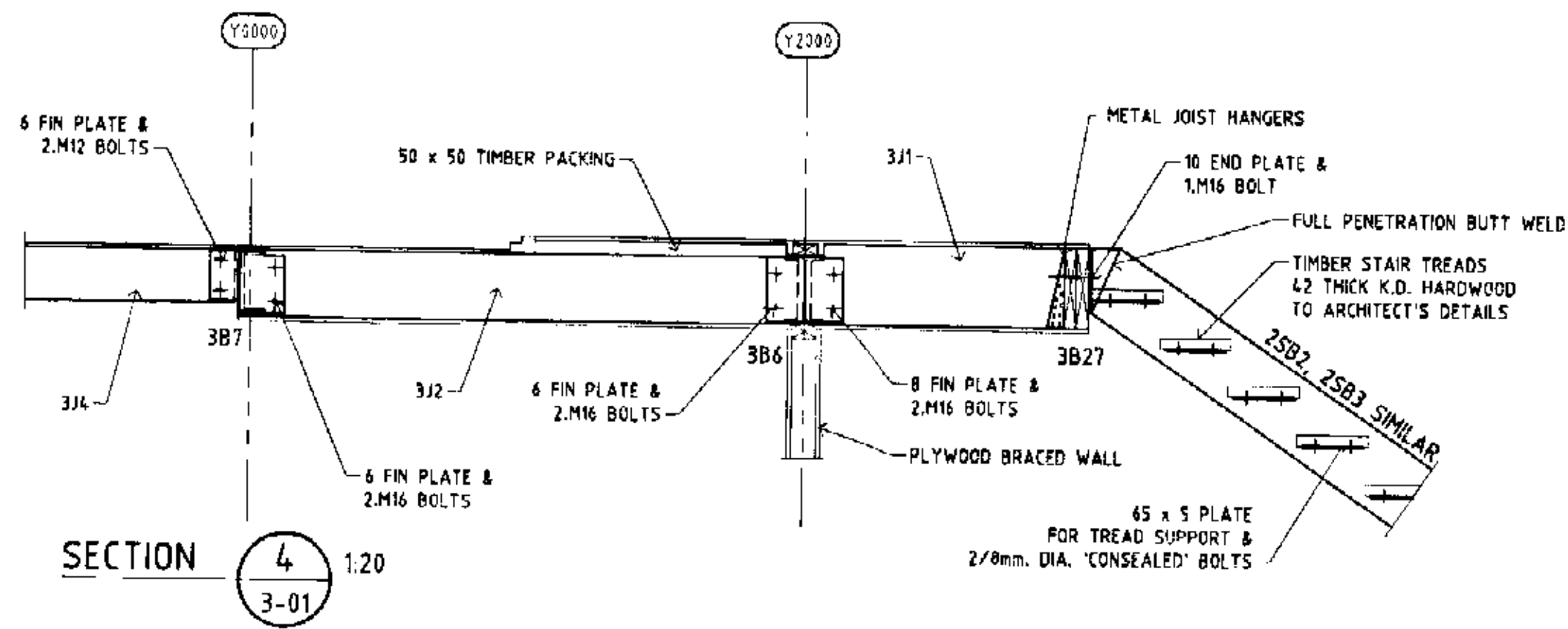
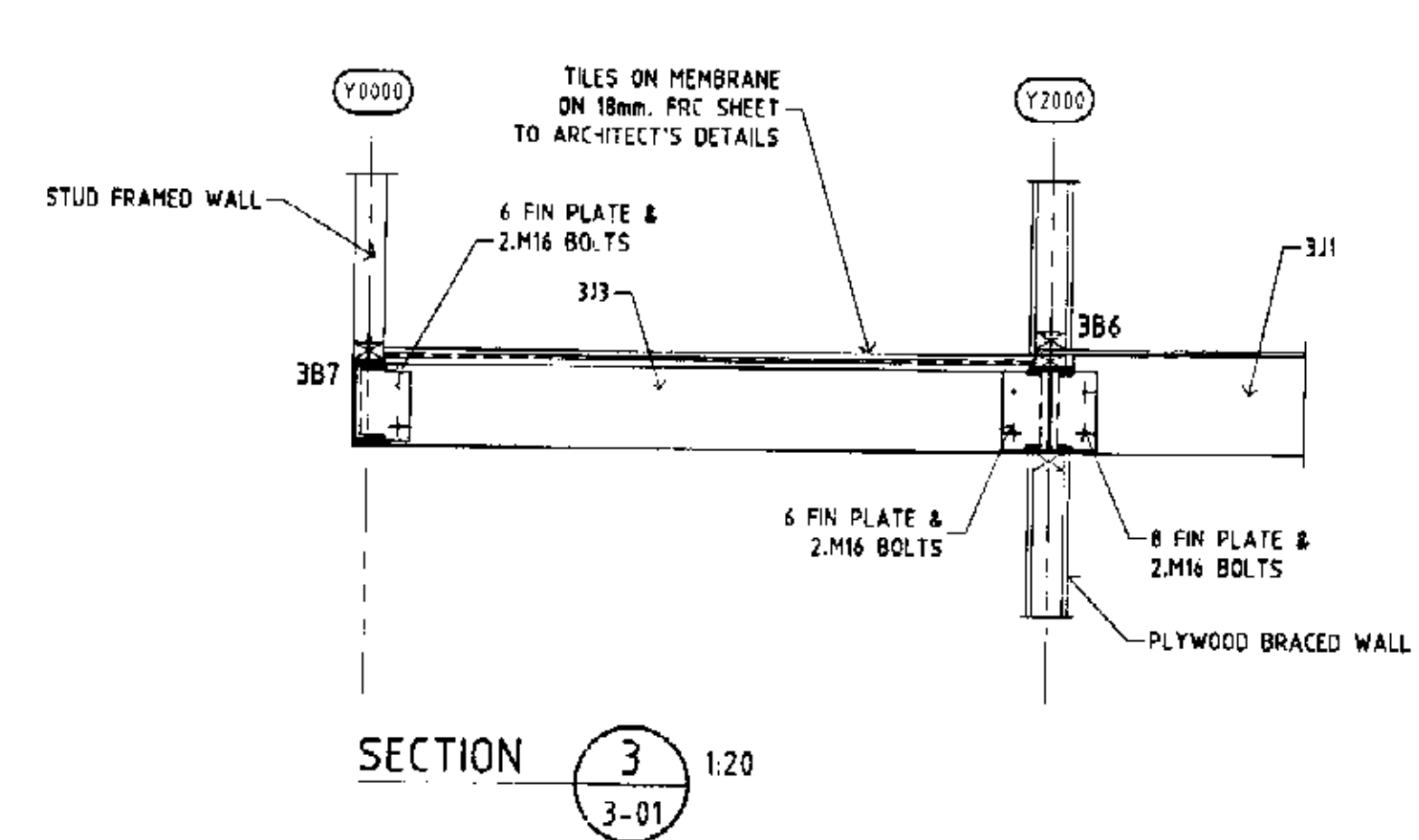
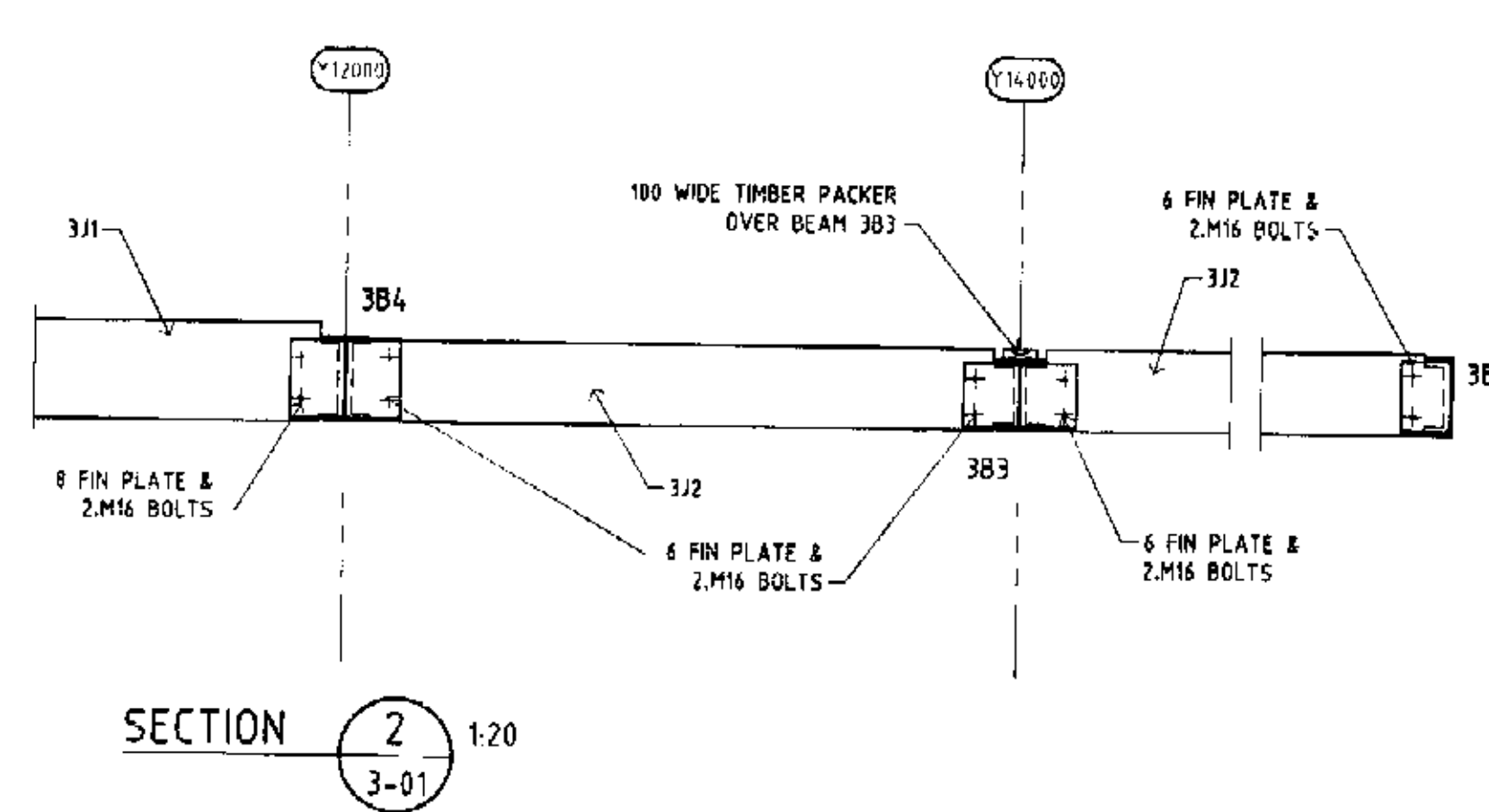
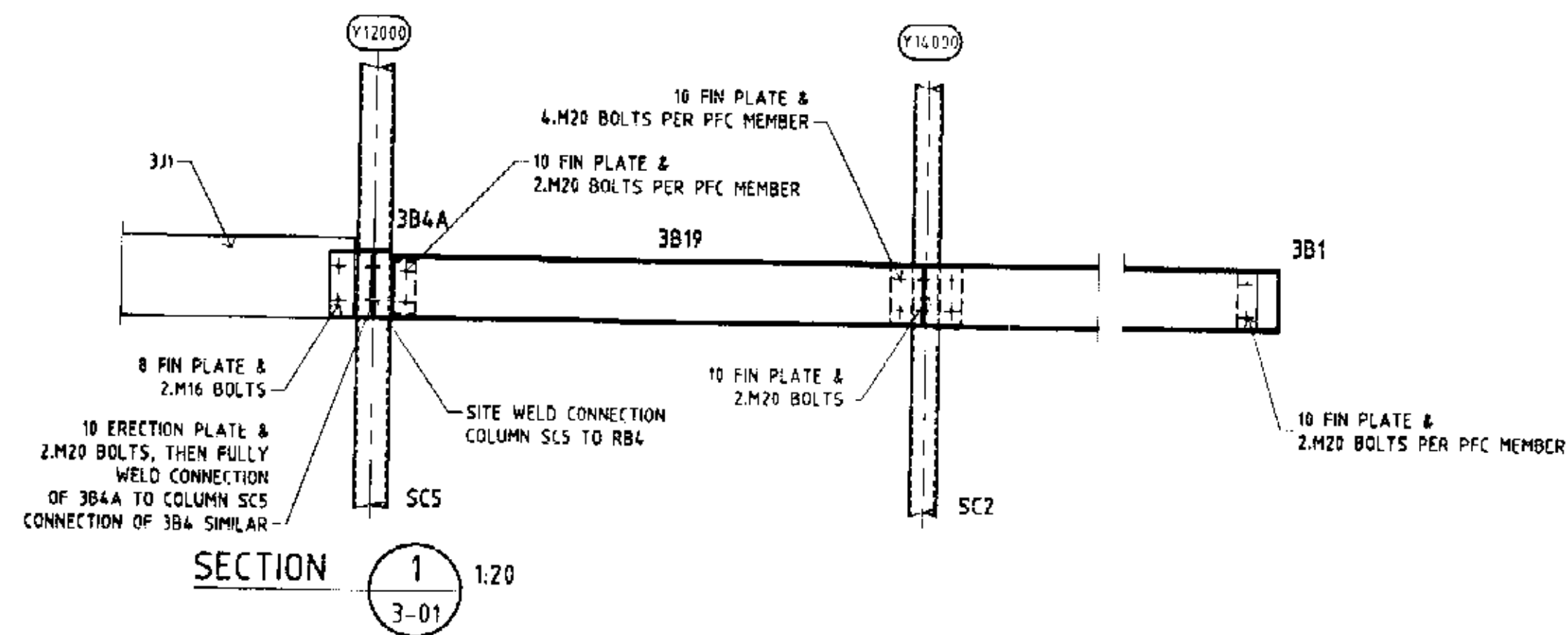
STRUCTURAL DRAWING

Designed A.D.A.	Drawn CHRIS. W.	Job No. S4443
Scale 1:100 U.N.O.	Date 20.06.04	Dwg. No. 3.01
File F:/dwg/000/004/004/004.dwg	Drawn by A.D.A.	Issue A
Title LEVEL 3 FRAMING PLAN & DETAILS		U.N.O. (Trans) M.E.-Aus. NPBR3 (Structural)

Project:
PROPOSED NEW RESIDENCE
137 RIVERVIEW ROAD
CLAREVILLE N.S.W.
FOR : MR & MRS R. & S. JONES

Architect
WARWICK WERNER ARCHITECT PTY. LTD.
 4 WANAWONG ROAD,
 CARLEBAY, N.S.W. 2107
 TEL: (02) 9918 5455 FAX: (02) 9918 5462

SUITE 2/153 VICTORIA ROAD
 GLADESVILLE NSW 2111
 AUSTRALIA
 PHONE (02) 9879 5577
 FAX (02) 9879 5588



PLAN OR DOCUMENT CERTIFICATION
I am a qualified Civil & Structural Engineer. I hold the following qualifications: M. Eng. Sc. (Civ. & Struct.) No. 140789. Further, I am appropriately qualified to certify the geotechnical component of this project.
I hereby state that the geotechnical content of these plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia and/or relevant Australian/industry standards.
Name: JACK HUGHSON Date: 31/05/04 Signature: [Signature]

PLAN OR DOCUMENT CERTIFICATION
STRUCTURAL ENGINEER
I am a qualified Structural Engineer. I hold the following qualifications or licence No.: NPFR3 (STRUCTURAL). Further, I am appropriately qualified to certify this component of the project.
I hereby state that these plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia and/or relevant Australian/industry standards.
Name: ANGELO D'AMBROSIO Date: 13/08/04 Signature: [Signature]
* Lic. Licensed Builder, Electrical Contractor, Engineer, Landscape Architect, Geotechnical Engineer, etc.

ISSUED FOR CONSTRUCTION CERTIFICATE
13.08.04
Architect: WARWICK WERNER ARCHITECT PTY. LTD.
4 WANAWONG ROAD, CAREEL BAY, N.S.W. 2107
TEL: (02) 9918 5455 FAX: (02) 9918 5462
Project: PROPOSED NEW RESIDENCE
137 RIVERVIEW ROAD CLAREVILLE N.S.W.
FOR: MR & MRS R. & S. JONES

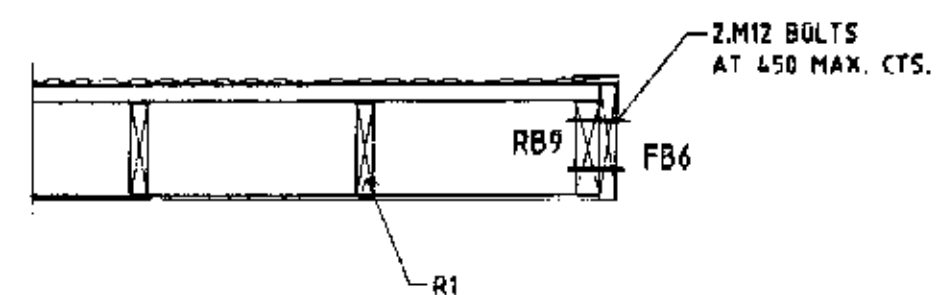
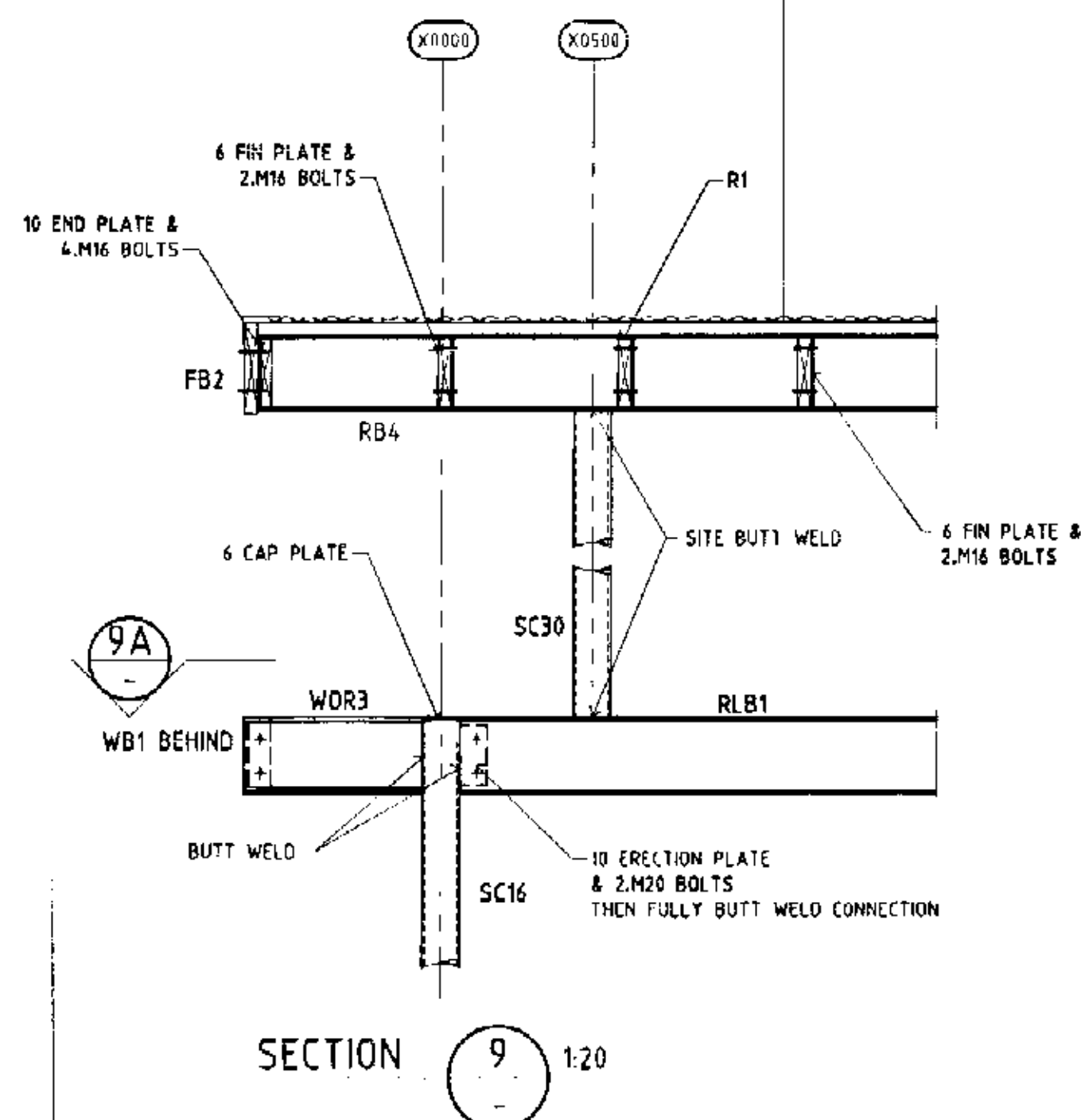
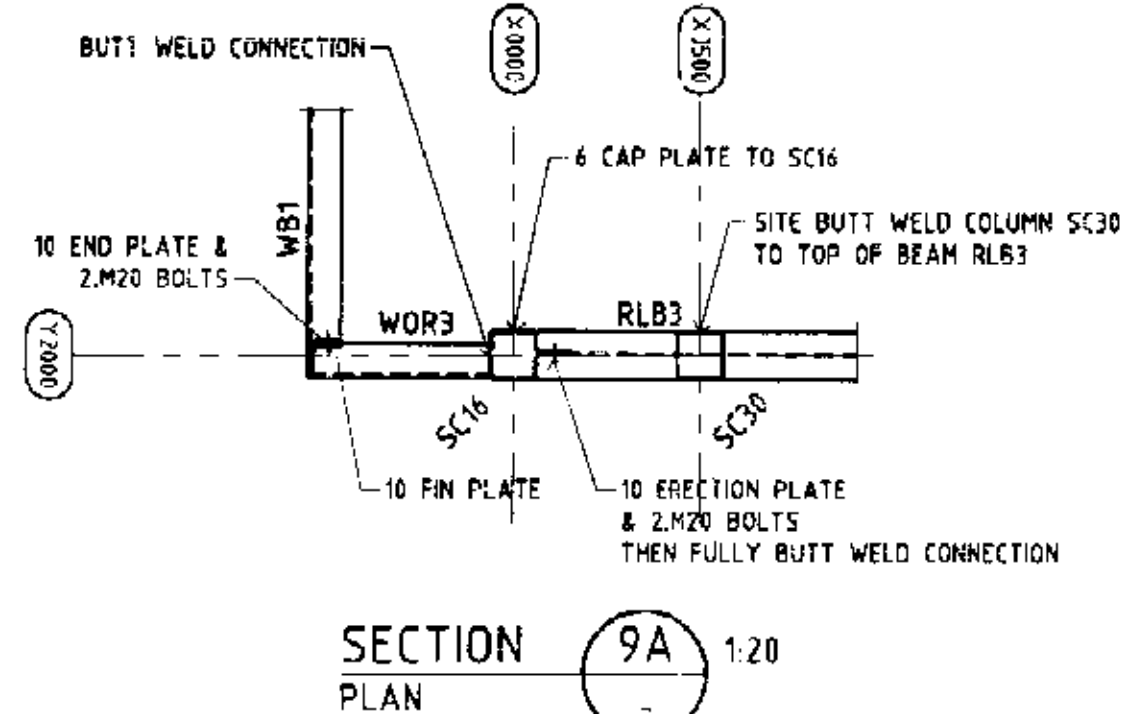
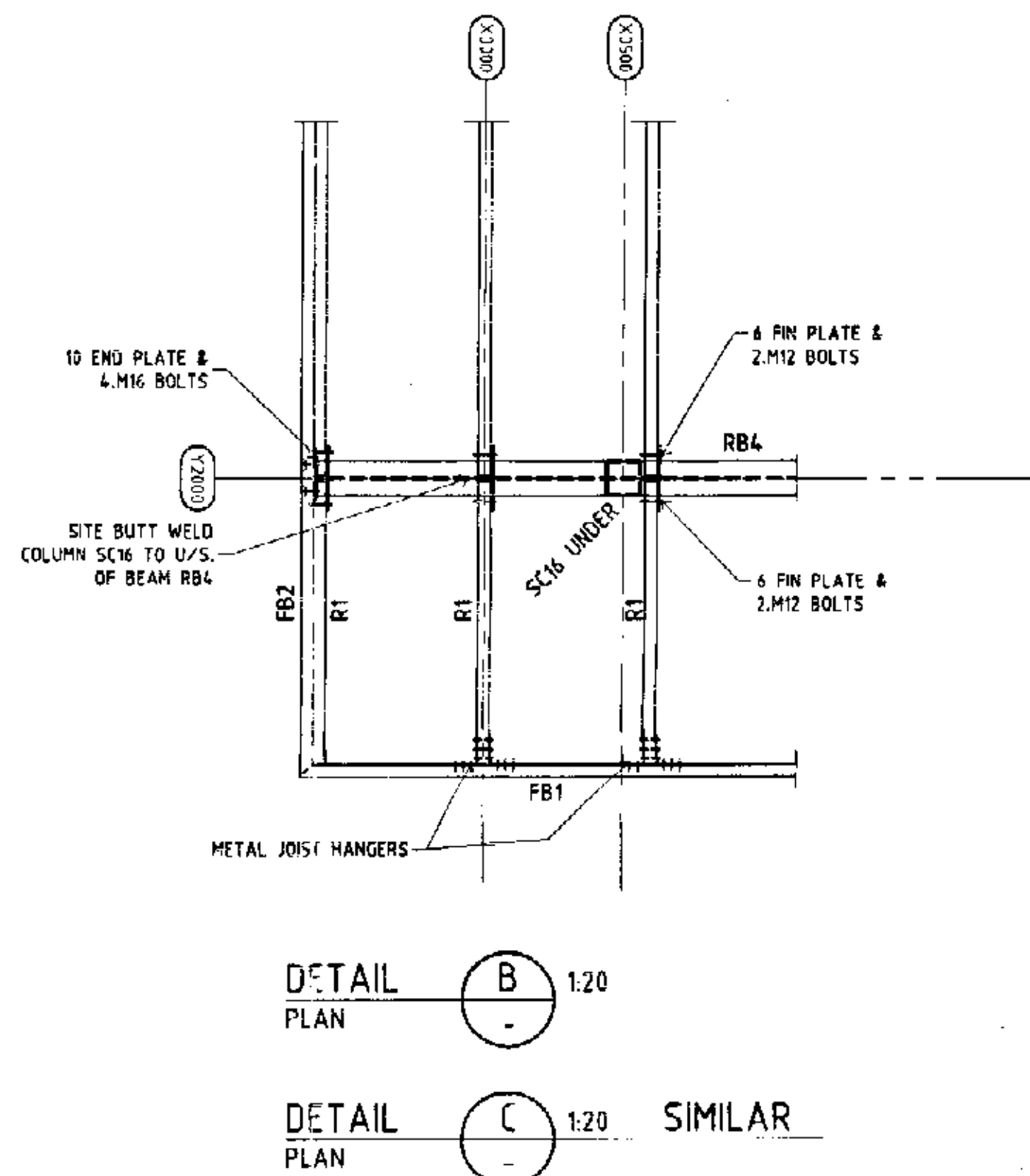
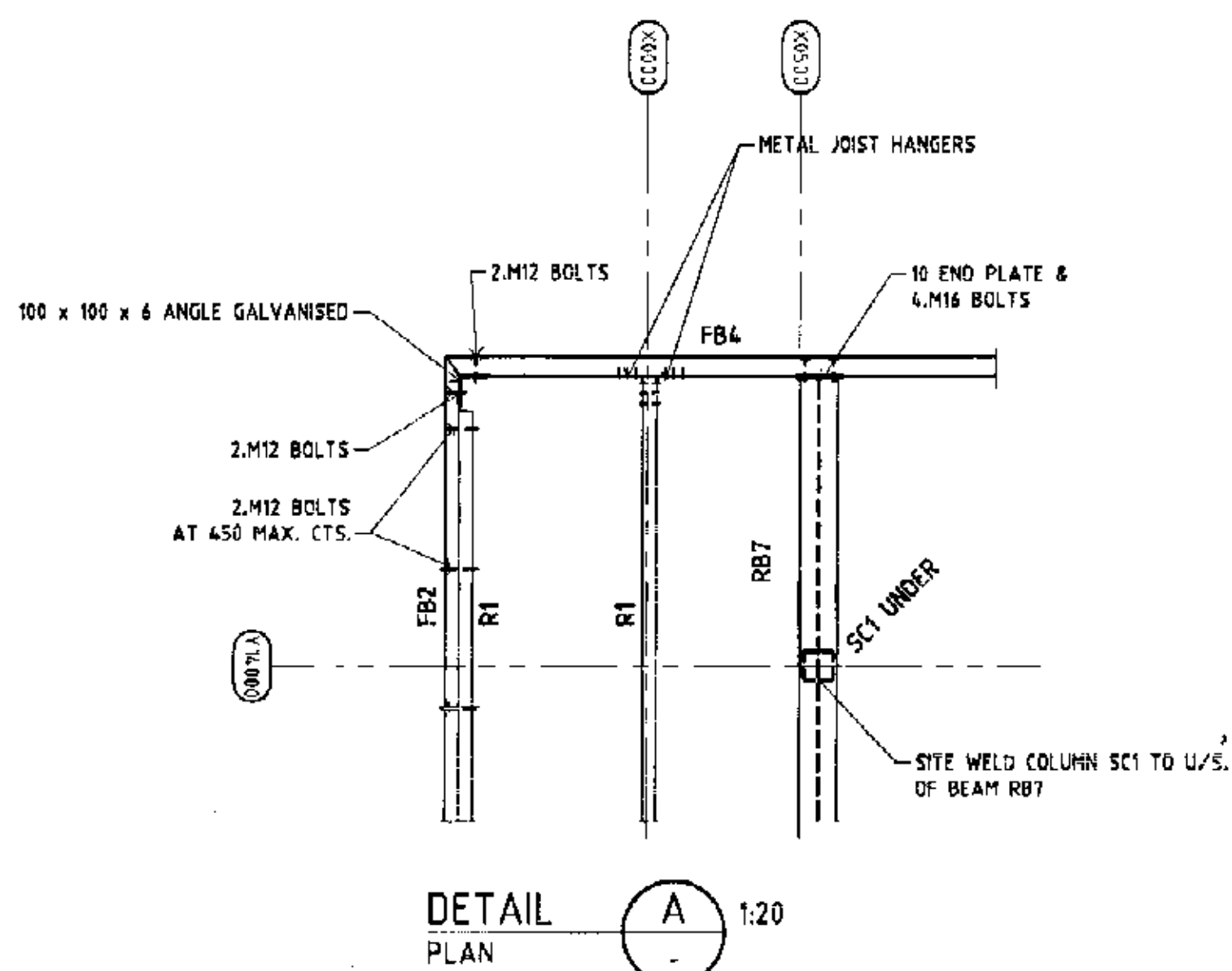
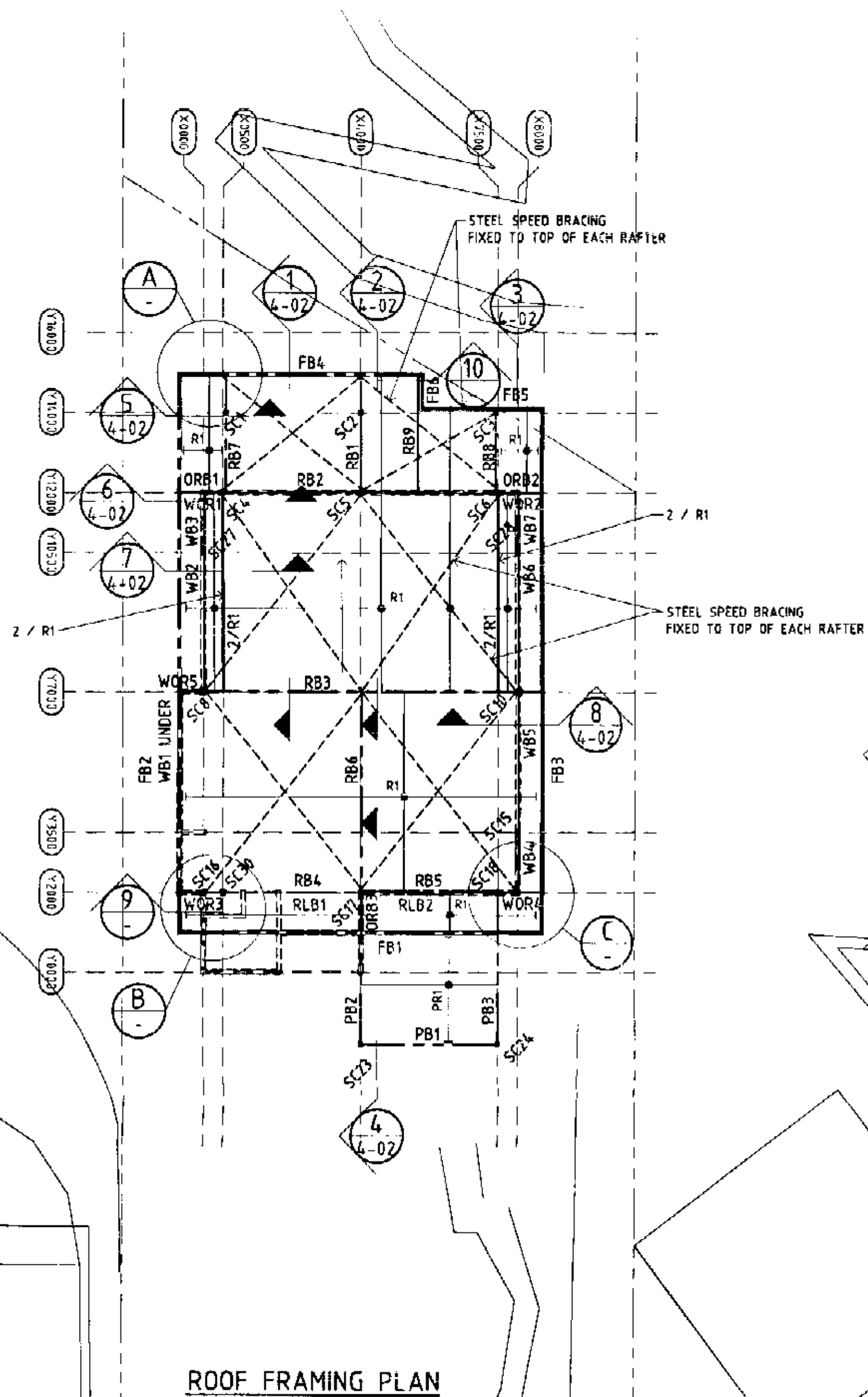
D'AMBROSIO CONSULTING
STRUCTURAL ENGINEERS
Title: LEVEL 3 FRAMING DETAILS
SHEET 1

STRUCTURAL DRAWING
Designed: A.D.A. Drawn: CHRIS. W. Job No: S4443
Scale: 1:20 U.N.O. Date: 20.06.04
F:\dwg\obj\54443\302.dwg
Certified: [Signature] B.E. (Hons) M.E. (Hons) NPFR3 (Structural)

REFER TO DWG. 1.01 FOR CONSTRUCTION NOTES

MEMBER	SCHEDULE	
SC1 TO SC29	REFER DRAWING 1.01 FOR DETAILS	STEEL COLUMNS
SC30	125 x 125 x 6.0 S.H.S.	STEEL COLUMN
RB1 & RB4 TO RB8	250 UB 26	STEEL BEAMS
RB2	250 UB 26	STEEL BEAM
RB3	250 UB 37	STEEL BEAM
RB9	240 x 63 (F16) H3 TREATED LVL	TIMBER BEAM
RLB1	250 UB 26	STEEL LINTEL BEAM
RLB2	250 PFC	STEEL LINTEL BEAM
PB1 TO PB3	250 PFC	STEEL PERGOLA BEAMS
FB1 TO FB3, FB6	300 x 45 (F16) LVL HYPAN 'H3' TREATED	TIMBER FASCIA BEAMS
FB4 & FB5	300 x 63 (F16) LVL HYPAN 'H3' TREATED	TIMBER FASCIA BEAMS
R1	240 x 45 (F7) AT 600 MAX. CTS.	TIMBER RAFTERS
PR1	190 x 45 (F7) TREATED PINE AT 600 MAX. CTS.	PERGOLA RAFTERS
ORB1, ORB2 & ORB3	250 UB 26	STEEL OUTRIGGER BEAMS
WOR1 TO WOR5	250 PFC	STEEL OUTRIGGER BEAMS
WB1 TO WB7	250 PFC	STEEL WINDOW BEAMS

ALL STEELWORK TO BE HOT DIP GALVANISED U.M.D.



PLAN OR DOCUMENT CERTIFICATION

I am a qualified Structural Engineer and I hold the following qualifications: M. Eng. Sc. (F. J. E. Aust. N. Par. 3 Civil & Structural No. 149788). Further, I am appropriately qualified to certify the geotechnical component of this project.

I hereby state that the geotechnical content of these plans or details comply with the provisions of development consent and the provisions of the Building Code of Australia and/or appropriate Australian industry standards.

JACK HODGSON

Name Date Signature

PLAN OR DOCUMENT CERTIFICATION

STRUCTURAL ENGINEER

I am a qualified Structural Engineer and I hold the following qualifications or licence no. NPERS (STRUCTURAL)

Further I am appropriately qualified to certify this component of the project.

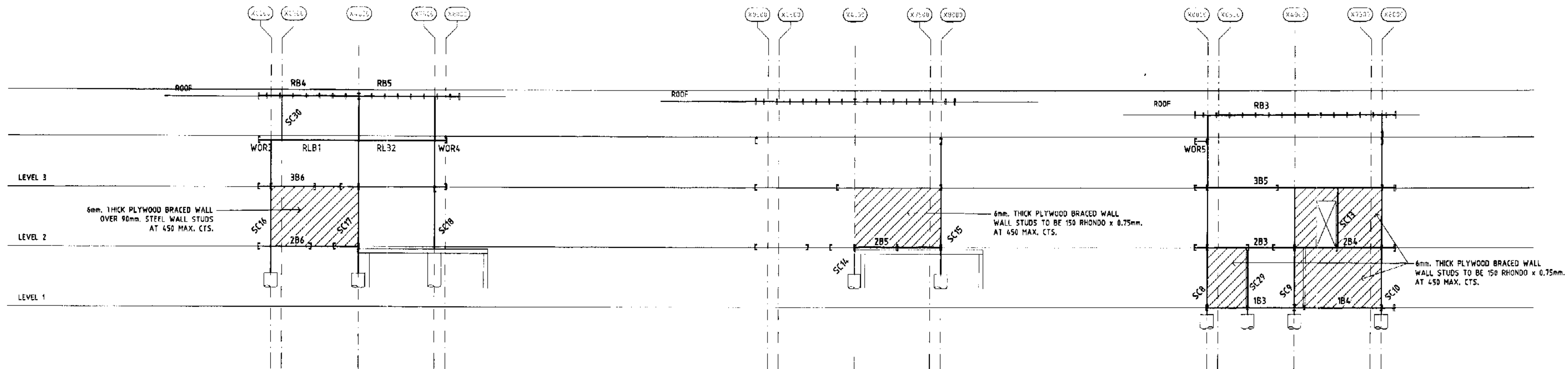
I hereby state that these plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia and/or relevant Australian industry standards.

ANGELO D'AMBROSIO

Name Date Signature

REFER TO DWG. 1.01 FOR CONSTRUCTION NOTES

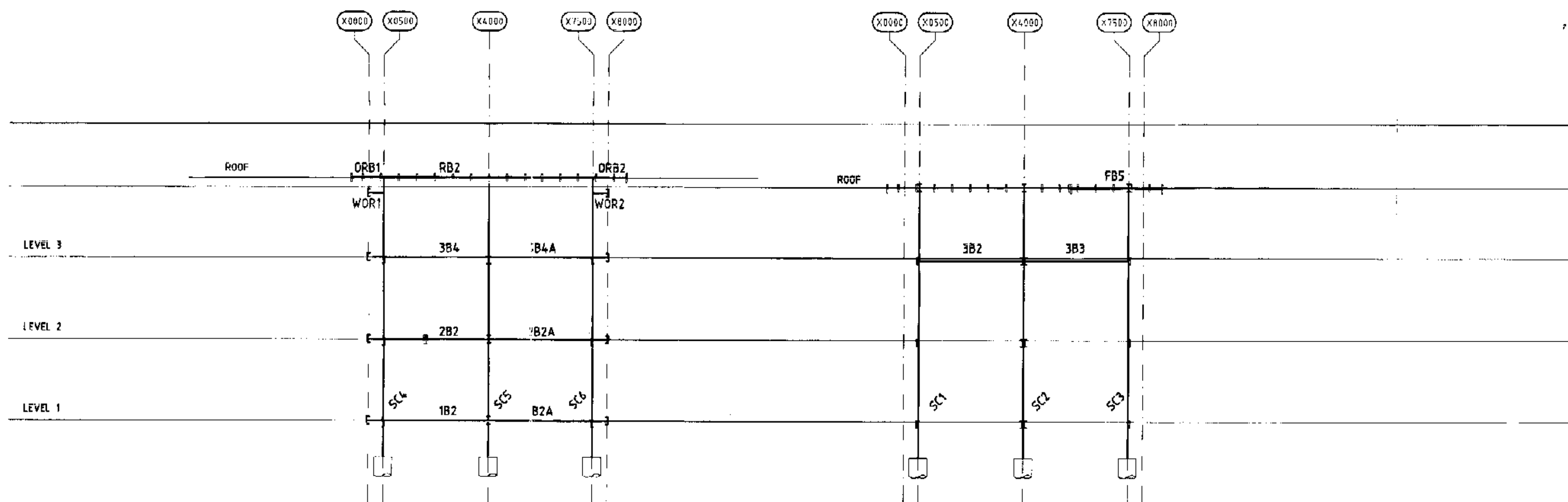
A ISSUED FOR CONSTRUCTION CERTIFICATE		13.08.24	14
ARCHITECT		WARWICK WERNER ARCHITECT PTY. LTD.	
4 WANAWONG ROAD			
CAREEL BAY, N.S.W. 2167			
TEL (02) 9910 5455 FAX: (02) 9910 5462			
Project		PROPOSED NEW RESIDENCE	
137 RIVERVIEW ROAD			
CLAREVILLE N.S.W.			
FOR: MR & MRS R. & S. JONES			
D'AMBROSIO CONSULTING		SUITE 4/153 VICTORIA ROAD	
		GLADESVILLE NSW 2111	
		AUSTRALIA	
		PHONE (02) 9879 5577	
		FAX (02) 9879 5588	
STRUCTURAL ENGINEERS			
Title:		ROOF FRAMING PLAN	
		& DETAILS	
STRUCTURAL DRAWING			
Drawn by:	CHRIS. W.	Rev No:	S4443
Scale:	1:100 J.N.O.	Date:	20.06.04
File No:	P:\dwg\jones\5443\401.dwg	Drawn by:	4.01
Checked by:		Issue:	A
		R.F. 1:1000 MILE-AUST.	
		NPERS (Structural)	



ELEVATION GRID Y2000

ELEVATION GRID Y3500

ELEVATION GRID Y7000



ELEVATION GRID Y12000

ELEVATION GRID Y14000

PLAN OR DOCUMENT CERTIFICATION
I am a qualified Civil & Structural Engineer. I hold the following qualifications: M. Eng. (Civ. & Str.) Aust. N. P. & S. Civil & Structural No. 140766. Further, I am appropriately qualified to certify the general technical component of the project.
I hereby state that the geotechnical content of these plans or details comply with the conditions of development consent and the provisions of the Building Code of Australia and/or appropriate Australian and international standards.
JACK HODGSON
Name Title Signature

PLAN OR DOCUMENT CERTIFICATION
I am a qualified
STRUCTURAL ENGINEER
I hold the following qualifications or licence No. NPER3 (STRUCTURAL)
Further I am appropriately qualified to certify this component of the project.
I hereby state that these plans or details comply with the conditions of development consent, the provisions of the Building Code of Australia and/or relevant Australian/industry standards.
ANGELO D'AMBROSIO
Name Title Signature
e.g. Licensed Builder, Electrical Contractor, Engineer, Landscape Architect, Geotechnical Engineer, etc

REFER TO DWG. 1.01 FOR CONSTRUCTION NOTES

A	ISSUED FOR CONSTRUCTION CERTIFICATE	13.08.04	1/1
ISSUE/AMENDMENT	DATE		

Architect
WARWICK WERNER ARCHITECT PTY. LTD.
4 WANAWONG ROAD,
CAREEL BAY, N.S.W. 2107
TEL: (02) 9918 5455 FAX: (02) 9918 5462

Project:
PROPOSED NEW RESIDENCE
137 RIVERVIEW ROAD
CLAREVILLE N.S.W.
FOR : MR & MRS R. & S. JONES

D'AMBROSIO CONSULTING
SUITE 4/53 VICTORIA ROAD
GLADESVILLE NSW 2111
AUSTRALIA
PHONE (02) 9879 5577
FAX (02) 9879 5588

STRUCTURAL ENGINEERS
Title:
FRAMING ELEVATIONS

STRUCTURAL DRAWING

Drawn by A.D.A.	Drawn by CHRIS. W.	Job No. S4443
Scale 1:100 J.N.O.	Date 20.06.04	Dwg. No. 5.01
File F:\dwg\obj\54443\001.dwg	Issue A	
Checked by A.D.A.	B.E. (Permit) NPER3 (Structural)	