COUNCIL COPY

HOLMES ACCREDITED CERTIFIERS PTY LTD

A.B.N. 54 314 450 826
2 Clay Place, Eagle Vale NSW 2558
Phone: 0459 329 339
A2 – Accredited Certifier – Building Surveying Grade 2

CONSTRUCTION CERTIFICATE

This certificate is issued by a Private Certifying Authority 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.

CERTIFICATE NUMBER: **CC 11/015**

COUNCIL AREA: **Pittwater Council**

APPLICANT

Name: Mrs Pamela Fahey
Address: 12 Ocean Road, Palm Beach
Contact Number: 0417 438 701

OWNER

Name: Mrs Pamela Fahey
Address: 12 Ocean Road, Palm Beach
Contact Number: 0417 438 701

SUBJECT LAND

Address: Lot No.: 1 DP No.: 121833

13A Ocean Road, Palm Beach

DESCRIPTION OF DEVELOPMENT

Type of Work ■ Building Work ☐ Subdivision Work

Description: Alterations and additions to existing dwelling

RECEIVED
-5 OCT 2011
PITTWATER COUNCIL

$36 Rec 310674 5/10/11

COUNCIL DEVELOPMENT CONSENT

Development Consent Number: N0567/10

Date of Determination: 25 August 2011

BUILDING CLASSIFICATION

BCA Class: 1a

BUILDER or OWNER/BUILDER

Name: Pamela Fahey PH: 0417 438 701
Address: 13A Ocean Road, Palm Beach NSW 2108
Owner Builder Permit Number: 388055P

VALUE OF WORK

Building/Subdivision: $ 100,000.00

DATE C.C. APPLICATION RECEIVED

Date Received: 5 September 2011

DETERMINATION

Decision: Approved

Date of Decision: 30 September 2011

PLANS AND SPECIFICATIONS APPROVED

- **Architectural plans by Smith & Tzannes - Job No. 09_154 – Dwg No. A001, A012, A012, A012, A100, A101, A102, A200, A201, A202, A300, A301 Issue E and A301/A301-DA Issue A dated 9/9/11**
- **General Building Specifications**

IMPORTANT NOTE:

It is the applicant's responsibility to ensure the mandatory PCA site sign supplied herewith, is prominently displayed at this building site throughout the entire construction period.

ATTACHMENTS

- Application forms.
- Notice of commencement of building works and notice of intention to appoint PCA.
- Record of Pre-commencement inspection dated 5/9/11.
- Structural engineers plans by TALL Consulting Structural Engineers Dwg No. S01-S05 Issue A, S07 Issue A, S10 Issue A, S11 Issue A, S13 Issue A – undated.
- Structural design certificate by TALL Consulting Structural Engineers Ref No. 2001/091045 dated 6/9/11.
- Hydraulic stormwater plans by MPI Group Australia Pty Ltd Job No. 09_154 Dwg No. A501-DA Rev E dated 9/9/11.
- Stormwater design certificate by MPI group Australia Pty Ltd dated 9/9/11.
- Geotechnical report by Geotechnique Pty Ltd Job No. 12312/1 dated 10/8/10.
- Coastal protection report by AJK Design Pty Ltd – Consuilting Engineers Dated 23/8/10.
- Form 2 of Geotechnical Risk Management Policy for Pittwater by Geotechnique Pty Ltd Dated 5/9/11.
- Sydney Water stamped plans dated 26/8/11.
- Receipt for payment of LSL dated 29/9/11.
- Letter by Smith & Tzanes confirming compliance with DA conditions Dated 14/9/11.
- External finishes schedule.
- BASIX certificate number A113386 dated 23/5/11.
- Landscaping plan by Smith & Tzannes Job No. 09_154 Dwg No. A500-DA Rev E Dated 9/9/11.
- Site management plan by Smith & Tzannes Job No. 09_154 Dwg No. A900-DA Rev E Dated 9/9/11.
- Letter of confirmation by Pamela Fahey for compliance with DA condition B17 Dated 28/9/11.
- Letter of confirmation by Pamela Fahey for compliance with DA condition C4a, C4b, C4d and D1 Dated 28/9/11.
- Owner Builders Permit by NSW Fair Trading Permit number 388055P issued 2/9/11.

RIGHT OR APPEAL

under S109K where the certifying authority is a council an applicant may appeal to the Land and Environment Court against the refusal to issue a Construction Certificate or imposition of conditions of the consent within 12 months from the date of the decision.

ACCREDITATION BODY

BUILDING PROFESSIONALS BOARD
10 Valentine Street, Parramatta NSW 2150

CERTIFICATION

Certificate Final

I certify that the work completed in accordance with these plans and specifications (with such modifications verified by the Certifying Authority as shown on that documentation) will comply with the requirements of the environmental Planning and Assessment Regulation 2000 as referred to in Section 81A(5) of the Environmental Planning and Assessment Act 1979.

CERTIFYING AUTHORITY

Name of Certifying Authority: HOLMES ACCREDITED CERTIFIERS PTY LTD

Name of Accredited Certifier: Bradley Holmes

Accreditation Number: BPB 0184

Contact Number: 0459 329 339

Address: 2 Clay Place, Eagle Vale NSW 2558

SIGNED: _____

RECEIVED

5 SEP 2011

HOLMES ACCREDITED CERTIFIERS PTY LTD

2 CLAY PLACE EAGLE VALE NSW 2558

Phone 0459 329 339

Email: holmesaccreditedcertifiers@gmail.com

Bradley Holmes – A2 Accredited Certifier - Building Surveying Grade 2

NOTICE OF INTENTION TO COMMENCE BUILDING WORK
NOTICE OF INTENTION TO APPOINT PRINCIPAL CERTIFIYING AUTHORITY

CHECKLIST

- Please complete all fields in all sections – incomplete forms will not be accepted.
- The Authority to appoint the PCA and sign the Declaration below cannot be the Builder or Architect, unless they are also the property owner. Only the persons or company having the benefit of the Development Consent can appoint the PCA.
- An original copy of the Home Owner Warranty Insurance Certificate or Owner Builder Permit must be submitted to the PCA prior to the issue/release of any CC/CDC.
- This form will not be submitted to council to notify of your elected PCA or to advise of works commencing until the requirements of the Home Building Act 1989 have been satisfied and must be provided **prior to commencing any building work**. Failure to do so will result in a refusal to accept the appointment of PCA.

PARTICULARS

APPLICANT/OWNER: Full name of person/s having the benefit of the development consent	**1.** PAMELA DAINEY
	2.
MAILING ADDRESS:	P.O. BOX 7225
	BONDI BEACH **Postcode:** 2026
CONTACT DETAILS:	**Tel:** 0411157354 **Fax.** 93856722
	Mob: 0411703870
	Email: w.investments@bigpond.com
ADDRESS OF PROPSED WORKS:	13A Ocean Road
	Palm Beach **Postcode:** 2108
DETAILS OF PROPOSED WORKS:	Alterations and Additions
	to existing Dwelling 13A Ocean Rd. Palm Beach.
COST OF BUILDING WORKS:	$ 100,000.00
DATE TO COMMENCE WORK: dd/mm/yy	5/10/11
DA or CDC APPROVAL No:	DA NO567/10

DA or CDC APPROVAL DATE:	25/8/11
~~BUILDER OR~~ OWNER BUILDER DETAILS:	**Name:** Pamela Fahey **Address:** 134 Ocean Rd Palm Beach **Phone:** **Mob:** 0417031701 **Fax:** 93656722 **Email:** pamelafahey@bigpond.com
BUILDERS LICENCE or O/B PERMIT No:	OB/338055P
CONSTRUCTION CERTIFICATE NO: (If applicable)	CC11/015

PCA SERVICE AGGREEMENT

Engagement
The engagement of the PCA will not commence until the nominated PCA has advised of the appointment to the Applicant and the Local Council, in writing. The PCA (Holmes Accredited Certifiers Pty Ltd) will not accept any responsibility for any damage, loss or delay suffered by the Owner/Applicant/Builder or their agent as a result of omissions or errors contained within this form, or failure to provide information requested in the Checklist and on this form.

Scope
The scope of works covered under this appointment is restricted to those building works as described in the "PARTICULARS" section of the form. Any new or additional works may require further approval of the consent authority.

Terms and Conditions

1. All information provided by the person/s nominated on this form will be taken to be accurate and correct. The PCA does not accept any responsibility for any intentional or unintentional error or omission made by any person/s on this form.
2. Where building works have commenced prior to the acceptance of appointment of PCA and/or notification of commencement to council, without the knowledge of the intended PCA the appointment may be invalid, and acceptance of the appointment will be withdrawn.
3. The person/s nominated on this form are obliged to keep the PCA informed of any changes to the details of Principal Contractor (builder) and any relevant insurances required by the builder. Failure to meet this obligation will result in the PCA being indemnified against any losses or suffering as a result of non compliance with any legislative requirements.
4. The person/s nominated on this form are responsible for ensuring that a copy of the Home Owner Warranty Insurance or Owner Builder Permit is submitted to the PCA prior to the commencement of building works. The acceptance of the appointment will not occur until this requirement has been met.
5. It is the responsibility of firstly; the builder and then other person/s nominated on this form to ensure that critical stage inspections are booked in and carried out as required by the legislation. The critical stage inspections required for this job are noted below.

6. Inspections are required to be booked in at least 24 hours prior to being required. Inspections will only be carried out during normal business hours. In case of an emergency a "**double**" rate will apply.

7. The PCA will not accept any responsibility for any damages, compensation, loss or costs associated for the inability to issue any Occupation Certificate due to, but not limited to, the following: non compliance with a development consent condition; unsatisfactory final inspection; non compliance with BASIX commitments; missed critical stage inspections; non compliance with approved building plans or failure to pay the required fees as quoted and as referenced in these terms and conditions.

Fees

Fees for PCA Services are due and payable (in full) prior to the first inspection being carried out or by prior arrangement. Failure to pay the quoted PCA fee will generally result in a refusal to accept the appointment of PCA. Should an appointment be accepted and payment not be honoured, the Applicant or Owner will be ultimately liable for unpaid fees, regardless of whether the fee was paid to a third party. Any associated debt recovery costs plus interest incurred from the time of the appointment will be the liability of the Applicant and/or Owner. It is noted that the PCA reserves its right to suspend the services provided to the persons nominated on this form or the builder, where fees have not been paid, within the provisions of the Building and Construction Industry Security of Payment Act 1999.

DECLARATIONS

I/We the aforementioned persons, described as the Applicant/Owner in the PARTICULARS section hereby do solemnly declare the following. That:

- I/We "have the benefit of the Development Consent or Complying Development Certificate" within the meaning under EP&A Act 1979 for the proposed works as indicated on this form and therefore can consent to the appointment of the PCA.
- I/We, to the best of my/our knowledge, have completed all details in the PARTICULARS section correctly & as accurately as possible and hereby indemnify the nominated PCA and Holmes Accredited Certifiers Pty Ltd against any damages, losses or suffering as a result of incorrect information, errors or omissions provided under that section.
- I/We have read, understood and hereby accept the terms and conditions outlined within the PCA Service Agreement on this form.
- I/We understand that the Appointment of the PCA is not recognized as to have been accepted until a copy of this form has been signed by the nominated PCA and submitted to the Applicant and Council.
- I/We understand that the Commencement of Building Work cannot be any earlier than two (2) business days after Council has been notified in writing of the commencement of work and of the nominated PCA. I/We declare that no building works will commence until after such date.
- I/We authorise the right of entry for any certifying authority engaged by Holmes Accredited Certifiers Pty Ltd to carry out inspections required by the PCA under this agreement.
- I/We understand the appointment of PCA and Notice of Commencement will not be accepted until documentation of required H.O.W. insurances or owner builder permit is submitted in accordance with the requirements of the Home Building Act 1989.
- I/We understand that it is my/our responsibility to ensure that sufficient notice is given to the PCA, in writing, to carry out critical stage inspections or make arrangements with the builder to carry out this function on my/our behalf as a condition of the Building Contract.
- I/We declare that the PCA will be notified immediately of any change to the licensed builder for the nominated works and ensure any mandatory insurances required by the incoming builder are in accordance with legislation & the Home Building Act 1989.

AUTHORITY TO APPOINT THE 'PCA'

Signature of person/s who are entitled to appoint the 'PCA' (Person/s who have the benefit of the development consent ie. Land owner or tenant)	X X
Full Name:	REBECCA R FARRELL
Dated: (dd/mm/yy)	05/09/2011

PCA ACCEPTANCE

Principal Certifying Authority:	Bradley Holmes
Accreditation Number:	BPB 0184
Accreditation Body:	Building Professionals Board 10 Valentine Street Parramatta NSW 2150
Address:	2 Clay Place, Eagle Vale NSW 2558
Phone Number:	0459 329 339

PCA STATEMENT

I, Bradley Holmes of Holmes Accredited Certifiers Pty Ltd, hereby accept the appointment of Principal Certifying Authority (PCA) within the Terms and Conditions as indicated in this PCA Service Agreement, effective no earlier than the "Acceptance Date" shown below.
I, the appointed Principal Certifying Authority, am of the opinion that all conditions of the consent that are required to be satisfied prior to the work commencing have been satisfied.

PCA SIGNATURE

Signature of PCA	X
Appointment Acceptance Date	30/9/11

NOTICE OF CRITICAL STAGE INSPECTIONS

Building Classification as per BCA: Class 1a

- ☑ Pre Commencement
- ☑ Commencement
- ☑ Footings
- ☑ Piers
- ☑ Slab
- ☑ Stormwater
- ☑ Frame
- ☐ Fire Safety/Acoustics
- ☑ Wet areas
- ☐ Pool Fence
- ☑ Final
- ☐ Other _____
- ☐ Other _____

IMPORTANT INFORMATION FOR THE APPLICANT

The following information is a guide only and is aimed at clarifying the role of the PCA and the requirements under the Legislation surrounding the appointment of a PCA.

1. Only the "person having benefit of a development consent involving building work" can appoint the PCA. This is generally the Land Owner. The Builder is prohibited from appointing the PCA unless the builder is also the owner of the land.

2. A PCA must be appointed, accepted and notified to Council no later than 2 days prior to the commencement of building works. Failure to do so may deem the proposed building works as being unauthorised.

3. Only one PCA is permitted per Development Consent.

4. An Occupation Certificate can only be issued by the appointed PCA.

5. Once a PCA is appointed a transfer of PCA to another person is only possible upon application to the Building Professionals Board (BPB) with payment of the prescribed fee.

6. All "critical stage inspections" as notified in this document are required to be carried out to enable the issue of an Occupation Certificate.

7. The appointment of PCA will not be effective until the PCA is in receipt of all the required documentation and the form is received by Council.

8. Please note that additional inspection fees and charges may apply for additional inspections outside the scope of works covered under your Building Contract and for additional or Interim Occupation Certificates.

Note: The PCA will be entitled to suspend his/her services under the Building and Construction Industry Security of Payment Act 1999 where payment of fees is not received.

RECEIVED

Date of Receipt: [Office Use Only] 5 SEP 2011 Reference no: CC11/015

HOLMES ACCREDITED CERTIFIERS

HOLMES ACCREDITED CERTIFIERS PTY LTD

2 CLAY PLACE EAGLE VALE NSW 2558
Phone – 0459 329 339
Bradley Holmes – A2 Accredited Certifier - Building Surveying Grade 2

APPLICATION FORM

☑ CONSTRUCTION CERTIFICATE (Clause 139, Part 8, Division 2 of the Environmental Planning and Assessment Regulation 2000)
☐ COMPLYING DEVELOPMENT CERTIFICATE (Clause 126, Part 7, Division 1 of the Environmental Planning and Assessment Regulation 2000)
☑ OCCUPATION CERTIFICATE (Clause 149, Division 3 of the Environmental Planning and Assessment Regulation 2000)

Property Details

Lot No: 1 Street No: 13A DP NO: 121833
Street & Suburb Ocean Road Palm Beach Post code: 2108

Owner/s Detail & Consent (all owners must sign)

Mr Mrs Ms Surname: Fahey First Name: Pamela
Full Address: 12 Ocean Road
Phone Home: Fax: 93056722 Mobile: 0417 438 701

Builder or Owner Builder Details

Builders Name Pamela Fahey
Full Address PO Box 7225 BONDI BEACH NSW 2026
Builders Licence Number Owner Builders Permit Number 388055P
Phone: Fax: 93656722 Mobile: 0417438701

Building Approval Details

Proposed Building Works: Renovation of existing timber cottage.
(Description of works to be carried out)
Number of Storey's: 2 Number of Structures: 1
Cost of Building Works: $100,000.00 Your Reference:
Building Classification (BCA): 1a

Council Approval Details (If applicable)

Council Development Consent Number: NO 567/10
Date of Determination: 25/03/11
Council Area: Pittwater Council

Checklist

Complete and sign this application form – Only originals can be accepted. Legislation prohibits faxed copies from being accepted.

- ☑ Signed copy of the acceptance of the quotation.
- ☐ 1 x copy of Council stamped DA approved plans.
- ☐ 1 x copy of signed Council Development Consent.
- ☐ 1 x copy of BASIX Certificate, ABSA Certificate and ABSA stamped plans if you were required to provide one with your DA lodgement.
- ☐ 3 x copies of architectural (CC) plans with any amendments to satisfy any DA conditions, including where required showing required BASIX and ABSA commitments.
- ☐ 3 x copies of Building Specifications.
- ☐ Proof of payment of Long Service Levy if value of works exceeds $25,000.
- ☐ Make arrangements to appoint a Principal Certifying Authority before commencement of building works.

Terms and Conditions of Engagement of Holmes Accredited Certifiers Pty Ltd

The Services of Holmes Accredited Certifiers Pty Ltd will not commence until the applicant fully completes and signs this application form, and provides all items in the checklist forming part of this application form. Holmes Accredited Certifiers will not accept any responsibility for any damages, losses or delays suffered by the applicant or other party as a result of omissions, intentional or unintentional errors contained within this application form or delay in providing all items requested as part of the checklist or as quoted. The scope of works covered by this application is limited to the description listed under "Proposed Building Works" on this application form.

Terms and Conditions

1. All information provided by the applicant on this form will be taken as accurate and correct.
2. The applicant declares that no building works have commenced at the time of this application. Any false representations will indemnify Holmes Accredited Certifiers Pty Ltd and any of its employees against any loss or damages suffered. In such an event the applicant agrees to cancel the application for the construction certificate with no cost to Holmes Accredited Certifiers Pty Ltd.

Fees

Failure to pay the quoted fee for services will generally result in the refusal to release any Part 4A certificate. Should payment of fees not be honoured after the provision of services, Holmes Accredited Certifiers Pty Ltd will suspend any further services and the applicant will be liable in addition to any associated debt recovery costs plus interest incurred from the time of the application until the fees are paid in accordance with the provisions of the Building and Construction Industry Security of Payments Act 1999.

Owners Declaration

I/we understand that this engagement shall be subject to the terms and conditions in the fee proposal (if any)

I/we as owners/applicants of the land to which the application relates. I/we consent to the making of the application. I/we also give consent for officers/Certifiers of Holmes Accredited Certifiers to enter the land to carry out inspections relating to this application.

I/we declare that I/we will notify Holmes Accredited Certifiers to carry out any critical stage inspections or make arrangements with the builder to carry out this function on my/our behalf as a condition of my/our building contract.

PAMELA FAHEY	
Name of all owners/tenants	Name of all applicants
2011.09.05 12:33:08 +10'00'	
Signature of all owners/tenants	Signature of all applicants/tenants
Date:	Date:

Mandatory information required by the Australian Bureau of Statistics

(This information is compulsory and must be completed in full by the applicant)

Construction Certificate/Complying Development No: CC11/015

Council's DA Consent No: N0567/10

Particulars of the Proposal

Area of subject site (m^2): 984 m^2

Does the site contain a dual occupancy: ☐ Yes ☑ No

Current use of existing building/s on the subject site: Residential
(If vacant, please state "vacant")

Floor area of existing building/s in m^2 except if being demolished: N/A

Gross floor area in m^2 of the proposed addition/s or new building/s: 30 m^2

Proposed use of all parts of the addition/s or new building/s: Residential

Residential Dwellings only

Number of pre existing dwellings: 1	Number of dwellings to be demolished: -
Number of proposed new dwellings: 1	Number of storey's of proposed building: 2

Building materials to be used in construction

Tick the box alongside which best describes the materials to be used in the construction of the new works

Walls		Roof		Frame		Floor	
Brick Vaneer		Aluminium	✓	Timber	✓	Concrete	
Full Brick		Concrete		Steel		Timber	✓
Single Brick		Concrete Tiles		Other (Describe below)		Other (Describe Below)	
Concrete Block		Fibrous Cement					
Concrete or Masonry		Fibreglass					
Concrete		Masonry Shingle					
Steel		Terracotta Shingle					
Fibrous Cement		Tiles – other					
Hardiplank		Slate					
Timber or Weatherboard	✓	Steel					
Cladding or Aluminium		Terracotta Tiles					
Curtain Glass		Other (Describe below)					
Other (Describe)							

GENERAL BUILDING SPECIFICATIONS

AT

13A Ocean Road

address

Palm Beach

address

FOR

Holmes Accredited Certifiers P/L

This Plan is Approved as part of SPEC

name

CC NO: CC1/015

Dated: 30/9/11

By BRADLEY HOLMES

name ACCREDITATION No: BPB 0184

date

INDEX GENERAL HOUSING SPECIFICATIONS

PART NO. PART HEADINGS

1.0 INTRODUCTIONS

General

This Specification details the works to be executed and the materials to be used in carrying out those works at the Site.

This Specification shall be read as a general specification only. The parts of the Specification which refer to the works not being carried out shall not apply. The extent of the works shall be governed by the Approved Plans and Special Details where applicable.

Any works not fully detailed shall, where appropriate, be sufficiently performed if carried out in accordance with applicable Manufacturer's Recommendations or Engineer's Recommendations.

1.2 Preliminary Use

This Specification forms part of the Building Contract Documents, and should be read in conjunction with the Building Agreement, Engineer's Reports, Plans and any other special details.

1.3 Prevailing Documents

Where there is a difference between the Plan and Specification the Plans will take precedence. The contractor must at all times maintain a legible copy of the plans and specification bearing the approval of the appropriate authorities.

1.4 Sizes and Dimensions

All sizes and dimensions given in this specification are in millimetres unless otherwise stated and are nominal only.

1.5 Prime Cost Items

The prime cost items listed in part of this Specification are Contractors cost prices, they do not include Builders margin, cost of cartage and freight. Should any of these items not be required, credit will be made at the listed price in the contract in the final progress claim.

1.6 Definitions

"Special Details" in respect of any item or part of the Works means any drawings, plans, specifications, calculations or other document (including Engineer's Recommendations) prepared in order to define or detail the work to be done and the materials to be used.

"Engineer's Recommendations" includes any Soil Classification Report, Preliminary Footing Report, Construction Footing Report and any other Report, Recommendation, site or other instruction, calculations or plans prepared by an Engineer in respect of the Works.

Where the words "Local Authority" are mentioned they shall mean the Local Council or other Governing Authority with Statutory responsibility for the compliance of the work performed.

The Works shall also be constructed in accordance with Australian Standards referred to in Specification A1.3 of the BCA together with any amendment or replacement of those Standards.

2.0 STATUTORY REQUIREMENTS

2.1 The Works

All work shall be carried out and completed to comply with the appropriate construction standards and the Local Government Act (as amended).

2.2 Regulations, Notices and Fees

The Contractor is to comply with Local Government (Approvals) Regulation 1993 and Local Government (Orders) Regulation 1993 under the Local Government Act 1993 (as amended) or the Building Code of Australia; the requirements of legally constituted authorities for local government and/or for services: and the provisions of the Building Services Corporation Act (as amended). The Contractor is to give all Notices, obtain all Permits and pay all Fees required by such authorities.

2.3 Insurance

Insurance cover of the works against risk for Fire, Theft, Malicious Damage and Materials on site are to be effected by the Contractor at the Contractor's expense. The Contractor shall also at his expense adequately insure Public Liability and arrange Worker's Compensation cover in respect of any liability under the Worker's Compensation Act of New South Wales.

2.4 Labour and Materials

The Contractor is to provide all labour and materials to construct and complete the building to the stage as specified in the contract documents. Materials to be of the standards specified. Workmanship in each trade to be performed by tradespeople of that particular trade and in conformity with accepted building practice. Building materials surplus to requirements for the works shall be and remain the property of the Contractor.

2.5 Electricity

The Contractor is to make arrangements for any electric power to be used in the erection of the works and is to pay fees and costs incurred therein. Should additional poles, wiring, service risers or underground wiring etc., be required by the Electricity Authority, this additional cost plus Builder's margin shall be borne by the Owner.

2.6 Sanitary Accommodation

Prior to the commencement of any works, unless toilet facilities exist on Site, the Contractor shall provide temporary toilet accommodation for the tradespeople. Where the Authority requires the temporary toilet to be connected to sewer mains, the additional cost plus Builder's margin of such shall be borne by the Owner. On completion the contractor shall remove the convenience.

3.0 OWNERS OBLIGATIONS

3.1 Surveyor's Certificate

If the Building Agreement so indicates, the Owner shall, at the Owner's expense, obtain a certified survey of the Site. If no survey is required, the Owner hereby certifies that the placement of the existing survey pegs or fences on the Site is correct.

3.2 Engineer's Recommendations

If the Building Agreement so indicates, the Owner shall, at the Owner's expense, provide the Contractor with reports and recommendation (including soil classifications) as to the foundations and/or footings requirements for the works prepared by an Engineer. If the Contractor instructs any party to provide such recommendations, the Contractor does so only as an agent for the Owner.

INITIALS.....

3.3 Trades Persons Engaged by Owner

The Owner shall not engage or employ any tradesperson, trade-contractor or any other person to work on the Site without the consent of the Contractor which consent may be subject to such terms and conditions as the Contractor may stipulate.

3.4 Items Supplied by Owner

For all items referred to in the specification to be supplied by the Owner, it is the responsibility of the Owner to arrange payment for delivery of and protection against damage and theft of all these items.Delivery is to be made when requested by the Builder to the site. If not available when required the Owner shall be obliged to make an alternative selection.

3.5 Water Supply

The Owner shall, at the Owner's expense, supply adequate water to the Site for construction purposes. Unless otherwise specified, the Contractor shall pay the standard water meter connection fee to the Water Supply Authority providing this service is prelaid to the Site and ready for use. The Owner shall be responsible for any fee to be paid in excess of the standard water meter connection fee.

3.6 Sanitation

Unless otherwise specified, the Owner shall, at the Owner's expense, supply a sewerage connection riser or common effluent drainage connection riser to the Site. Unless otherwise specified, the Contractor shall pay the standard sewer connection fee to the Supply Authority providing this service is prelaid to the Site and ready for use. The Owner shall be responsible for any fee to be paid in excess of the standard sewer connection fee.

3.7 Site Clearance

At the Owners expense clear only the site area of building work including vegetation stumps, boulders, rubble and the like to a minimum distance of 1,000mm outside the building or to the boundaries of the allotment, whichever is the less and fill any depressions within the area covered by the building.

4.0 PLANS, PERMITS AND APPLICATION FEES

4.1 Permits and Fees

Unless otherwise agreed, the Contractor shall lodge all necessary application notices, plans and details with the Local Authority for approval prior to commencement of construction.

4.2 Mines Subsidence

In areas affected by mines subsidence the appropriate authority to be consulted and work carried out in accordance with their requirements as a variation, any additional cost plus Builders Margin is to be borne by the Owner.

4.3 Setting Out

The Contractor shall accurately set out the works in accordance with the site plan and within the boundaries of the site.

5.0 EXCAVATIONS

5.1 Excavations

Subject to Clause 3.7 the site covered by the building and an area at least 1,000 mm wide around the building or to boundaries of the Site - whichever is the lesser shall be cleared and/or graded as indicated on the Site Works Plan.

Top soil shall be cut to a depth sufficient to remove all vegetation.

Excavations for all footings shall be in accordance with the Engineer's Recommendation.

6.0 FOUNDATIONS AND FOOTINGS

6.1 Underfloor Fill

Underfloor fill shall be in accordance with AS 2870.

6.2 Termite Control Treatment

Termite treatment shall be carried out in accordance with BCA clause 131.3

6.3 Vapour Barrier

The underfloor vapour barrier shall be in accordance with AS 2870.

6.4 Reinforcement

Reinforcement shall conform and be placed in accordance with AS 3600, AS 2870 and the Engineer's Recommendations.

Support to all reinforcement shall be used to avoid any undue displacement of reinforcement during the concrete pour. If needed, the following is permissible: concrete blocks, steel cradles, or (if approved by the Engineer) improvised rods and tie wire.

6.5 Concrete

Concrete shall be not less than Grade N20 except where otherwise approved by the Engineer.
Structural concrete shall be in accordance with AS 3600. Pre-mixed concrete shall be in accordance with AS 1379 with delivery dockets kept on site and available for inspection by the Engineer.

Concrete shall be Compacted as directed by the Engineer
6.6 Footings and Slabs on Ground

Concrete slabs and footings shall not be poured until approval to pour concrete is given by the Engineer or theLocal Authority.

NOTE: Bench levels and floor levels on the Site Works Plan shall be regarded as nominal, unless specified otherwise.

6.7 Suspended Slabs

All concrete slabs, other than those supported on solid ground or properly compacted filling, shall be constructed as suspended slabs. These slabs shall be constructed in accordance with the Engineer's Recommendations.

6.8 Foundation Walls

On footings as previously specified build brick walls to the thickness shown on plan up to level underside of floor bearers and/or plates.

6.9 Sub-Floor Ventilation

Provide adequate cross ventilation to the space under suspended ground floors. No section of the under floor area wall to be constructed in such a manner that will hold pockets of still air.

6.10 Sub-Floor Access

Provide access under suspended floors in position where indicated on plan.

6.11 Curing

All slabs shall be cured in accordance with AS 3600.

7.0 RETAINING WALLS

7.1 Retaining Walls

Retaining walls shall be constructed as shown on the plans and/or special details designed by an Engineer and where applicable approved by the Local Authority whether the construction of such shall be the obligation of the Owner or the Contractor.

8.0 EFFLUENT DISPOSAL/DRAINAGE

7.2 In both sewered and unsewered areas,

fit bath, wash basin, kitchen, wash tubs, pedestal pan and floor grate to shower recess in positions shown on plan. (Refer to schedule of fittings). Provide waste pipes with traps to the above fittings and connect to the drainage system. The whole of the work to be performed in accordance with the rules and requirements of the Sewerage Authority concerned.

8.2 Septic System

Provide and install a septic system where applicable to the requirements of the Local Authority and in accordance with the manufacturers instructions.

8.3 Storm Water Drainage

Allow for the supplying and laying of storm water drains where shown on site plan. Drains to be a minimum of 100mm socketed vitrified clay pipe or a minimum of 90mm PVC pipes laid to an even and regular fall so as to have a minimum cover of 150mm. Drains to discharge into street gutter where possible. Where outlets are shown within the site they are to discharge at least 3,000mm clear of the building into a rubble packed sump or alternatively to the Authority's requirements as a variation, any additional cost plus Builders margin, is to be borne by the Owner.

9.1 Timber Framing
All timber framework sizes, spans, spacing, notching, checking and fixing shall comply with the provisions of AS 1684 as amended. Alternative structural framing to Structural Engineer's details and certification.

The work shall be carried out in a proper and tradesperson like manner and shall be in accordance with acceptable and recognised trade practices.

INITIALS .....

9.2 Floor Framing

All floors not specified to be concrete are to be framed at the level shown and laid true, straight and level. All timber within 1,350mm of ground level is to be of durability Class 2 or better or preservative treated in accordance with AS 1604 - Preservative Treated Sawn Timber. Span and spacing of bearers is to conform to the requirements of the span tables of the Code for the appropriate member size, spacing of joists, is not to exceed 600mm. Deep joists to upper floors, where shown are to be fitted with solid blocking or herringbone strutting as required. All sizes and stress grades of timber members and tie down methods are to be in accordance with AS 1684.

9.3 Wall Framing

Plates are to be trenched to a depth not exceeding 10mm to provide uniform thickness where studs occur. Where plates are machine gauged to a uniform thickness, trenching may be omitted. Wall framing is to be erected plumb and straight and securely fastened to floor framing. Provide a clear space of 40mm between outer face of wall frame and inner face if brick veneer walls to studs with approved veneer ties. Ties are to slope downwards towards the veneer wall.

Studs in each panel of walling shall be stiffened by means of solid noggings or bridging pieces at not more than 1,350mm centres over the height of the wall. Bottom plates shall be fixed to the concrete slab with or in accordance with AS 4055.

9.4 Heads Over Opening (Lintels)

All sizes, stress grade and bearing area shall conform to AS 1684. Heads exceeding 175mm in depth shall be seasoned or a low shrinkage timber species used. Plywood web lintels conforming to the requirements of Plywood Association of Australia may be used. Glue Laminated beams if approved by the Lending Authority and conforming with AS 1328mm may be used. Laminated Veneer Lumber beams to manufacturers specification and data sheets may be used.

9.5 Roof Trusses

Where roof truss construction is used, trusses shall be fabricated in a properly equipped factory with each truss suitably branded to identify the manufacturer and erected, fixed and braced in accordance with the fabricator's written instructions.

9.6 Bracing

Bracing units shall be determined in accordance with AS 1684 as appropriate for the design wind velocity for the building. Type "A" and/or "B" units are to be evenly distributed throughout the building as required by the Code.

9.7 Flooring

Cover floor joists with strip or sheet flooring as shown on plan. Thickness of flooring to be accordance with AS 1684, for the appropriate joist spacing. With particular regard to ground clearance and installation in wet areas, structural sheet flooring shall be used strictly in accordance with the manufacturer's recommendations. Fixing shall be in accordance with the applicable flooring Code.

When specified, floors shall be given a basic machine sanding to provide an even surface and shall be left clean throughout.

9.8 Roof Framing

Roofs are to be pitched to the slope shown on plan. All roof timbers are to be seated on timber plates with all roof loads transferred to the footings. Provide continuous tie-down from roof battens to footings as or when required by AS 1684, for the appropriate design wind velocity and roof covering. Provide all rafters, ridges, hips, valleys, purlins, struts, collar ties and wind bracing as appropriate with all sizes and stress grades in accordance with AS 1684.

Metal fascias shall be installed in accordance with the manufacturer's recommendations.

9.9 Timber Posts

Posts supporting carports, verandahs and porches shall be timber suitable for external use, or as otherwise specified, supported on galvanised or treated metal post shoes. Posts shall be shouldered and bolted to all adjoining beams.

9.10 Hot Water Storage Tank Platforms

Where a hot water storage tank is to be installed in the roof space, the tank platform shall be supported directly on wall plates and must not be supported on ceiling joists.

All hot water services installed in the roof space shall be fitted with an appropriate spill tray and overflow drain pipe.

10.0 STEEL FRAMING GENERALLY

10.1 Steel Framing
Steel floor, wall or roof framing approved by the Local Authority shall be installed in accordance with the manufacturer's recommendations and AS 3623.

11.0 ROOFING

11.1 Tiled Roofing

Concrete and terracotta tiles shall comply with AS 2049 and be installed in accordance with AS 2050. Cover the roof of the dwelling with first quality approved tiles as selected. The tiles are to be fixed to approved battens of sizes appropriate to the spacing of rafters/trusses in accordance with manufacturer's recommendations. Cover hips and ridges with capping and all capping and all necessary starters and apex caps. Capping and verge tiles are to be well bedded and neatly pointed. Roofing adjacent to valleys should be so fixed to minimise as far as practicable water penetration. As roof tiles are made of natural products slight variation in colour is acceptable.

11.2 Roofing

Provide and install a metal roof together with accessors all in accordance with the manufacturers instructions. Except where design prohibits, sheets shall be in single lengths from fascia to ridge. Fixing of sheets shall be strictly in accordance with the manufacturer's recommendations. Incompatible materials shall not be used for flashing.

11.3 Metal Rainwater Goods

Rainwater goods shall comply with AS 2179 and be installed in accordance with AS2180.

11.4 Sarking

Sarking used under roof coverings must comply and be fixed in accordance with:
(a) AS 1736 for pliable roof sarking; and
(b) AS 1903 and AS 1904 for reflective foil laminate

11.5 Sealants

Appropriate sealants shall be used where necessary and in accordance with manufacturers specifications.

11.6 Flashings

Flashings shall comply with AS 2904, AS 1804, AS 3700 and FI.9 of the Building Code of Australia.

12.0 MASONRY

12.1 Bricks

All clay bricks and brickwork shall comply with AS 1225, AS 1226 and AS 3700.
Clay bricks are a natural kiln fired product and as such their sizes vary over a small range. Tolerances shall only be applied to the total measurements over 20 units, not to the individual units.

12.2 Concrete Blocks

Concrete blocks are to be machine pressed, of even shape and well cured in accordance with AS 2733. Autoclaved Aerated Concrete blocks shall be in accordance with the Manufacturers Product Specification at the time the work is being carried out.

12.3 Damp Proofing

All damp proof membranes shall comply with FI.8 and FI.9 of the Building Code of Australia, AS 3700 and AS 2904. The damp proof membrane shall protrude at least 20mm past the external face of the masonry member in which it is placed.

12.4 Weep Holes

Cavities shall be cleared of all mortar droppings and weep holes shall not exceed 1,200mm centres or be in accordance with AS 2870.

12.5 Mortar and Jointing

Mortar shall comply with AS 3700.
Joint tolerances shall not be outside the provisions of AS 3700.

12.6 Wall Ties and Masonry Anchors

All wall ties shall be manufactured in accordance with AS 2699 and be installed in accordance with AS 3700. Wall ties to meet corrosion resistant rating of the site. Provide flexible ties to articulated joints in masonry.

12.7 Lintels

Lintels used for opening in walls brickwork and roof loads to be an approved system. Provide one Lintel to each wall leaf. Lintel to be kept clear of heads and frames.

INITIALS .....

12.8 Cleaning

Clean all exposed brickwork with an approved cleaning system. Care should be taken not to damage brickwork or joints and other fittings

13.0 CLADDING AND LININGS

13.1 External Claddings and Linings

Sheet materials or other external cladding shall be fixed in accordance with the manufacturer's recommendations and any applicable special details.

13.2 Internal Wall and Ceiling Linings

Provide gypsum plasterboards or other selected material to walls and ceilings. Sheets to have recessed edges and be a minimum of 10mm thick. Fixing is to be strictly in accordance with the manufacturers recommendations. Internal angles from floor to ceiling to be set. Set corners or provide cornices for ceilings as required. Cornise to be in all wall length where applicable. The lining of wet area walls in brick veneer and timber frame buildings shall be constructed as per AS 3740 and FI.7 of the Building Code of Australia.

Where required in open verandahs, porches and eaves soffits, material indicated on the drawing shall be installed. The ceiling access hole shall be of like material to the adjacent ceiling. Suitable cornice moulds where required shall be fixed at the junction of all wall faces with ceilings.

13.3 Water Proofing

All internal wet areas and balconies over internal habitable rooms to be water proofed to AS 3740 and FI.7 of the Building Code of Australia.

14.0 JOINERY

14.1 General
All joinery work (metal and timber) shall be manufactured and installed according to trade practices.

14.2 Door Frames

Timber used in external door frames shall be a minimum of 32mm thick fitted with 10mm thick door stops. Internal timber jamb linings shall be a minimum of 18mm thick fitted with 10mm thick door stops.

Steel door frames shall be installed in accordance with the Manufacturer's recommendations.

14.3 Door and Doorsets

All internal and external timber door and door sets shall be installed in accordance with AS 1909 Timber Doors and Door sets and shall be manufactured in accordance with AS 2588 and AS 2689.

14.4 Windows and Sliding Doors

Sliding and other timber windows and sliding doors shall be manufactured in accordance with AS 2146 and be installed in accordance with AS 2147.

Aluminium windows and sliding doors shall be manufactured in accordance with AS 2047 and installed in accordance with AS 2048.
All glazing shall comply with AS 1288.

14.5 Provide architraves and skirting as nominated on the drawings.

14.6 Cupboards
Cupboards shall be supplied and installed to manufacturer's recommendations. Generally bench cupboards shall have their tops finished in a material that is water resistant.

14.7 Stairs

Provide handrails and balustrades to any change in level and to at least one side of ramps and stairs as per D2.13 and D2.16 of the Building Code of Australia.

15.0 SERVICES

15.1 Plumbing

All plumbing shall comply with the requirements of the Supply Authority and the work is to be carried out by a licensed plumber. Fittings shall be supplied and installed as specified.

15.2 Electrical

Provide all labour and materials necessary for the proper installation of electricity service by a licensed electrician in accordance with AS 3000, AS 3006 and the requirements of the local Supply Authority. Unless otherwise specified, the electrical service shall be 240 volt, single phase supply.

15.3 Gas

All installations (including LPG) shall be carried out in accordance with the rules and requirements of the Supply Authority.

15.4 Smoke Detectors

Provide and install smoke detectors as specified or as indicated on plan and in accordance with E1.7 of the Building Code of Australia.

16.0 TILING

16.1 Materials
Cement mortar and other adhesives shall comply with AS 3958.1 according to trade practise.

16.2 Installation
Installation of tiles shall be in accordance with AS 3958.
All vertical and horizontal joints between walls and fixtures e.g. benchtop, bath etc to be filled in mould resistant grout Where practicable spacing between tiles should be even and regular. Provide expansion joints where necessary. As tiles are made of natural products a slight variation in colour is to be anticipated.

16.3 Walls

Cover specified wall faces with selected neatly grouted tiles. Tiles are to be fixed to wall sheeting with approved adhesives. Provide all necessary strips, vent tiles and recess fittings.

16.4 Floors

Lay selected floor tiles in sand and cement mortar or approved adhesive to specified areas. If required fit approved edge strips to exposed edges in doorways or hobless showers. Provide adequate and even fall to wastes where necessary.

17.0 PAINTING

17.1 General
All paint used shall be of a quality suitable for the purpose intended and the application shall be as per the manufacturer's recommendations. The colours used shall be as specified. All surfaces to be painted shall be properly sanded and prepared

18.0 PRIME COST ITEMS
List hereunder all P.C. Allowances
Kitchen and Vanity Cupboards (kitchen sink included)
Stove/Wall Oven/Hot Plates
Bath
W.C. Suites
Laundry Tub
Entry Door
Door Furniture
Garage Door
Hot Water System
Shower Screen
Wall and Floor Tiles supply only
Bricks

19.0 SIGNATURES

Date .....

Signed by the said
Owner in the
presence of ....
.....

Witness Signature *Owner's Signature* *Date*

....
Witness Signature *Owner's Signature* *Date*

Signed by the said
Contractor in the
Presence ....

Witness *Contractor's Signature*

Record of Inspections conducted under Section 109E(3) of the EP&A Act 1979

Address: 13A Ocean Road, Palm Beach

DA No: N0567/10

CC No: CC 11/015

Inspection Type: Pre Commencement

Inspection Date: 5 September 2011

Inspector: Bradley Holmes

Accreditation No: BPB 0184

Result: Satisfactory – No works commenced, consistent with the plans

Re-inspection Required ☐ Yes ☑ No Signature.....

Holmes Accredited Certifiers
2 Clay Place,
EAGLE VALE NSW 2588

PH: 0459 329 339

TALL consulting structural engineers

4/21 Waiwera Street, McMahons Point, Sydney NSW 2060
(t) 0449 051 280
(e) tall.engineers@gmail.com
(w) www.TALLengineers.com

13a Ocean Avenue,
Palm Beach.

Attention:- Anthony Fahey

Tuesday 6th September 2011 Ref: 2001/091045

Dear Sir,

Design certification for the house adjustments and additions at 12A Ocean Road, Palm Beach, NSW.

This letter is to certify that we Tall Engineers Pty Ltd have designed the house adjustments and additions as documented on the Tall Engineers drawings 2001-091045-S01/A,S02/A, S03/A, S04/A, S05/A, S07/A, S10/A, S11/A and S013/A in accordance with the relevant SAA Codes, in particular the following:-

AS1170 – Structural design actions

AS1684 – Timber structures

AS2159 – Piling design and installation

AS2312 – Protection of structural steel against atmospheric corrosion

AS2870 – Residential slabs and footings

AS3600 – Concrete structures

AS3700 – Masonry Structures

AS4055 – Wind load for houses

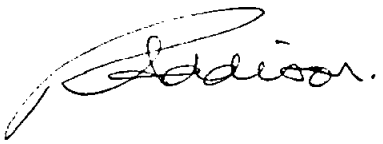
AS4100 – Steel structures

We have designed the structure for sand over rock (class A) and due to the saline conditions have assessed the slab against moderately aggressive conditions. We have designed the new foundations for new walls and columns sufficient to remain stable under coastal erosion as documented in the AJK Design Coastal Engineering Assessment Report. In addition we have designed the stability structure and the seaward elements of the residence for any additional loads as required from the AJK Design Coastal Engineering Assessment Report required for Wave Inundation.

ABN 35 139 313 885 Registered address: 4/21 Waiwera Street, McMahons Point NSW2060

For and on behalf of Tall Engineers Pty Ltd

Yours faithfully,



Richard Addison

MIEAust 228249

Senior Designer

TALL

ABN 35 139 313 885 Registered address: 4/21 Waiwera Street, McMahons Point NSW2060

Compliance Certificate for Design

Issued under the Building Code of Australia 2006 Evidence of suitability A2.2

Project / Ref Number: 108115

Hydraulic Services

Certification of Design

Subject land	Address 13A Ocean Road Palm Beach
Building details	Use Residential
	DA Consent No DA: N0567/10
	Pittwater Council Consent No N0567/10 dated 25th August 2011

I, Phillip Newman of

MPI Group Australia Pty Ltd
Level 1 17-23 Merriwa Street Gordon Certify that:

a) each of the Hydraulic Services measures or building components listed below:

- has been assessed by me or a person (chosen by me) who was properly qualified to do so, and
- was found, when it was designed, to have been designed in accordance with the applicable Building Code of Australia 96 requirement and / or the relevant Australian Standards listed below and to be capable of performing to a standard not less than that required by the relevant Code for the building for which the certificate is issued.

b) the information contained in this certificate is, to the best of my knowledge and belief, true and accurate.

Discipline Hydraulic Services

Components certified Storm Water Drainage BCA F.1.1 & AS/NZS 3500.3.2-1998

Compliance Certificate for Design Issued under the Building Code of Australia 2006 Evidence of suitability A2.2 (a) (iii)	Project / Ref Number: 108115
	Hydraulic Services

Certifier	**Phillip Newman**
Company Name	MPI Group Australia Pty. Ltd.
Name of person	Phillip Newman
Address	Level 1 17-23 Merriwa Street Gordon 2072
Contact Number	(02) 9499 0000
Signature	
Date of endorsement	9th September 2011

GEOTECHNIQUE
PTY LTD

Member of
Australian Contaminated
Land Consultants Association Inc

Certified System
Quality
ISO 9001
SAI GLOBAL

ABN 64 002 841 063

Job No: 12312/1
Our Ref: 12312/1-AA
10 August 2010

Woniora Investments Pty Ltd
140 Warners Avenue
BONDI BEACH NSW 2026
Email: w.investments@bigpond.com

Attention: Mr A Fahey

Dear Sir

re: **Proposed Extension/Addition to an Existing Residence**
13a Ocean Road, Palm Beach
Preliminary Slope Stability Assessment and Preliminary Geotechnical Investigation

This report presents the results of a preliminary geotechnical investigation and preliminary slope stability assessment for the proposed extension/addition to a residence at the above location.

It is understood that the proposed development comprises the following:

- Extension for a bedroom at ground level to the northern side of the existing residence.
- Extension for a garage at the ground level to the southern side of the existing residence
- Addition of a second storey

We were provided with a site plan showing the layout of the existing residence and footprint of the proposed extension/addition for preparation of this report.

A preliminary geotechnical investigation was required to assess sub-surface conditions in the vicinity of the residence, in order to provide preliminary geotechnical advice for design and construction of the proposed extension.

A preliminary slope stability assessment was required to assess the risk of slope instability within and in the vicinity of the site and to ascertain that the risk of slope instability is acceptable for construction of the proposed extension/addition.

Regional Geology
Based on the Geological Map of Sydney (1:100,000), bedrock at the site is anticipated to vary from Hawkesbury Sandstone to the Narrabeen Group of rocks. Hawkesbury Sandstone comprises medium to coarse grained quartz sandstone, with very minor shale and laminite lenses and the Narrabeen Group of rocks comprises quartz sandstone with minor interbedded claystone.

Reference to the Soil Landscape Map (1:100,000) of Sydney indicates that the landscapes at the site belong to the Hawkesbury Group in areas with Hawkesbury Sandstone and to the Watagan Group in areas with Narrabeen group of rocks. The Hawkesbury Group is characterised by rugged, rolling to very steep hills on Hawkesbury Sandstone, with local relief of 40m to 200m, ground surface slopes more than 25%, rock outcrop more than 50%, narrow crests and ridges, narrow incised valleys, steep side slopes with rocky benches and broken scarp and boulders. The sub-surface soil in this group is likely to be shallow, less than 0.5m, stony, highly permeable and susceptible to extreme erosion and mass movement hazards.

The Watagan Group is characterised by rolling to very steep hills on fine grained Narrabeen Group sediments, with local relief of 60m to 120m, ground slopes in excess of 25%, narrow crests and ridges, steep colluvial side slopes and occasional sandstone boulders and benches. There is likely to be occasional rock outcrops with sandy soils on sandstone and clayey soils on shale. This group is susceptible to mass movement and erosion hazard.

Field Work

Due to difficult site access, borehole drilling using a drilling rig and test pit excavation using an excavator could not be carried out at this stage. Therefore, the scope of work for the preliminary geotechnical investigation and preliminary slope stability assessment comprised a walk over survey to assess existing site conditions. The walk over survey was carried out by a Senior Geotechnical Engineer from this company on 30 July 2010.

Site Conditions

The site is trapezoidal, measuring approximately 983.2m^2 in plan area. The attached Drawing No 12312/1-1 shows general site conditions and the following observations were made during the walk over survey.

- The site is bound by Ocean Road, Palm Beach, to the east, Sunrise Road to the west and residences on the two remaining sides.
- Ground surface elevation across the site varies from about RL 42.0m AHD along the western (rear) boundary to about RL 6.0m AHD along the eastern (front) boundary.
- The western portion of the site is vacant and ground surface in the western portion dips towards the east at about 30 to 35 degrees. The eastern portion of the site has been levelled for construction of the existing residence. The boundary between the levelled portion with the residence and vacant portion of site dips steeply at about 80 to 90 degrees.
- There are indications that some excavations were carried out during construction of the residence. The depth of excavation is more than 10.0m in the western side of the residence and about 3.0m to the northern and southern sides of the residence. Some fill might also have been placed in the eastern portion of the site where the residence is located. All excavation faces have been covered with shotcrete, with weep holes and/or retaining walls. Therefore, the nature of materials exposed after excavation could not be ascertained.
- There was no evidence of cracks and movements in the high excavation face in the western side, but minor cracks were noted in the retaining wall along the northern site boundary.
- There was a column adjacent to the retaining wall along the southern boundary. It is likely that the column is supporting the wall.
- The vacant western portion of site is densely vegetated.

We did not drill boreholes during this preliminary geotechnical investigation in order to ascertain the sub-surface profile across the site, because all excavation faces have been covered with shotcrete, most probably to reduce the risk of slope instability.

Based on review of the geotechnical investigation report for 6 Ocean Road, Palm Beach, prepared by Douglas Partners (refer report for Project 71081 dated May 2009), the sub-surface profile across the site is anticipated to comprise a sequence of topsoil/fill and sandy clay, sand and bedrock sandstone. Although several sandstone boulders were encountered in boreholes, the depth to bedrock was anticipated to vary from about 5.5m to 7.0m from existing ground surface, at elevation of about RL –1.0m to +3.5m AHD. A copy of Douglas Partners report was provided for preparation of this report.

It is our assessment that bedrock is exposed at least in the lower 4.0m to 5.0m of excavation carried out during construction of the residence. An inferred sub-surface profile is shown in the attached Drawing No 12312/1-2.

Proposed Extension/Additions
It is our understanding that the residence was constructed in 1994 and the site did not have a history of slope failures. Based on review of proposed development plan and site inspection, we understand that the proposed extension/addition will involve the following:

- Extension for a bedroom at ground level will involve excavation of a triangular wedge of ground at the north western corner of the residence. This excavation is estimated to measure 2.0m (north south direction) by 1.0m in plan and about 3.0m in height.
- Extension for a garage at the ground level will involve excavation of a triangular wedge of ground at the south western corner of the residence. This excavation is estimated to measure 3.5m (east west direction) by 1.0m in plan and about 3.0m in height.
- Addition of an extra floor to the existing building.

Geotechnical risks associated with the proposed addition/extension will include the following:

- Slope failures (including creep, slide and flow) in the natural slope and excavation faces during proposed works.
- Slope failures (including creep, slide and flow) in the natural slope and excavation faces after proposed works.
- Failure (topple or sliding failure) of the proposed and/or existing retaining walls.
- Potential founding of footings on unsuitable foundation materials (including loose or detached sandstone bounders, floaters, uncontrolled fill, inconsistent foundation materials, such as a combination of sandstone, clays or fill, resulting in differential movement of footings).

Qualitative Risk to Property
Site factors such as slope angles, depth of insitu soils, strength of sub-surface material and concentrations of water generally govern the stability of a site. The Australian Geomechanics Society (Reference 1) recommends that the landslide/slope failure risk of a site is assessed on the basis of the likelihood of a landslide/slope failure event and the consequences of that event. The guidelines on qualitative measures for the likelihood and consequence of landslides and assumed level of risk are provided in Reference 1.

As no evidence of slope movement was noticed during visual assessment, it is our assessment that failure of the existing slope is unlikely unless site conditions have changed significantly. Therefore, for the proposed development site, our assessment of risk to property, based on assessed likelihood of slope failures/landslides and their consequences, are presented in Table 1.

TABLE 1

Hazard	Likelihood	Consequences	Risk
Soil debris creep, slide or flow in the natural slope and excavation faces during proposed works	Unlikely	Minor	Low
Soil debris creep, slide or flow in the natural slope and excavation faces after proposed works	Unlikely	Medium	Low-Moderate
Failure of the proposed and/or existing retaining walls	Unlikely	Medium	Low-Moderate
Potential founding of footings on unsuitable foundation materials	Rare	Medium	Low

The likelihood of slope failures might increase if the proposed addition/extension works result in unstable cut and fill slopes. Therefore, unstable cut and fill slopes should be battered or retained appropriately. In addition, existing slopes should be properly maintained, including provision of proper drainage, to ensure that the risk of instability does not increase.

The definitions of the risk levels are provided in Reference 1 and an abstract is presented below:

Risk Level		***Implication***
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	Tolerable, provided treatment plan is implemented to maintain or reduce risks. May be accepted. Might require investigation and planning of treatment options.
L	Low Risk	Usually accepted. Treatment requirements and responsibility to be defined to maintain or reduce risk.
VL	Very Low Risk	Acceptable. Manage by normal slope maintenance procedures.

Based on the above Qualitative Measures, the site for the proposed addition/extension is assessed to have a " Low to Moderate Risk" to the property, before and after completion of proposed works, provided cut and fill slopes are appropriately battered or retained in accordance with recommendations provided in this report. Therefore, the risk to property should be tolerable.

Quantitative Risk to Life

The annual probability of loss of life for the person most at risk from the slope failures/landslide depends on frequency of slope failures/landslides and the consequences. The individual risks, as determined by summing up the risk for the person most at risk from all the landslide hazards, is used for comparison with the tolerable risk criteria.

For loss of life, the individual risk can be calculated using the following equation.

$$R_{(LOL)} = P_{(H)} \times P_{(S;H)} \times P_{(T;S)} \times P_{(D;T)}$$

Where

$R_{(LOL)}$ = The risk (annual probability of loss of life/death of an individual)

$P_{(H)}$ = Annual probability of a slope failure/landslide

$P_{(S;H)}$ = Probability of spatial impact of the landslide impacting a building/location, taking into account the travel distance and travel direction given the event

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

$P_{(D;T)}$ = Vulnerability of individual (probability of loss of life of the individual given the impact

The most probable of all slope failure/landslide risks at the site include soil and debris creep, slide and flow onto the existing residence, during and after proposed extension/addition works. Assessed risks to loss of life due to various identified failure/landslides events, during and after proposed extension/addition works, are presented in Table 2.

TABLE 2

Slope Failure/Landslide Events	$P_{(H)}$	$P_{(S;H)}$	$P_{(T;S)}$	$P_{(D;T)}$	$R_{(LOL)}$
Soil debris creep, slide or flow in the natural slope and excavations during proposed works	$1.0x10^{-4}$	0.20	0.20	0.10	$4.0x10^{-07}$
Soil debris creep, slide or flow in the natural slope and excavations after proposed works	$1.0x10^{-4}$	0.20	0.05	0.10	$1.0x10^{-07}$
Failure of the proposed and/or existing retaining walls	$1.0x10^{-4}$	0.20	0.05	0.05	$5.0x10^{-08}$
Potential founding of footings on unsuitable foundation materials	$1.0x10^{-5}$	1.00	0.05	0.05	$2.5x10^{-08}$

The sum of risk to life, from likely slope failure/landslide events for an individual most at risk is $5.7x10^{-7}$ per annum. The estimated sum of risk for an individual most at risk is acceptable, in accordance with the Geotechnical Risk Management Policy for Pittwater (Reference 2).

Furthermore, it should be noted that the residence was constructed about 16 years ago and the residence does not shown any signs of slope movements.

Risk of Slope Failures/Landslides
Based on "Low to Moderate" risk to property and an acceptable risk to loss of life, it is considered that the site is suitable for the proposed addition/extension, providing:

- Construction works are carried out in accordance with general guidelines to hillside construction, a copy of which is attached.
- The geotechnical assessments and recommendations presented in this report are considered as preliminary only and verified by inspection during the construction stage.
- Cut and fill slopes are minimised and all cut and fill slopes are battered appropriately or retained by engineered retaining walls, in accordance with recommendations provided in this report.
- All footings are founded in natural soil or bedrock and designed in accordance with recommendations provided in this report.

Therefore, completed Forms 1 and 1a from the Geotechnical Risk Management Policy for Pittwater-2009 are attached.

Excavation Works
Proposed development is anticipated to involve up to about 3.0m deep excavations. The attached Drawing No 12312/1-3 indicates areas of proposed excavations.

The excavation is in fact an extension of a previously excavated face. Materials to be excavated are expected to comprise natural soils and sandstone bedrock of varying strength. It is considered that excavation of soils and very low strength sandstone can be achieved using conventional earthmoving equipment, such as excavators and dozers. However, we suggest a rock saw for excavation into sandstone of medium strength of better, in order to minimise vibration that could adversely impact on the stability of existing excavation faces and residences.

Based on site observations, we do not anticipate significant inflow of groundwater during proposed excavation.

Retaining Structures
Proposed addition/extension involves up to about 3.0m deep excavations. The excavation faces should be battered appropriately or retained by engineered retaining structures for stability. However, available spaces will prohibit battering of slopes to desired slopes. Therefore, proposed excavation faces should be retained appropriately.

Natural slopes as well as existing excavation faces do not show any signs of movements. Furthermore, proposed excavation is anticipated to occur predominantly in sandstone. Therefore, it is our assessment that shotcrete, with appropriate reinforcements and weep holes, would be adequate to support the proposed excavation faces.

We suggest that a Geotechnical Engineer inspect the site during excavation to ascertain that shotcrete, with appropriate reinforcements and weep holes, is adequate to support the proposed excavation faces. If not, the Geotechnical Engineer should provide recommendations for an alternative retention system to ensure that the risk of excavation face failure is reduced to tolerable.

Footings
It is desirable that additional loads due to addition of a storey to the residence are carried by existing footings. To assess whether existing footings are adequate to carry additional loads will require the following:

- Magnitude of additional loads
- Capacities of existing footings

We expect that a Structural Engineer will determine present and proposed additional loads on the existing footings.

Capacities of existing footings depend on the dimensions (length, width, depth) of the footings and the allowable bearing pressure for the foundation material at the founding depths. Determination of footing dimensions was beyond the scope of the preliminary geotechnical investigation. However, we expect that review of the as constructed drawing for the existing residence should provide information on footing dimensions and capacities. If capacities of existing footings are not adequate for additional loads, new footings would have to be installed.

As sandstone bedrock is anticipated at ground level in the western portion of the residence, it is considered that the footings of the residence are founded in bedrock. Therefore, we recommend that the new footings, if required, are also founded in sandstone bedrock and designed for an allowable bearing pressure of 800kPa.

For footings founded in sandstone bedrock, total settlements under the recommended allowable bearing pressures are estimated to be about 1% of pier diameter or minimum footing dimension and differential settlements are estimated to be about half the estimated total settlements.

An experienced Geotechnical Engineer should ascertain that the footings are founded on bedrock with recommended allowable bearing pressure, on the basis of assessment made during footing excavation or pier hole drilling. The engineer should ensure that the footings are not founded on or in floaters.

Limitations
The recommendations presented in this report are based on a generalised sub-surface profile based on site observations and review of a geotechnical report prepared for a development in vicinity of the site. Therefore, actual sub-surface conditions across the site could differ from those expected (generalised). If such differences appear to exist or are encountered during construction, we recommend that this office is contacted for further advice, as the recommendations presented in this report might have to be reassessed. This can also occur with groundwater conditions, especially after climatic changes.

Furthermore, in accordance with Reference 2, an experienced Geotechnical Engineer/Engineering Geologist should conduct inspections of site works, as follows:

- Inspection of all excavations at 1.0m depth intervals and on completion of excavations.
- Inspection of all footings prior to placement of concrete, to confirm bearing materials.
- An inspection following completion of all building and site works, to confirm that risk levels anticipated in this report have been achieved.

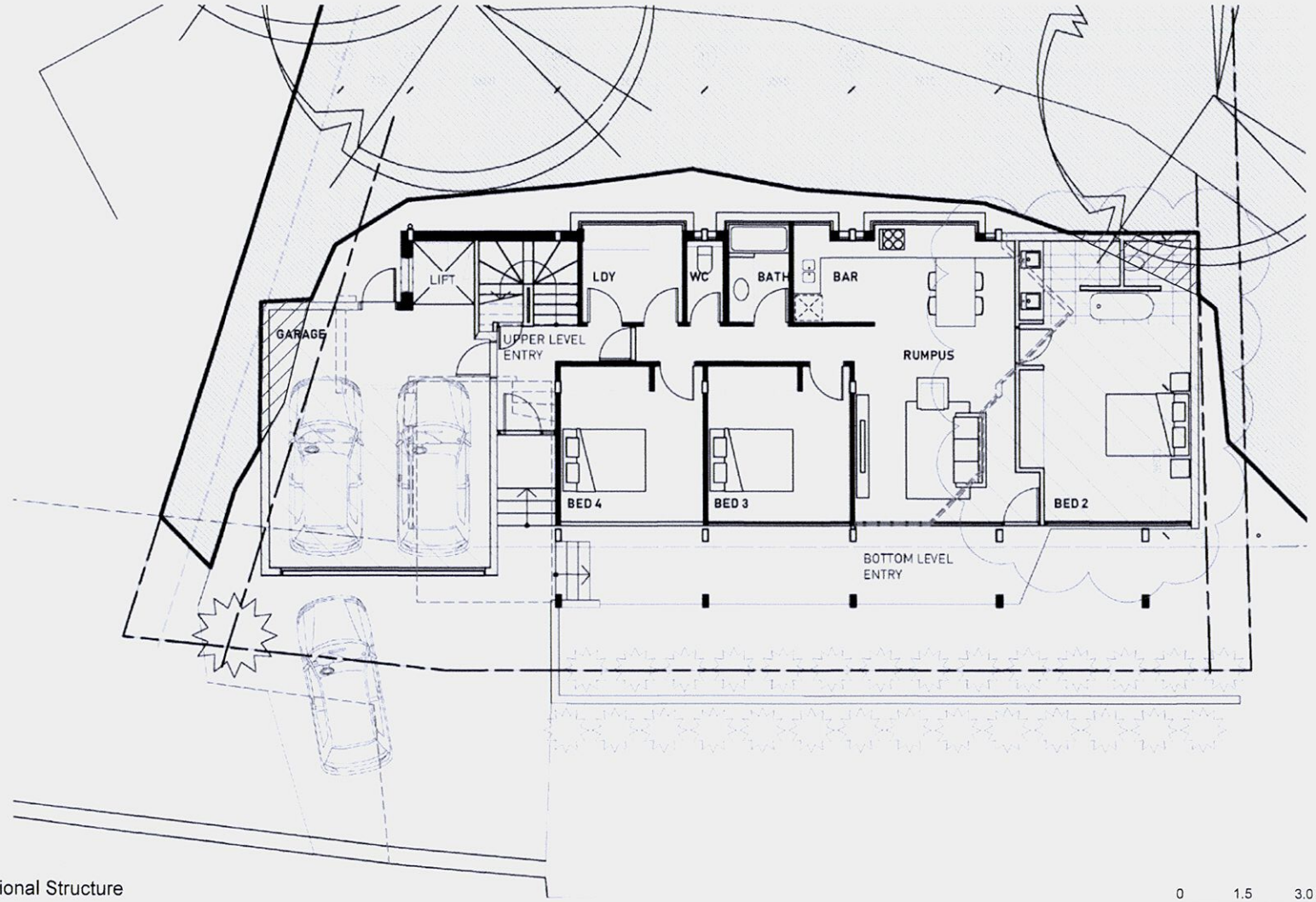
If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Yours faithfully
GEOTECHNIQUE PTY LTD

INDRA JWORCHAN
Principal Geotechnical Engineer

Attached Proposed Development Plan
Inferred Sub-surface Profile
Forms 1 and 1a
Guidelines for Hillside Construction

References
1. Australian Geomechanics Society (AGS), Landslide Zoning Working Group. "Guideline for Landslide Susceptibility, Hazard and Risk Zoning for Land Use Planning", Journal and News of Australian Geomechanics Society, Volume 42, No 1, March, 2007.
2. Pittwater Council, Geotechnical Risk Management Policy for Pittwater- 2009



LEGEND

Additional Structure

Proposed Excavation

0 1.5 3.0 4.5 6.0 7.5m

Scale 1:150

GEOTECHNIQUE PTY LTD
CONSULTING ENGINEERS

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Penrith NSW 2750
Tel: 02 4722 2700
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e-mail:info@geotech.com.au
www.geotech.com.au

NOTES

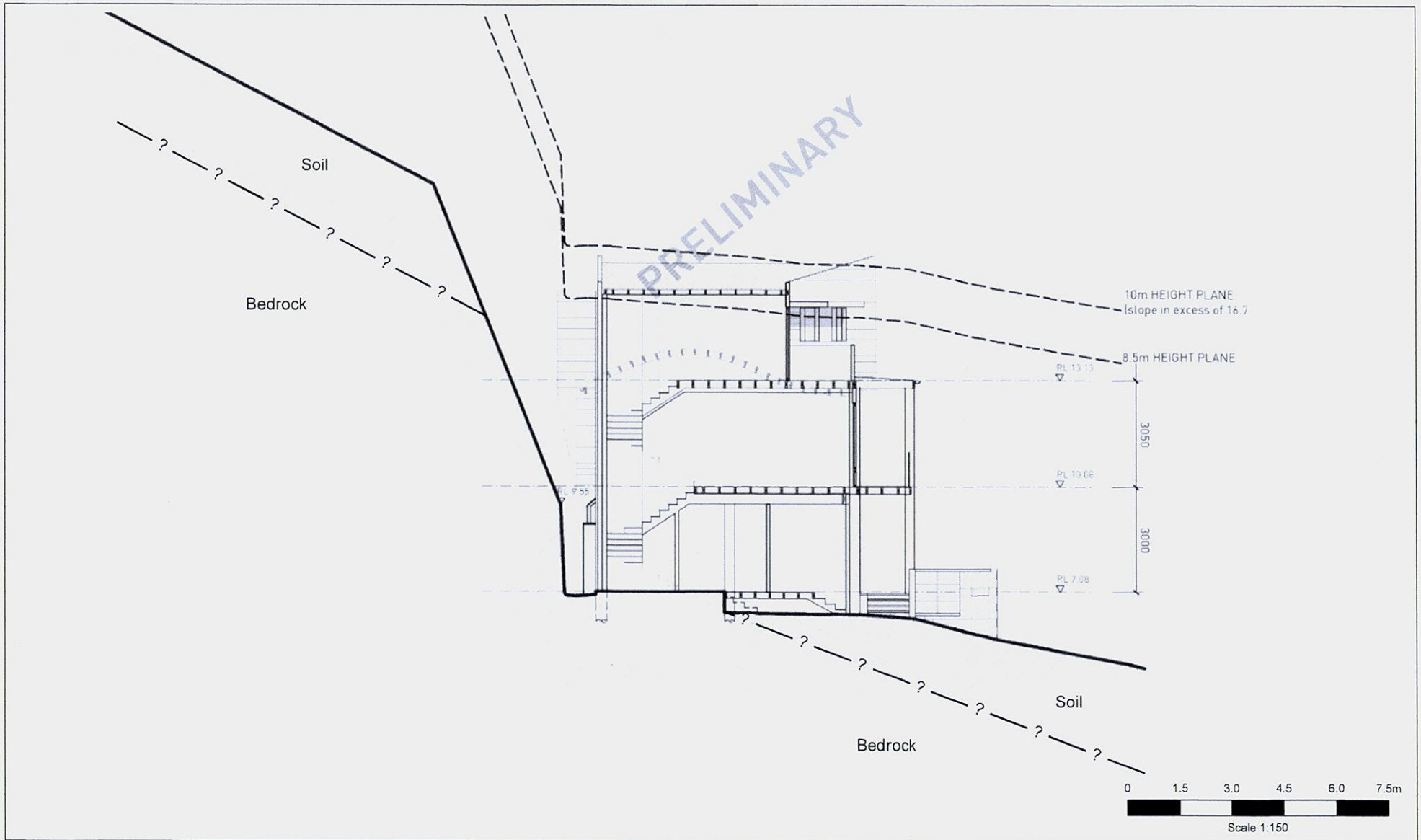
1. Site features are indicative and are not to scale.
2. This drawing has been produced using a base plan provided by Smith & Tzannes (Ref: 09_154 103 A) to which additional information e.g test pits, borehole locations or notes have been added. Some or all of the plan may not be relevant at the time of producing this drawing

Woniora Investments Pty Ltd
Proposed Extension / Addition
13A Ocean Road
Palm Beach

Area Showing Proposed Excavation

Drawing No: 12312/1-3
Job No: 12312/1
Drawn By: MH
Date: 10 August 2010
Checked By: IJ

File No: Drawing 12312-1
Layers: 0, Lay3



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NOTES

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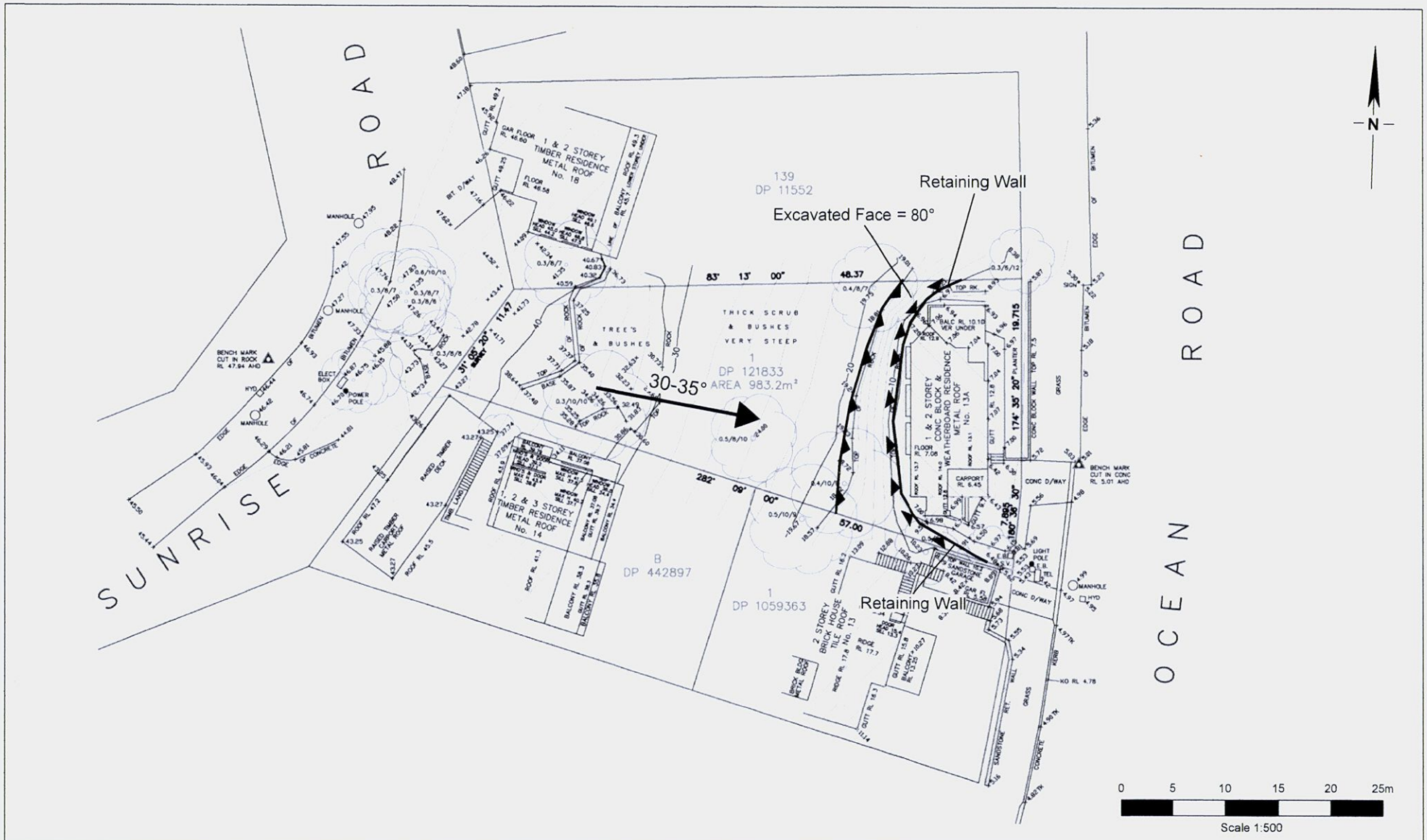
Woniora Investments Pty Ltd
Proposed Extension / Addition
13A Ocean Road
Palm Beach

Inferred Subsurface Profile

Drawing No: 12312/1-2
Job No: 12312/1
Drawn By: MH
Date: 10 August 2010
Checked By: IJ

File No: Drawing 12312-1
Layers: 0, Lay2



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Woniora Investments Pty Ltd
Proposed Extension / Addition
13A Ocean Road
Palm Beach

Existing Site Features

Drawing No: 12312/1-1
Job No: 12312/1
Drawn By: MH
Date: 10 August 2010
Checked By: IJ

File No: Drawing 12312-1
Layers: 0, Lay1

TABLE 1 SOME GUIDELINES FOR HILLSIDE CONSTRUCTION

	GOOD ENGINEERING PRACTICE	*POOR ENGINEERING PRACTICE*
ADVICE		
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 of Instability and Implications for Development in mind.	*Plan development without regard for the Risk Instability.*
DESIGN AND CONSTRUCTION		
HOUSE DESIGN	Use flexible structures which incorporate properly designed brickworks, 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.	
CUTS	Minimise depth. Support with engineered retaining walls or batter 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 and compact clean fill materials. Batter to appropriate slope or support with engineered retaining wall. Provide surface drainage and appropriate sub-surface drainage.	*Loose or poorly compacted fill.* *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 become unstable. 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 sub-surface 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 un-reinforced block work* *Lack of sub-surface drains and weep holes.*
FOUNDATIONS	Support on or within rock where practicable. Use rows of piers or strip foundations oriented up and down slope. Design for lateral creep pressures. Backfill foundation 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 generous fall 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.*
SUB-SURFACE	Provide filter around sub-surface drain. Provide drain behind retaining walls. Use flexible pipelines with access for maintenance. Prevent inflow of surface water.	
SEPTIC & SULLAGE	Usually requires pump-out or mains sewer systems; absorption trenches may be possible in some low risk areas. Storage tanks should be water-tight and adequately founded.	*Discharge sullage directly onto and into slopes.*
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		
OWNER'S RESPONSIBILITY	Clean drainage systems; repair broken joints in drains and leak in supply pipes. Where structural distress is evident seek advice. If seepage observed, determine cause or seek advice on consequences.	

This table is an extract from GEOTECHNICAL RISKS ASSOCIATED WITH HILLSIDE DEVELOPMENT as presented in Australian Geomechanics News, Number 10 1985, which discusses the matter more fully.

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

Development Application for Woniora Investment Pty Ltd
Address of site *13a Ocean Road, Palm Beach*

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

I, *Indra Jworchan, on behalf of Geotechnique Pty Ltd*

on this the *9 August 2010* certify that I am a geotechnical engineer or engineering geologist or coastal engineer as defined by the Geotechnical Risk Management Policy for Pittwater - 2009 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.
I have:

Please mark appropriate box

√ Prepared the detailed Geotechnical Report referenced below in accordance with the Australia Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009

√ I am willing to technically verify that the detailed Geotechnical Report referenced below has been prepared in accordance with the Australian Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009

√ Have examined the site and the proposed development in detail and have carried out a risk assessment in accordance with Section 6.0 of the Geotechnical Risk Management Policy for Pittwater - 2009. I confirm that the results of the risk assessment for the proposed development are in compliance with the Geotechnical Risk Management Policy for Pittwater - 2009 and further detailed geotechnical reporting is not required for the subject site.

√ 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 Geotechnical Risk Management Policy for Pittwater - 2009 requirements for Minor Development/Alterations.

☐ Provided the coastal process and coastal forces analysis for inclusion in the Geotechnical Report

Geotechnical Report Details:

Report Title: Preliminary Geotechnical Investigation

Report Date: 9 August 2010

Author: Indra Jworchan

Author's Company/Organisation: Geotechnique Pty Ltd

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

Australian Geomechanics Society (AGS), Landslide Zoning Working Group. "Guideline for Landslide Susceptibility, Hazard and Risk Zoning for Land Use Planning", Journal and News of Australian Geomechanics Society, Volume 42, No 1, March, 2007.

Pittwater Council, Geotechnical Risk Management Policy for Pittwater- 2009

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

Name - Indra Jworchan
Chartered Professional Status - CPEng
Membership No.- 806995
Company - Geotechnique Pty Ltd

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

Development Application for Woniora Investment Pty Ltd
Address of site *13a Ocean Road, Palm Beach*

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: Preliminary Geotechnical Investigation
Report Date: 9 August 2010
Author: Indra Jworchan
Author's Company/Organisation: Geotechnique Pty Ltd

Please mark appropriate box

√ Comprehensive site mapping conducted 30 July 2010
√ Mapping details presented on contoured site plan with geomorphic mapping to a minimum scale of 1:200 (as appropriate)
√ Subsurface investigation required

- √ No Justification ...Difficult site access but excavation faces observed
- ☐ Yes Date conducted .....

√ Geotechnical model developed and reported as an inferred subsurface type-section
√ Geotechnical hazards identified

- √ Above the site
- √ On the site
- ☐ Below the site
- ☐ Beside the site

√ Geotechnical hazards described and reported
√ Risk assessment conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009

- √ Consequence analysis
- √ Frequency analysis

√ Risk calculation
√ Risk assessment for property conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009
√ Risk assessment for loss of life conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009
√ Assessed risks have been compared to "Acceptable Risk Management" criteria as defined in the Geotechnical Risk Management Policy for Pittwater - 2009
√ Opinion has been provided that the design can achieve the "Acceptable Risk Management" criteria provided that the specified conditions are achieved.
√ Design Life Adopted:

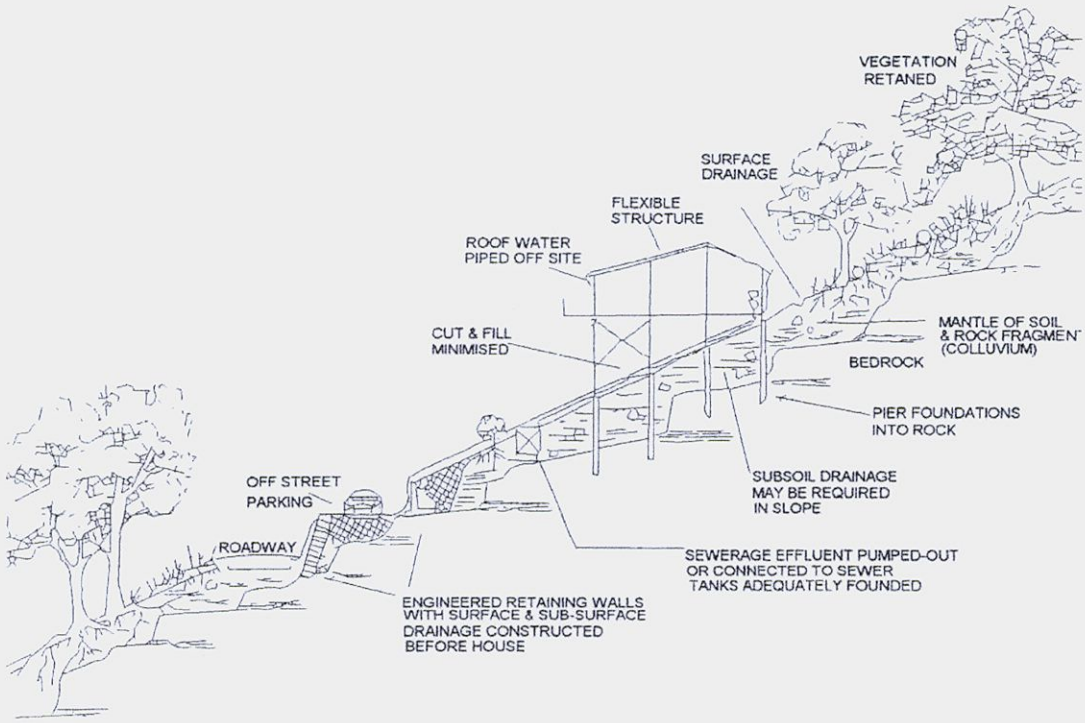
- √ 100 years
- ☐ Other .....
  specify

√ Geotechnical Conditions to be applied to all four phases as described in the Geotechnical Risk Management Policy for Pittwater - 2009 have been specified
√ Additional action to remove risk where reasonable and practical have been identified and included in the report.
☐ Risk assessment within Bushfire Asset Protection Zone.

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
Name - Indra Jworchan
Chartered Professional Status - CPEng
Membership No.- 806995
Company - Geotechnique Pty Ltd

EXAMPLES OF GOOD HILLSIDE PRACTICE



EXAMPLES OF POOR HILLSIDE PRACTICE

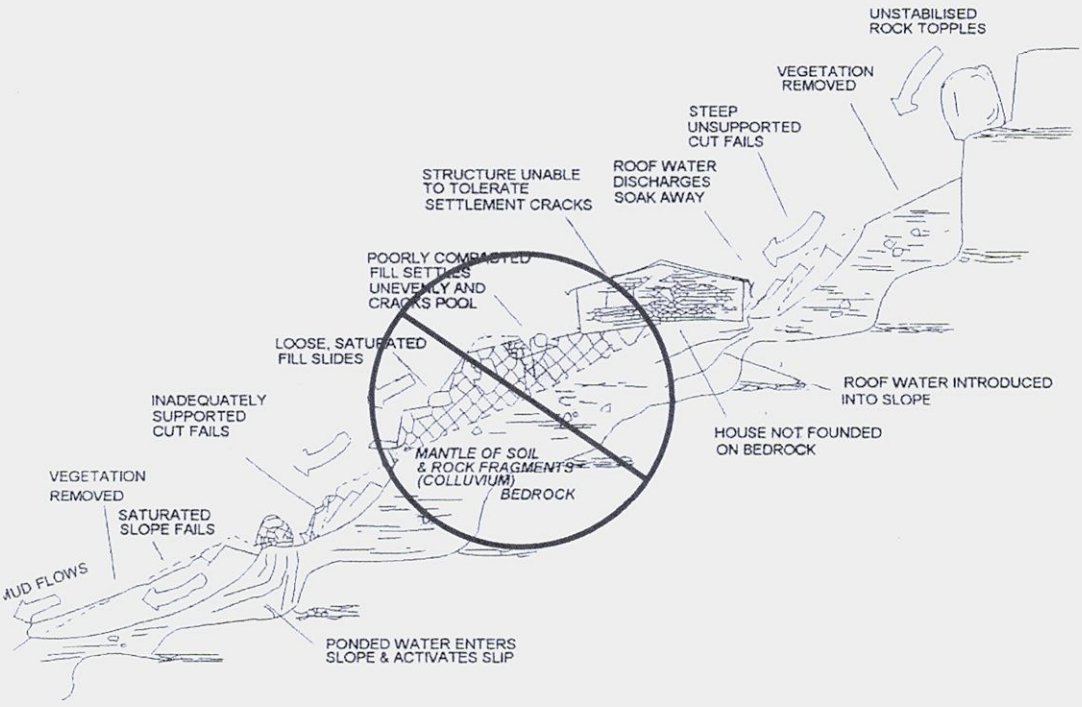


FIGURE 1. ILLUSTRATIONS OF GOOD AN POOR HILLSIDE PRACTICE

11 Bibby Street
Carlton
NSW 2218 AUSTRALIA

AJK DESIGN Pty Ltd
Consulting Structural/Civil Engineers

Ph: (02) 9547 3757
Fax: (02) 9547 3757
Mob: 0438 007 990

Coastal Protection Report

13A OCEAN ROAD PALM BEACH

(Lot 1 DP 121833)

COASTAL ENGINEERING ASSESMENT

23 August 2010
Job ref: CPR017-13A

Mrs. Pamela Fahey
13A Ocean Rd
Palm Beach NSW 2026

Dear Mrs. Pamela Fahey,

13A OCEAN ROAD PALM BEACH (Lot 1 DP 121833) COASTAL ENGINEERING ASSESMENT

1.0 INTRODUCTION

It is proposed to update and renovate the residence at 13a Ocean Rd Palm Beach. As part of a development application for these works, Mrs Pamela Fahey, engaged AJK Design Engineers Pty Ltd to complete a coastal engineering assessment of the subject property, as set out herein.

The report author is Mr. Andrey Kandic, and has 13 years of engineering experience.

The project is located within a coastline (beach) hazard area designated on Pittwater Council's Development Control Plan (DCP) Map MDCP016 *Land Identified as Beach Management on the Coastlines Hazard Map 97-*003 (Part of the Pittwater 21 DCP Amendment No. 4 which came into effect November 2008, referenced in Section B3.3)

Given this any DA for the property must be carried out in accordance with the *Coastline Rick Management Policy for Development in Pittwater* (Appendix 6 of the Pittwater 21 DCP), hereafter denoted as the "Coastline Policy". Based on the Coastline Policy, a Coastline Risk Management Report is required as part of a DA, as provided herein.

In our investigation, all 11 items listed in Clause 9.3 of the Coastline Policy are addressed where appropriate. As required, completed Forms 1 and 1(a) as given in the Coastline Policy are also attached.

In the Coastline Policy, it is noted that a planning period (design project life) of 100 years should be adopted unless otherwise justified. Both 50 year and 100 year planning periods have been considered herein.

Note that all level given in the investigation reported herein are to Australian Height Datum (AHD). Zero meters AHD is approximately equal to mean sea level.

INFORMATION PROVIDED

We were provided with the following information relating to the subject property:

- a survey completed by Ballenden Surveyors on 19 November 2009
- Smith & Tzannes Pty Ltd architectural drawings, DA 09-154-103, 09-154-104, 09-154-105, 09-154-107, 09-154-A200, 09-154-A300 & 09-154-A301 completed in July 2010.
- a geotechnical investigation undertaken by Geotechnique (July 2010)

The subject property was inspected by Andrey Kandic of AJK Pty Ltd on 22 June 2010.

2.0 EXSISTING SITE DESCRIPTION

The sandy Palm Beach is about 2.3km long, formed between the rocky Barrenjoey Head in the north and Little Head in the south. An aerial view of the subject property at Palm Beach is provided in **Figure 1**. In the vicinity of the property, the beach faces approximately east. A view of the subject property from Palm Beach is provided in **Figure 2**.

Based on the survey provided, ground elevations at the subject property vary from about 6.0m AHD at the seaward property boundary, to about 7.0m AHD in the vicinity of the seaward face of the existing two storey residence at the site (which has a ground floor level of 7.0m AHD). Ground levels increase sharply landward of the existing residence, to about 42m AHD at the landward property boundary.

Seaward of the property, Ocean Road is at an elevation of about 6m AHD over a width of about 11m (including verges). Seward of Ocean Road, there is a minor dune (up to about 5m wide) sparsely vegetated with grasses and creepers, falling from just above the road to the sandy beach. The beach falls towards the ocean over a typical width of about 50m at mean seal level.

3.0 PROPOSED DEVELOPMENT

The proposed renovations and additional loft level to the main residence fronting Ocean Road Palm Beach has the following AHD levels. The ground floor level is to be 7.0 m AHD (3 bedrooms, laundry & bathroom). Level 1 has a proposed floor level of 10.2 AHD (family Living, Kitchen, master bedroom & bathroom), with level 3 above to accommodate for (2 bedrooms & bathroom).

4.0 GEOTECHNCAL INVESTIGATION

Geotechnique (2010) found that sandstone bedrock was located at a level of about -0.9m AHD on the seaward side of the existing development. Above this sandy clay, sandstone boulders, sand and fill was evident. On the landward side of the existing development, bedrock was found to be at a level of about 6.4m AHD.

The proposed development is anticipated to involve up to about 3.0m deep excavations.

The excavation is in fact an extension of a previously excavated face. Materials to be excavated are expected to comprise natural soils and sandstone bedrock of varying strength. It is considered that excavation of soils and very low strength sandstone can be achieved using conventional earthmoving equipment such as excavators and dozers. However, we suggest a rock saw for excavation into sandstone of medium strength or better, in order to minimise vibration that could adversely impact on the stability of existing excavation faces and residences.

Based on site observations, we do not anticipate significant inflow of groundwater during proposed excavation.

4.1 Retaining Structures

Proposed addition / extension involves up to about 3.0m deep excavations. The excavation faces should be battered appropriately or retained by engineered retaining structures for stability. However, available spaces will prohibit battering of slopes to desired slopes. Therefore, proposed excavation faces should be retained appropriately.

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We suggest that a Geotechnical Engineer inspect the site during excavation to ascertain that shotcrete, with appropriate reinforcements and weep holes, is adequate to support the proposed excavation faces. If not, the Geotechnical Engineer should provide, recommendations for an alternative retention system to ensure that the risk of excavation face failure is reduced to tolerate.

5.0 Footings

It is desired that additional loads due to addition of a storey to the residence are carried by existing footings. To assess whether existing footings are adequate to carry additional loads will require the following:

- Magnitude of additional loads
- Capacities of existing footings

We expect that a structural engineer will determine present and proposed additional loads on the existing footings.

Capacities of existing footings depend on the dimensions (length, width, depth) of the footings and the allowable bearing pressure for the foundation material at the founding depths. Determination of footing dimensions was beyond the scope of the preliminary geotechnical investigation. However, we expect that review of the as constructed drawing for the existing residence should provide information on footing dimensions and capacities. If capacities of existing footings are not adequate for additional loads, new footings would have to be installed.

As sandstone bedrock is anticipated at ground level in the western portion of the residence, it is considered that the footings of the residence are founded in bedrock. Therefore, we recommend that the new footings, if required, are also founded in sandstone bedrock and designed for an allowable bearing pressure of 800kPs.

For footings founded in sandstone bedrock, total settlements under the recommended allowable bearing pressures are estimated to be about 1% of pier diameter or minimum footing dimensions and differential settlements are estimated to be about half the estimated total settlements.

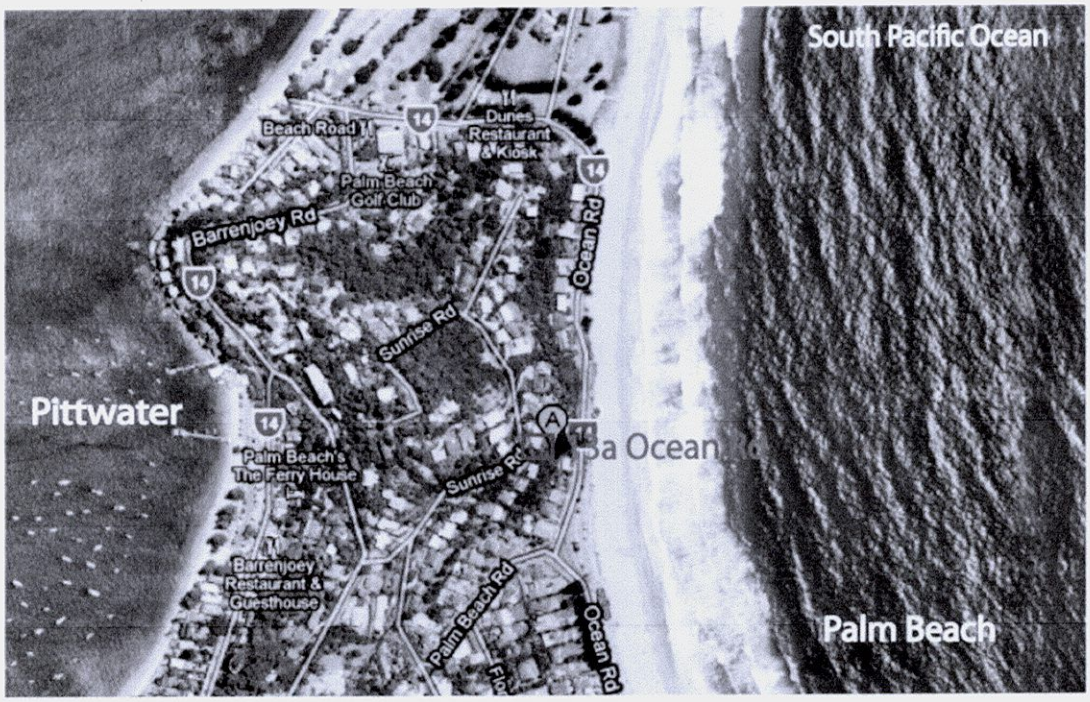


Figure 1: **Ariel view of property at Palm Beach**

Figure 1: **View of subject property (centre) from Palm Beach**

6.0 COASTAL HAZARDS

6.1 Preamble

The coastline hazards examined hereon are those set out in the Coastline Management Manual (NSW Government 1990), namely:

- climate change;
- beach erosion;
- shoreline recession
- sand drift
- coastal inundation
- stormwater erosion; and,
- slope instability.

Each of the above hazards are discussed in turn in section 6.2 to section 6.8, and are derived based on the assumption of a entirely sandy (erodible) subsurface above – 1m AHD.

6.2 Climate Change

The possibility of global climate change accelerated by increasing concentrations of greenhouse gases, the so-called Greenhouse Effect, is now widely accepted by the scientific and engineering communities. This is predicted to cause globally averaged surface air temperatures and sea levels to rise.

A "Draft Sea Level Rise Policy Statement" for NSW has been released by the Department of Environment and Climate Change (2009a, b). In this, the NSW seal level rise planning benchmark was recommended to be an increase above 1990 mean sea levels of 0.4m by 2050 and by 0.9m by 2100. These values are used herein for 50 years and 100 year planning periods respectively.

As discussed in Section 6.4.3, it is generally expected that recession of the open coast will occur under conditions of accelerated sea levels rise.

Climate change may also alter storm intensity and frequency, ware directions, and the like, which could affect beach erosion and shoreline recession estimates given below. However, the effects are difficult to quantify at present. A generally conservative approach has been used in the estimation of coastline hazards below, to take some account of this issue.

6.3 Beach Erosion Hazard

During storms, large waves, elevated water levels and strong winds can cause severe erosion to sandy beaches. The hazard of beach erosion relates to the limit of erosion (storm demand) that could be expected due to a severe storm or form a series of closely spaced storms.

Based on Gordon (1987), a storm demand value of 220m3/m above 0m AHD is considered to be appropriate for the study area, for a 100 year average recurrence interval (ARI) storm.

6.4 Shoreline Recession Hazard

6.4.1 Intro

The hazard of shoreline recession is the progressive landward shift in the average long term position of the coastline (NSW Government, 1990). Two potential causes of the shoreline recession are net sediment loss, and an increase in sea level, as outlined in Sections 6.4.2 and 6.4.3 respectively.

6.4.2 Long Term Recession Due to Net Sediment Loss

Long term recession due to net sediment loss is a long duration (period of decades), and continuing net loss of sand from the beach system. According to the sediment budget concept, this occurs when more sand is leaving than entering the beach compartment. This recession tends to occur when;

- The outgoing longshore transport from a beach compartment is greater than the incoming longshore transport;
- Offshore transport processes move sand to offshore sinks, from which it does not return to the beach; and/or,
- There is a landward loss of sediment by windborne transport (NSW Government, 1990).

Shoreline recession due to net sediment loss should not be confused with the beach erosion hazard, which generally results in a short term exchange of sand between the subaerial and subaqueous portions of the beach, not a net loss from the active beach system. Shoreline recession is therefore a long term process which is overlaid by short term fluctuations due to storm activity.

In our experience, a long term recession rate due to net sediment loss is the order of 0.2m/year would most likely be conservative for Palm Beach. This is equivalent to long term recession doe to net sediment loss of 10m over 50 years and 20m over 100 years.

6.4.3 Long Term Recession Due to Sea Level Rise

A progressive rise in sea level may result in shoreline recession through two mechanisms; first, by drowning low lying coastal land, and second, by shoreline readjustment to the new coastal water levels. The second mechanism is probably the more important since deeper offshore waters expose the coast attack by larger waves, the

nearshore refraction and diffraction behaviour of waves may change, and a significant volume of sediment may move offshore as the beach seeks a new equilibrium profile (NSW Government, 1990)

With an estimated inverse slope of the active beach profile of 40, based on Brunn (1962), predicted long term recession due to sea level rise at Palm Beach is about 16m over 50 years and 36m over 100 years.

6.5 Sand Drift Hazard

Sand drift is a result of aeolian (wind driven) movement of beach sediment. Although this has been an issue at Palm Beach in the past, this is no longer considered to be significant at Palm Beach, if appropriate dune management practices are maintained.

6.6 Coastal Inundation Hazard

Coastal inundation is the flooding of coastal lands by ocean waters, which is generally caused by large waves and elevated water levels associated with severe storms. Severe inundation is an infrequent event and is normally of short duration, but it can result in significant damage to both public and private property (NSW Government, 1990).

The components which give rise to the elevated still water levels at times of storms include astronomical tide, storm surge (barometric setup and wind setup) and wave setup. The 100 year ARI elevated ocean water level offshore of Palm Beach is about 1.5m AHD seaward of breaking waves, and about 2.8m AHD at the shoreline. Individual waves cause further temporary water level increases above the still water level due to the process of wave runup or uprush.

Theoretical ware runup levels in the vicinity of the subject property can be expected to be up to about 8m AHD (for a 100 year ARI event) for the immediate planning period, or close to 9m AHD for a 100 year planning period.

However, runup levels in the order of 8.0m to 9.0m AHD would only be realised if the foreshore was at the runup height or higher. In reality, any waves that overtopped the dune and ocean Road (at about 6m AHD) near the property would "fold over" the foreshore crest and travel as a sheet flow at shallow depth, spreading out and infiltrating Ocean Road. The property has quiet a steep driveway rising up to around 7.0m AHD over a distance of 30m, that would benefit any sort of tidal surge that may occur. There would be expected to be a significant reduction in the velocity and depth of runup within the order of 10m

from the foreshore crest. Therefore, there is unlikely to be widespread flooding as a result of a wave overtopping.

In the absence of any mitigating measures, a 100 year ARI wave runup level (over a 100 year planning period) of about 6.5m AHD is considered to be reasonable at the seaward edge of the proposed property. This assumes a 0.5m deep bore of wave overtopping would be in existence at the property.

In the Coastline Policy, it is also recommended that a freeboard of 0.5m above the wave runup level be adopted in setting the Coastline Planning Level, unless specified otherwise and justified. It is considered that the use of 0.5m freeboard at the subject property is overly conservative. As defined in the Floodplain Development Manual (New South Wales Government, 2005), freeboard provides a factor of safety to compensate for uncertainties in the estimation of flood levels, such as wave action, localised hydraulic behaviour, and other effects such as climate change. It is usually applied as an increase to a design flood level to set a minimum habitable floor level.

Understanding the purpose of freeboard, it is evident that the wave runup level estimate of 6.5m AHD generally takes account of the components that (by definition) comprise freeboard. Specifically;

- there is a high level of confidence in the still water level estimate of 1.5m AHD, which is based on about 100 years of recorded data;
- elevated water levels would only be expected to increase relatively small amounts for much rare events;
- wave runup levels of this magnitude would not be expected to persist for long periods of time;
- wave action is included in the estimate of wave runup level; and
- climate change is included in the estimate of wave runup level.

Therefore, in the absence of any mitigating measures, it is considered to be reasonable to adopt a Coastline Planning Level of 6.5m AHD.

All of the ground floor area has a floor level of 7m AHD.

6.7 Stormwater Erosion Hazard

During major stormwater runoff events, stormwater collected from back beach areas and discharging into coastal waters can cause significant erosion to the beach berm. This in turn can allow larger waves to attack the beach and can cause migration of the stormwater discharge entrance (NSW Government, 1990). Flow from stormwater pipes and

outlets on beaches can also potentially scour the surrounding sand, creating erosion zones.

At present, runoff is discharged to Palm Beach via a minor pipe outlet about 40m south of the subject property. This is unlikely to alter the storm demand predicted at the subject property in section 6.3.

6.8 Slope Instability

Based on Nielsen et al (1992), a number of coastline hazard zones can be delineated as shown schematically in Figure 3. In this, is it assumed that there is an entirely sandy subsurface in the active coastal erosion zone. If there are layers of less erodible or inerodible material in this zone (such as stiff clays and/or rock) then these hazard zones may not be realised.

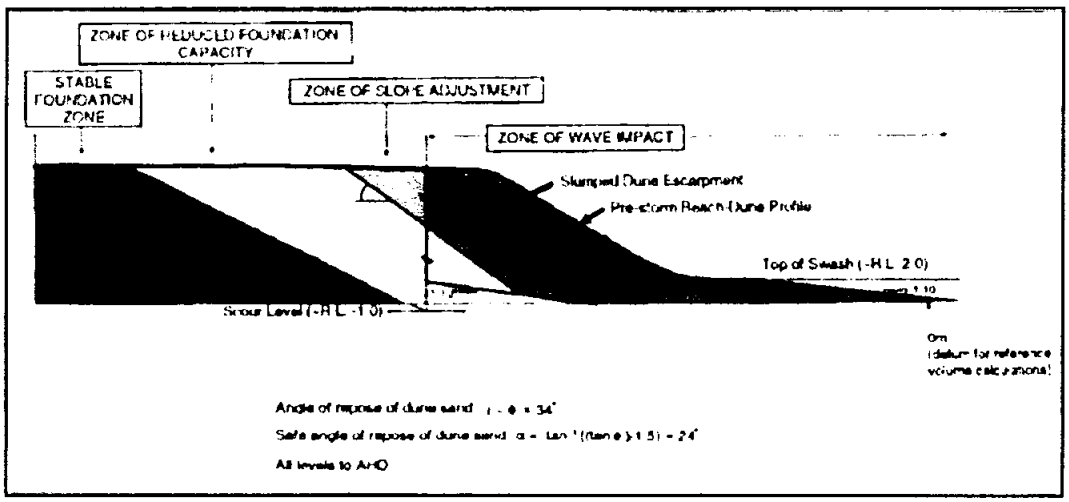


Figure 3: Schematic representation of coastline hazard zones (after Nielsen et al, 1992)

The Zone of Wave Impact (ZWI) delineates an area where any structure or its foundations would suffer direct wave attack during a severe coastal storm. It is that part of the beach which is seaward of the beach erosion escarpment.

A Zone of Slope Adjustment (ZSA) is a delineated to encompass that portion of the seaward face of the beach that would slump to the natural angle of repose of the beach sand following removal of sand by wave erosion.

A Zone of Reduced Foundation Capacity (ZRFC) for building foundations is delineated to take account of the reduced bearing capacity of the sand adjacent to the storm erosion escarpment. Nielsen et al (1992) recommended that structural loads should only be transmitted to soil foundations outside of this zone (i.e. landward or below), as the factor of safety within the zone is less than 1.5 during extreme scour conditions at the face of the escarpment.

In general (without the protection of a terminal structure such as a seawall), dwellings/structures not piled (or otherwise founded to be an adequate depth) and located with the Zone of Reduced Foundation Capacity would be considered to have an inadequate factor of safety.

7.0 COASTLINE HAZARD ZONES AT SUBJECT PROPERTY

Although based on limited survey information, it can be predicted that a storm demand of 220m3/m would theoretically extend the Zone of Wave Impact into the subject property, assuming an entirely sandy subsurface and no intervention to protect Ocean Road. If long term recession was taken into account (with the same assumptions), the Zone of Wave Impact would be 26m further landward in 50 years and 56m further landward in 100 years, that is well landward of the existing development and proposed development.

However, the calculation is not considered to be realistic since:

- It is highly likely that Ocean Road would be protected if threatened by erosion and recession in the foreseeable future, given that it is a popular and important access route, and,
- There is bedrock in the active coastal erosion/recession zone that would limit the extent of long term hazards.

Based on Section 8.1(iii) of the Coastline Policy, it is required to define Coastline Management Line (CML) at the subject property, which in turn requires the definition of the Coastline Hazard Line (CHL). This is to be defined for a 100 year planning period.

The theoretical limit to erosion and recession at the subject property, due to the presence of bedrock, would be near the landward edge of the existing development, that is near the landward edge of the

proposed ground floor. This is depicted in **Figure 4** as the "Theoretical CHL".

It is considered that the Coastline Hazard Line (CHL) can be defined (for practical purposes) as being at the landward edge of Ocean Road, in recognition of the possible future failure of protective works. In the Coastline Policy, it is also recommended that the Coastline Management Line (CML) be defined to be 10m landward of the CHL. It is arguable that it is appropriate to apply this setback at the subject property. As such, the CHL and CML were assumed to be coincident, as depicted in Figure 4 as the "Practical CHL/CML".

Coastline Planning Levels are also noted on **Figure 4**.

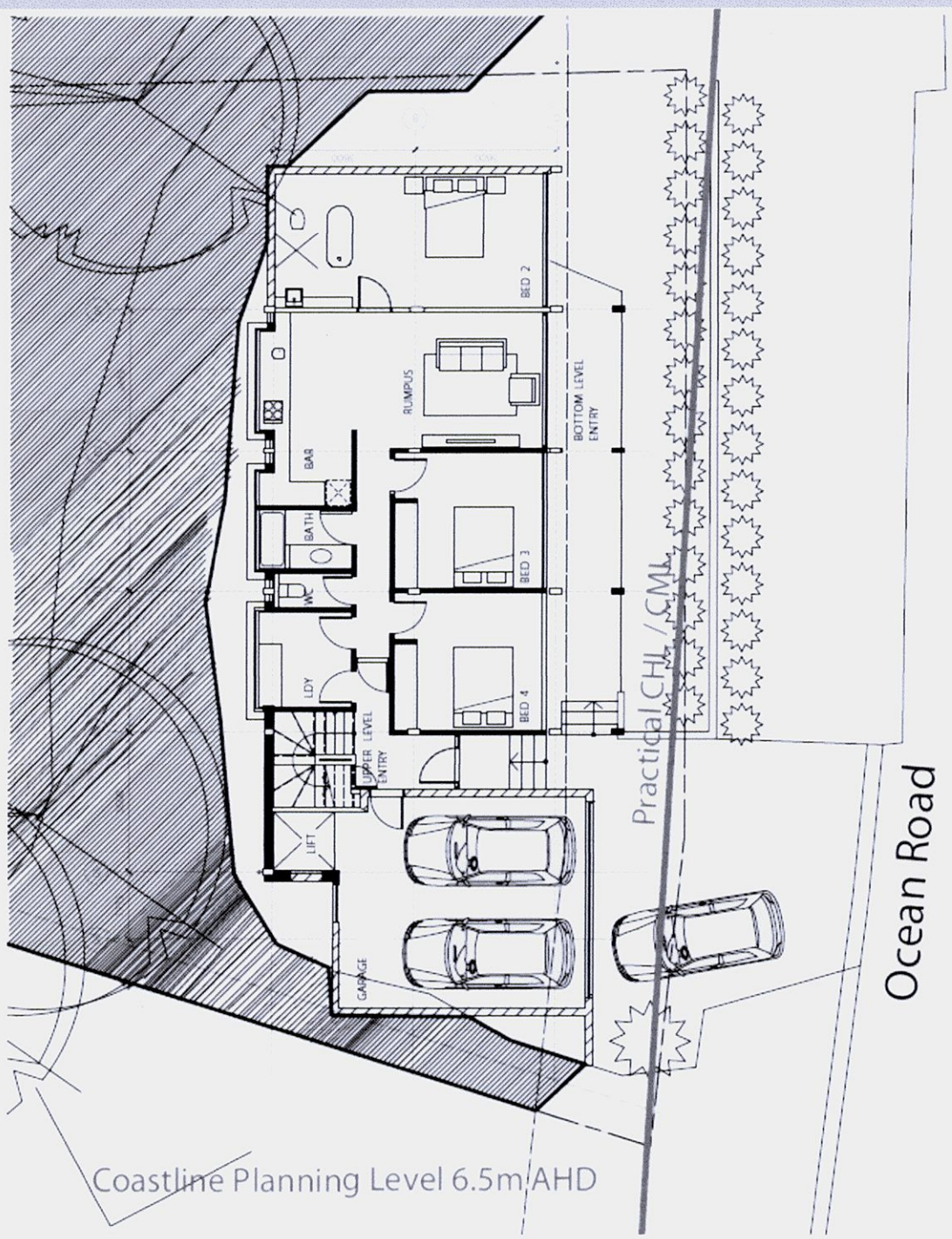


Figure 4: Coastline Hazard Line (CHL), Coastline Management Line (CML) and Coastline Planning Level at subject property (base information derived from Smith & Tzannes Architects drawing)

8.0 CONTROLS IN PITTWATER 21

Based on Section B3.3 of Pittwater 21:

- development must be designed and constructed to ensure that every reasonable and practical means available is used to remove risk to an acceptable level for the life of the development; and,
- the development must not adversely affect or be adversely affected by coastal processes now must it increase the level of risk for any people, assets and infrastructure in the vicinity due to coastal processes;

With the proposed founded on the underlying bedrock, the risk of damage due to erosion/recession has been minimized. With a Coastline Planning Level of 6.5m AHD the risk of damage to the proposed development from coastal inundation is relatively low. Recommendations have been provided in Section 6.6 relating to reducing risk of inundation affecting the proposed development.

To be conservative, foundation structures (such as footings, piers or piles) could be designed assuming removal of all soil to the bedrock level, and designed to resist the loading from a collapsing sand dune following storm erosion based on Nielsen et al (1992), as well as axial and lateral loads transmitted from the structure in the conventional manner.

The proposed renovation would not be expected to increase the level of risk for any people; assets or infrastructures in the vicinity due to coastal processes.

Based on Section8.1(i) of the Coastline Policy:

(a) all structures below the Coastline Planning Level shall be constructed from flood compatible materials;
(b) all development must be designed and constructed so that it will have a low risk of damage and instability due to wave action and/or oceanic inundation hazards;
(c) all developments and/or activities must be designed and constructed so that they will not adversely impact on surrounding properties, coastal processes or the amenity of public foreshore lands;
(d) all uncontaminated dune sand excavated during construction operations shall be returned to the active beach zone as approved and as directed by Council;
(e) wherever present, remnant foredune system shall be appropriately rehabilitated and maintained for the life of the development to

stabilize an adequate supply of sand (as determined by a coastal engineer) that is available to buffer erosion processes and/or minimise the likelihood of oceanic inundation;

(f) all vegetated dunes, whether existing or created as part of coastal protection measures shall be managed and maintained so as to protect the dune system from damage both during construction of the development and a s a result of subsequent use during the life of the development;

(g) all electrical equipment, wiring, fuel lines or any other service pipes and connections must be waterproofed to the Coastline Planning Level;

(h) the storage of toxic or potentially polluting goods, materials or other products, which may be hazardous or pollute waters during property inundation, will not be permitted below the Coastline Planning Level;

(i) for existing structures, a tolerance of up to minus 100mm may be applied to the Coastline Planning Level in respect of compliance with these controls;

(j) building heights must not exceed 8.0m above the Coastline Planning Level or 8.5 metres above existing ground level, whichever is higher; and,

(k) where land is also subject to the provisions of the Flood Ricks Management Policy for Development around Pittwater, the higher of the Coastline Planning Level and Flood Planning Level shall apply.

For item (a), the existing & proposed structure is above the Coastline Planning Level. For item (b), it has been noted previously that the proposed renovation has a low risk of damage and instability due to wave action and/or oceanic inundation hazards.

As noted above, Item (c) has been met. (d) can be met, no sand excavation required. There are no remnant foredunes or vegetated dunes located within the subject property, so Item (e) and (f) do not apply.

Item (g), (h) and (i) can be met.

With regards to Item (j), given that existing ground levels exceed 6.5m AHD over the proposed development footprint, building heights must not exceed 8.5m above existing ground level, can not be met. For Item (k), we are not aware of any Flood Planning Levels applying at the subject property.

Based on Section 8 (ii) of the Coastline Policy, all floor levels shall be at or above the Coastline Planning Level. With Coastline Planning Level of 6.5m AHD, this control has been met.

Based on Section 8 (iii) of the Coastline Policy, new developments must be sited on the landward side of the 100 year Coastline Management Line. As described in Section 7, this has been met at the subject property as per the Coastline Management Line.

Based on Section 8 (iv) of the Coastline Policy, all floor levels shall be at or above the Coastline Planning Level. With Coastline Planning level of 6.5m AHD. As per the detailed survey report, FFL is 7.0m AHD, this control has been met.

9.0 CONCLUSIONS

Over a planning period of 100 years, the theoretical limit to erosion and recession at the subject property (due to the presence of bedrock) would be near the landward edge of the proposed ground floor. However, with the proposed development suitably founded on bedrock, the stability of the proposed development would generally be governed by geotechnical conditions, rather than conventional coastline hazards.

Due to the likely protection of Ocean Road into the foreseeable future, it is considered that the position of the Coastal Hazard Line and Coastline Management Line at the subject property can be defined to be at the landward edge of Ocean Road, that is seaward of the subject property. With Coastline Planning level of 6.5m AHD. As per the detailed survey report, the FFL of the existing ground floor is 7.0m AHD, which is at a higher level than the Coastline Hazard Line.

As Outlined in Section 8, the proposed development meets the required controls in the Coastline Policy.

10.0 REFRENCES

Geotechnique PTY (2010), Report on Geotechnical Investigation, Proposed Renovations, 13a Ocean Road Palm Beach.

Adamantidis, CA & AF Nielsen (2004), "Callala Beach Coastal Hazard Study", Report No. 31434-002, prepared by SMEC Australia for Shoallhaven City Council, August

Coastal Report for 6 Ocean Rd, Palm Beach prepared by Worley Parsons Services Pty Ltd (15 July 2009)

Bruun, Per (1962), "Sea Level Rise as a Cause of Shore Erosion", Journal of the Waterways and Harbors Division, Proceedings of the American Society of Civil Engineers, Volume 88, No. WW 1, February, pp. 117-130

Department of Environment and Climate Change [DECC] (2009a), "Draft Sea Level Rise Policy Statement", DECC 2009/125, February, ISBN 978 1 74232 148 6

Gordon, AD (1987), "Beach Fluctuations and Shoreline Change NSW", Preprints of Papers, 8th Australasian Conference on Coastal and Ocean Engineering, Launceston, 30 November to 4 December, Institution of Engineers Australia National Conference Publication N0 87/17, pp. 103-167

Nielsen, AF; Lord, DB and HG Poulos (1992), "Dune Stability Considerations for Building Foundations", Australian Civil Engineering Transactions, Institution of Engineers Australia, Volume CE34, No. 2, June, pp. 167-173

New South Wales Government (1990), Coastline Management Manual, September, ISBN 0730575063

New South Wales Government (2005), Floodplain Development Manual, the management of flood liable land, Department of Infrastructure, Planning and Natural Recourses, DIPNR 05_020, ISBN 0 7347 5476 0, April

Public Works Department [PWD] (1982), "Palm Beach Erosion and Management Study", Report No. 82027, prepared by JG Hoffman, Coastal Branch, September, Volumes 1 and 2

If you have any further questions or queries, please do not hesitate to contact the undersigned.

Yours sincerely,

Andrey Kandic BE, MIE Aust, CPEng, RPEQ
AJK Design Pty Ltd

COASTLINE RISK MANAGEMENT POLICY FOR PITTWATER

FORM NO. 1 – To be submitted with Development Application

Development Application for Pamela R. Fahey
Name of Applicant

Address of site 13a Ocean Road Palm Beach

Declaration made by a Coastal Engineer as part of a Coastal Risk Management Report

I, Mr. Andrey Kandic (Insert Name) on behalf of AJK Design Pty Ltd (Trading or Company Name)

on this the 23 August 2010 (date)

certify that I am a Coastal Engineer as defined by the Coastline 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 $2 million.

I have:

Please mark appropriate box

☒ Prepared the detailed Coastal Risk Management Report referenced below in accordance with the Pittwater Council Coastline Risk Management Policy

☐ Am willing to technically verify that the detailed Coastal Risk Management Report referenced below has been prepared in accordance with the Pittwater Council Coastline Risk Management Policy

☐ Have examined the site and the proposed development/alteration in detail and, as detailed in my report, am of the opinion that the Development Application only involves Minor Development/Alterations or is sited such that a detailed coastal hazard analysis or risk assessment is not required.

☐ Provided the coastal hazard analysis for inclusion in the Coastal Risk Management Report

Coastal Risk Management Report Details:

Report Title: 13a Ocean Road Palm Beach (Lot 1 DP 121 833), Coastal Engineering Assessment

Report Date: 23 August 2010

Author: Mr. Andrey Kandic / AJK Design Pty Ltd

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

Refer to part 10 in the report, 'REFERENCES'

I am aware that the above Coastal Risk Management Report, prepared for the above mentioned 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 coastal 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 ..... Mr Andrey Kandic

Chartered Professional Status..... CPENG RPEQ

Membership No. 720489

COASTLINE RISK MANAGEMENT POLICY FOR PITTWATER

FORM NO. 1(a) - Checklist of Requirements for Coastal Risk Management Report for Development Application or Part 5 Assessment

Development Application for Mrs Pamela R. Fahey
Name of Applicant

Address of site 13a Ocean Road Palm Beach

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

Coastal Risk Management Report Details:

Report Title: 13a Ocean Road Palm Beach (Lot 1 DP 121 833), Coastal Engineering Assessment

Report Date: 23 August 2010

Author: Mr. Andrey Kandic / AJK Design

Please mark appropriate box

☒ Comprehensive site mapping conducted survey completed by Ballenden Surveyors
(date) 19 November 2009

☒ Mapping details presented on contoured site plan to a minimum scale of 1:200 (as appropriate)
See Figure 4 for presentation of CHL, CML and Coastline Planning Level, considered to be reasonable

☒ Subsurface investigation required

☐ No Justification .....

☒ Yes Date conducted ...Geotechnique (10 August 2010)

☒ Impact by and upon coastal processes identified

☒ Coastal hazards identified

☒ Coastal hazards described and reported

☒ Risk assessment conducted in accordance with Council's Policy

☐ Adequacy of existing coastal protection measures assessed and certified

☒ Opinion has been provided that the design can achieve the risk management criteria in accordance with Council's Policy provided that the specified conditions are achieved.

X Design Life Adopted:

X 100 years

☐ Other .....
specify

X Development Controls as described in the Pittwater Coastline Risk Management Policy have been specified

X Additional actions to remove risk where reasonable and practical have been identified and included in the Coastal Risk Management Report.

I am aware that Pittwater Council will rely on the Coastal Risk Management Report, to which this checklist applies, as the basis for ensuring that the coastal 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 specified, and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature .....

Name Mr. Andrey Kandic

Chartered Professional Status CPENG RPEQ

Membership No. 720489

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

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

I, EMGED RIZKALLA on behalf of GEOTECHNIQUE PTY LTD
(insert name) (trading or company name)

on this the 5TH SEPTEMBER 2011
(date)

certify that I am a Geotechnical Engineer or Engineering Geologist and/or Coastal Engineer as defined by the Geotechnical Risk Management Policy for Pittwater - 2099 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. I also certify that I have reviewed the design plans and structural design plans for the Construction Certificate Stage and that I am satisfied that:

Please mark appropriate box

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

Geotechnical Report Details:

Report Title: 12312/1-AA
Report Date: 10 August 2010
Author: Dr Indra Jworchan

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

Smith & Tzannes Construction Certificate Plans, Rev E, dated 9th September 2011
Tall Consulting Strutural Engineers, plan S01 - A to S13 -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.

Signature .....

Name: EMGED RIZKALLA

Chartered Professional Status CPEng NPER

Membership No 110242

Company GEOTECHNIQUE PTY LYD

EXTERNAL FINISHES SCHEDULE : PROPOSED BUILDING WORK

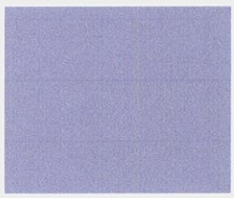
PROPERTY ADDRESS:	13A Ocean Road Palm Beach
PROPOSED WORK:	Alterations & Additions
DA NO. OR CDC NO.	DA: NO567/10
COUNCIL AREA:	Pittwater Council

EXTERNAL ELEMENT:	**COLOUR**	**TEXTURE (OR MATERIAL)**
Walls	White & Silver	WeatherBoard/Zinc
Roof	Wind Spray/Iron Stone	Colour Bond Ultra, metal
Gutter		
Fences	light stone	Stone Cladding
Driveways	Standard Grey	Concrete

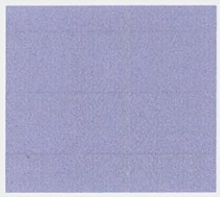
If the Council require colour samples, please paste them below.

Walls

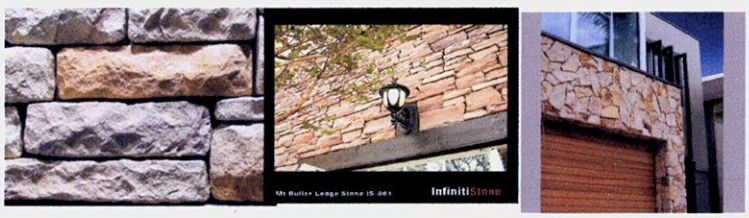

Roof




Gutter



Fences



DRIVEWAYS

SMITH & TZANNES

Wednesday, 14 September 2011

BRADLEY HOLMES
HOLMES ACCREDITED CERTIFIERS

CONSTRUCTION CERTIFICATE CERTIFICATION
FAHEY DWELLING [09_154]

Dear Brad

Please find enclosed general arrangement plans for Construction Certificate.

CONDITIONS OF DEVELOPMENT CONSENT DA N0567/10
I certify that the Construction Certificate Architectural Plans are not inconsistent with the approved Development Application plans and the relevant conditions of the Notice of Determination issued by Pitwater Council have been satisfied

In reference to the conditions of consent we confirm the following:

Condition B-4: The internal driveway finish will be coloured concrete which provides a stable surface and a mid grey colour that blends with the environment.

Condition B-7: There is no planting proposed outside the approved area.

Condition B-11: There is no new fencing proposed

Condition B-12: Planting indicated on the plans has been approved by Council

Condition B-16: The spa will be provided with a lockable lid

Condition B-18: The glazing has a reflectivity index less than 25%

Condition C-4: It is currently proposed to use the existing access driveway across the public road verge.

Condition C-6. The Pennisetum in the Level 1 planter box is to be replaced with *Patersonia Sericea* (Sikly Purple Flag) and *actinotus helianthi* (Flannel Flower)

Conditions C-8 The external colours are as approved in the Development Application.

ARCHITECTURE
URBAN PLANNING
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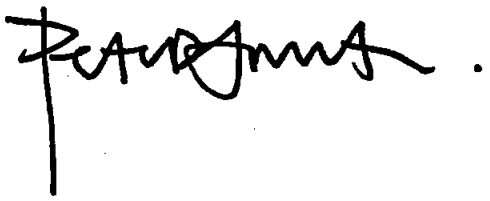
E mail@smithtzannes.com.au
W www.smithtzannes.com.au
Building a Legacy
12 Joynton Avenue
Zetland NSW 2017
PO Box 240
Alexandria NSW 1435
Directors:
PETER SMITH B.Arch.
ANDREW TZANNES
Smith and Tzannes Pty Ltd
ABN 96 142 928 473

SMITH & TZANNES

BUILDING CODE OF AUSTRALIA

We confirm that the building has been designed in accordance with the Building Code of Australia, as described in the drawings and specifications.

Yours sincerely
SMITH & TZANNES



Peter SMITH
Registered Architect: 7024

Levy Online Payment Receipt

LONG SERVICE CORPORATION

Thank you for using our Levy Online payment system. Your payment for this building application has been processed.

Applicant Name:	PRFAHEY
Levy Application Reference:	5019743
Application Type:	DA
Application No.:	567/10
Local Government Area/Government Authority:	PITTWATER COUNCIL
Site Address:	13A OCEAN ROAD PALM BEACH
	13A OCEAN ROAD PALM BEACH
	NSW
	2108
Value Of Work:	$100,000
Levy Due:	$350
Levy Payment:	$350
Online Payment Ref.:	628721529
Payment Date:	29/09/2011 11:58:59 AM

Close

QUICK CHECK

Application Lodgement Summary

Sydney WATER

Reference Number 3253240 **Date Requested:** Fri August 26 2011

Agent	Reece Waverley, 98 Carrington Rd Waverley
Applicant	Woniora Investments Pty Ltd, 11 Kenneth St Tamarama 2026
Property/Asset	13a Ocean Rd, Palm Beach 2108 (Pr Fahey) PNum: 3438835 150 mm DICL Sewer Main - (3137736) 150 mm DICL Sewer Main - (3135008)
Product	Building Plan Approval Application

Charge	**Product Cost**	**GST**	**Total**
Building Plan Approval Application	$27.25	$0.00	$27.25

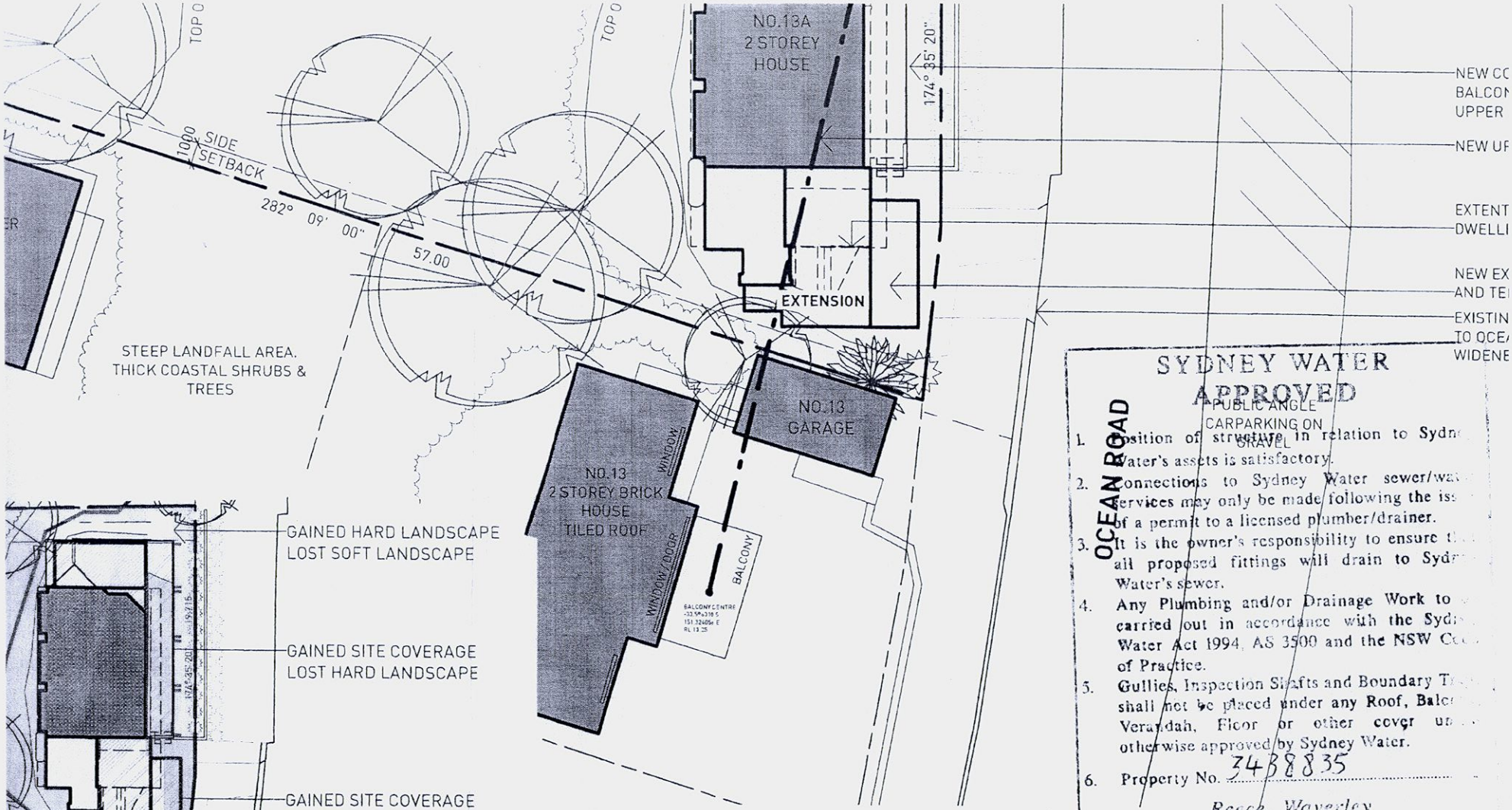
Property Special Conditions for Plumbers

Boundary Trap Required	Yes
Watercharged/Tidal area	No
Partial Drainage area	No
Aggressive Soil area	No
Cast Iron Pipe area	No
Sewer Surcharge area	No
Minimum Gully Height area	No
Sewer Available	Yes
Connection Type	Gravity

You must contact Sydney Water to clarify the property special conditions where the property special conditions are not shown (yes or no), are shown as "unset", "unknown" or "not available" or if the proposed development is being built over more than one existing property.

Please note that boundary traps must be fitted for all commercial and industrial properties and you must ensure that all plumbing/drainage and building works are carried out in accordance with the relevant codes and standards.

A water meter is required to be fitted to the property during construction. You will need to ensure that your licensed plumber carries out this work in accordance to the relevant codes and standards.



SITE COVERAGE (SITE AREA=984m²)

	EXISTING	PROPOSED
HARD LANDSCAPE	238m²	181m²
SOFT LANDSCAPE	640m²	636m²
SITE COVERAGE	106m² (11%)	198m² (20%)

SYDNEY WATER
APPROVED

1. Position of structure in relation to Sydn... Water's assets is satisfactory.
2. Connections to Sydney Water sewer/wa... services may only be made following the iss... of a permit to a licensed plumber/drainer.
3. It is the owner's responsibility to ensure t... all proposed fittings will drain to Sydn... Water's sewer.
4. Any Plumbing and/or Drainage Work to ... carried out in accordance with the Sydn... Water Act 1994, AS 3500 and the NSW Co... of Practice.
5. Gullies, Inspection Shafts and Boundary T... shall not be placed under any Roof, Balc... Verandah, Floor or other cover un... otherwise approved by Sydney Water.
6. Property No. 3488835

Reece, Waverley
Quick Check Agent on behalf of
SYDNEY WATER

PROPOSED SITE PLAN
DEVELOPMENT APPLICATION 26/8/11
REV:D 24/5/11

13A OCEAN ROAD PALM BEACH

WONIORA INVESTMENTS

ARCHITECTURE URBAN PLANNING
ABN 96 142 020 693
PO Box 240 Alexandria NSW 1435
P 02 9699 1600 E email@s-tz.com.au
s-tz.com.au

SMITH & TZ

BASIX Certificate

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

Alterations and Additions

Certificate number: A113386

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Alterations and Additions Definitions" dated 29/9/2006 published by Department of Planning. This document is available at www.basix.nsw.gov.au

Director-General
Date of issue: Monday, 23, May 2011

NSW GOVERNMENT | Planning

Description of project

Project address	
Project name	13a Ocean Road Revised new DA
Street address	13a Ocean Road Palm Beach 2108
Local Government Area	Pittwater Council
Plan type and number	Deposited Plan 121833
Lot number	1
Section number	0
Project type	
Dwelling type	Separate dwelling house
Type of alteration and addition	My renovation work is valued at $50,000 or more, and includes a pool (and/or spa).

Pool and Spa	Show on DA Plans	Show on CC/CDC Plans & specs	Certifier Check
Rainwater tank			
The applicant must install a rainwater tank of at least 1000 litres on the site. This rainwater tank must meet, and be installed in accordance with, the requirements of all applicable regulatory authorities.	✓	✓	✓
The applicant must configure the rainwater tank to collect rainwater runoff from at least 76.9 square metres of roof area.		✓	✓
The applicant must connect the rainwater tank to a tap located within 10 metres of the edge of the outdoor spa.		✓	✓
Outdoor spa			
The spa must not have a capacity greater than 2 kilolitres.	✓	✓	✓
The spa must have a spa cover.		✓	✓
The applicant must install a spa pump timer.		✓	✓
The applicant must install the following heating system for the outdoor spa that is part of this development: solar (gas boosted).		✓	✓

Fixtures and systems	Show on DA Plans	Show on CC/CDC Plans & specs	Certifier Check
Lighting			
The applicant must ensure a minimum of 40% of new or altered light fixtures are fitted with fluorescent, compact fluorescent, or light-emitting-diode (LED) lamps.		✓	✓
Fixtures			
The applicant must ensure new or altered showerheads have a flow rate no greater than 9 litres per minute or a 3 star water rating.		✓	✓
The applicant must ensure new or altered toilets have a flow rate no greater than 4 litres per average flush or a minimum 3 star water rating.		✓	✓
The applicant must ensure new or altered taps have a flow rate no greater than 9 litres per minute or minimum 3 star water rating.		✓	

Construction	Show on DA Plans	Show on CC/CDC Plans & specs	Certifier Check
Insulation requirements			
The applicant must construct the new or altered construction (floor(s), walls, and ceilings/roofs) in accordance with the specifications listed in the table below, except that a) additional insulation is not required where the area of new construction is less than 2m2, b) insulation specified is not required for parts of altered construction where insulation already exists.	✓	✓	✓

Construction	Additional insulation required (R-value)	Other specifications
concrete slab on ground floor.	nil	
suspended floor above garage: framed (R0.7).	nil	
floor above existing dwelling or building.	nil	
external wall: framed (weatherboard, fibro, metal clad)	R1.30 (or R1.70 including construction)	
internal wall shared with garage: other/undecided	nil	
flat ceiling, flat roof: framed	ceiling: R1.58 (up), roof: foil backed blanket (55 mm)	medium (solar absorptance 0.475 - 0.70)

Glazing requirements	Show on DA Plans	Show on CC/CDC Plans & specs	Certifier Check
Windows and glazed doors			
The applicant must install the windows, glazed doors and shading devices, in accordance with the specifications listed in the table below. Relevant overshadowing specifications must be satisfied for each window and glazed door.	✓	✓	✓
The following requirements must also be satisfied in relation to each window and glazed door:		✓	✓
Each window or glazed door with standard aluminium or timber frames and single clear or toned glass may either match the description, or, have a U-value and a Solar Heat Gain Coefficient (SHGC) no greater than that listed in the table below. Total system U-values and SHGCs must be calculated in accordance with National Fenestration Rating Council (NFRC) conditions.		✓	✓
Each window or glazed door with improved frames, or pyrolytic low-e glass, or clear/air gap/clear glazing, or toned/air gap/clear glazing must have a U-value and a Solar Heat Gain Coefficient (SHGC) no greater than that listed in the table below. Total system U-values and SHGCs must be calculated in accordance with National Fenestration Rating Council (NFRC) conditions. The description is provided for information only. Alternative systems with complying U-value and SHGC may be substituted.		✓	✓
For projections described in millimetres, the leading edge of each eave, pergola, verandah, balcony or awning must be no more than 500 mm above the head of the window or glazed door and no more than 2400 mm above the sill.	✓	✓	✓
Pergolas with polycarbonate roof or similar translucent material must have a shading coefficient of less than 0.35.		✓	✓
External louvres and blinds must fully shade the window or glazed door beside which they are situated when fully drawn or closed.		✓	✓
Pergolas with fixed battens must have battens parallel to the window or glazed door above which they are situated, unless the pergola also shades a perpendicular window. The spacing between battens must not be more than 50 mm.		✓	✓
Overshadowing buildings or vegetation must be of the height and distance from the centre and the base of the window and glazed door, as specified in the 'overshadowing' column in the table below.	✓	✓	✓

Windows and glazed doors glazing requirements

Window / door no.	Orientation	Area of glass inc. frame (m2)	Overshadowing		Shading device	Frame and glass type
			Height (m)	Distance (m)		
W1	E	8.1	0	0	eave/verandah/pergola/balcony >=900 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)
W2	E	7	0	0	eave/verandah/pergola/balcony	standard aluminium, single clear, (or

Glazing requirements							Show on DA Plans	Show on CC/CDC Plans & specs	Certifier Check
Window / door no.	Orientation	Area of glass inc. frame (m2)	Overshadowing Height (m)	Overshadowing Distance (m)	Shading device	Frame and glass type			
					>=900 mm	U-value: 7.63, SHGC: 0.75)			
W3	W	1.4	11.64	4.6	none	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W4	S	2.2	0	0	none	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W5	S	2.2	0	0	eave/verandah/pergola/balcony >=600 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W6	E	4.9	0	0	eave/verandah/pergola/balcony >=600 mm	standard aluminium, single pyrolytic low-e, (U-value: 5.7, SHGC: 0.47)			
W7	E	7.2	0	0	eave/verandah/pergola/balcony >=600 mm	standard aluminium, single pyrolytic low-e, (U-value: 5.7, SHGC: 0.47)			
W8	E	8.4	0	0	eave/verandah/pergola/balcony >=900 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W9	E	8.4	0	0	eave/verandah/pergola/balcony >=900 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W10	E	8.4	0	0	eave/verandah/pergola/balcony >=900 mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W11	N	16.5	0	0	external louvre/blind (adjustable)	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			
W12	S	0.9	0	0	none	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)			

Glazed roofs

The applicant must install the glazed roofs described in the table below, in accordance with the specifications listed in the table.	✓	✓	✓
The following requirements must also be satisfied in relation to each glazed roof:		✓	✓

Glazing requirements	Show on DA Plans	Show on CC/CDC Plans & specs	Certifier Check

Glazed roofs glazing requirements

Glazed roof number	Area of glazing (m2)	Shading device	Glass type
G1	4.9	no shading	standard aluminium, toned/air gap/clear, (U-value: 5.31, SHGC: 0.48)
G2	2.2	no shading	standard aluminium, toned/air gap/clear, (U-value: 5.31, SHGC: 0.48)

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

NSW GOVERNMENT | Fair Trading

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

Pamela Fahey
PO Box 7225
BONDI BEACH NSW 2026

HOME BUILDING ACT 1989

OWNER BUILDER PERMIT

Permit : 388055P
Receipt: 1-1211644241

Issued : 02/09/2011
Amount: $154.00

BUILDING SITE

13A Ocean Rd, PALM BEACH, NSW 2108 AUSTRALIA

AUTHORISED BUILDING WORK

Construct double garage new ensuite & main bedroom.

Authority No : DA-n0567/10
Council Area : PITTWATER (S) 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 of sale.

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

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

Issuing officer

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

PAMELA FAHEY
P.O BOX 7225, Bondi Beach NSW 2026
PH +61 2 9365 4000
Fax +61 2 9365 6722
M: 0417 438 701
w.investments@bigpond.com

Wednesday, 28 September 2011

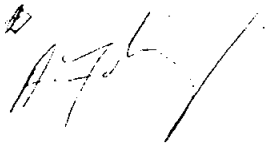
Letter Of Confirmation
Condition C4a, C4b, C4d and D1 for DA NO567/10

Dear Brad,

In accordance with Condition C4a, C4b, C4d and D1 of the DA conditions, we confirm that the driveway is not part of the approval and therefore the DA conditions are not required to be complied with, as the existing Driveway will be maintained and not disturbed @ 13a Ocean Palm Beach.

If you require further advice, please don't hesitate to contact me direct.

Regards
Pamela Fahey



PAMELA FAHEY
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Fax +61 2 9365 6722
M: 0417 438 701
w.investments@bigpond.com

Wednesday, 28 September 2011

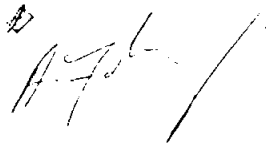
Letter Of Confirmation
Condition B17 for DA NO567/10

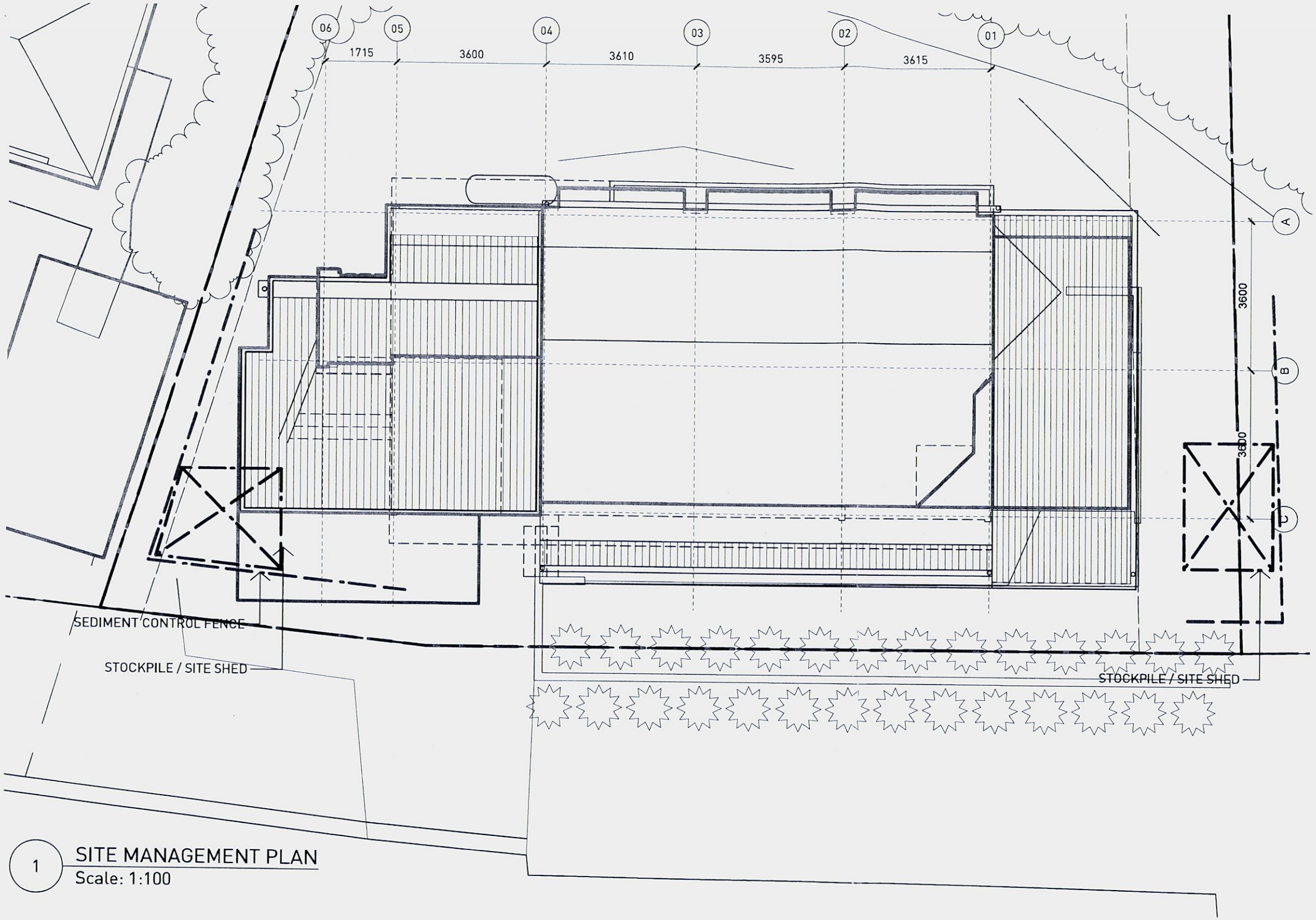
Dear Brad,

In accordance with Condition B17 of the DA conditions, we confirm that all new sanitary pipes will be hidden from external view @ 13a Ocean Palm Beach. We will ensure the plumber abides by this condition.

If you require further advice, please don't hesitate to contact me direct.

Regards
Pamela Fahey





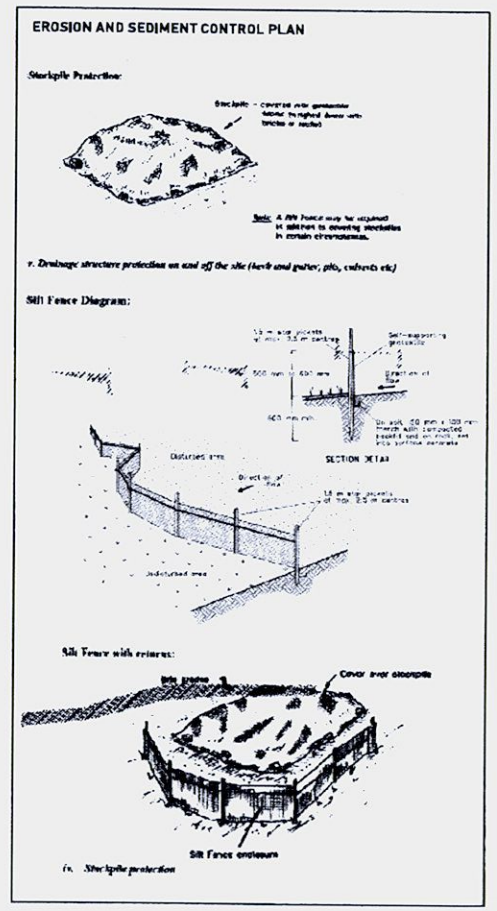
1 SITE MANAGEMENT PLAN
Scale: 1:100

CONSTRUCTION MANAGEMENT

MATERIALS HANDLING
Materials will be delivered: via Ocean Rd
Materials handling and vehicle operations will comply with the Road Transport Act 1999 (NSW) which incorporates the Mass Loading and Access Regulation 1996 and Safety Traffic Management Road Rules Regulations 1999.
All loads will be covered to minimise dust and prevent the transfer of sediment onto the roadway.

WASTE MANAGEMENT
The proposed development will incorporate the waste minimisation principles of Avoid, Reduce, Reuse and Recycle, and conform with the Waste Avoidance and Recovery Act 2001. Specific bins for waste and recycling shall be provided.

NOISE CONTROL
To reduce noise emissions from construction and demolition sites, all activities should be carried out in accordance with the requirements of Australian Standard Guidelines AS2436-1981 "Guide to noise control on Construction Maintenance and Demolition sites" and only during Council prescribed work hours



NOTES:

1. NEVER scale off drawings, use figured dimensions only.
2. Verify all dimensions on site prior to commencement & report discrepancies to the architect.
3. Drawings describe scope of works and general setout. These drawings are not shop drawings.
4. All work to be carried out in accordance with the Building Code of Australia
5. Architects work is subject to Copyright. Documents should not be used contrary to the purpose of the issue without written permission from Habitation.

:Scale
A3

SITE MANAGEMENT
CONSTRUCTION CERTIFICATE
REV:E 9/9/11
13A OCEAN ROAD PALM BEACH

WONIORA INVESTMENTS

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SMITH & TZANNES

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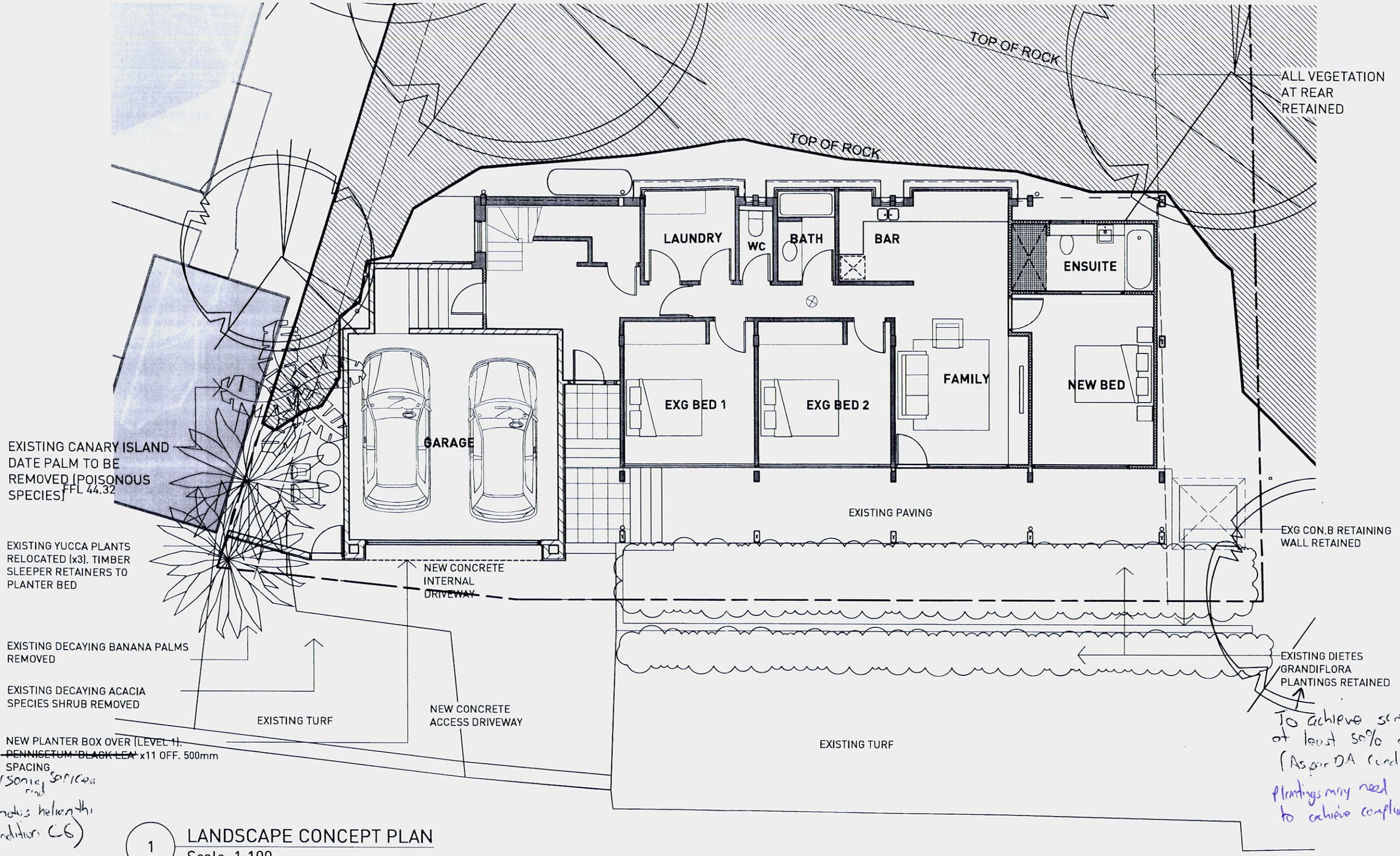

1 LANDSCAPE CONCEPT PLAN
Scale: 1:100

NOTES:

1. NEVER scale off drawings, use figured dimensions only.
2. Verify all dimensions on site prior to commencement & report discrepancies to the architect.
3. Drawings describe scope of works and general setout. These drawings are not shop drawings.
4. All work to be carried out in accordance with the Building Code of Australia
5. Architects work is subject to Copyright. Documents should not be used contrary to the purpose of the issue without written permission from Habitation.

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A3

LANDSCAPE PLAN
CONSTRUCTION CERTIFICATE
REV:E 9/9/11
13A OCEAN ROAD PALM BEACH

WONIORA INVESTMENTS

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09_154 A500-DA
1

CONSTRUCTION NOTES

GENERAL

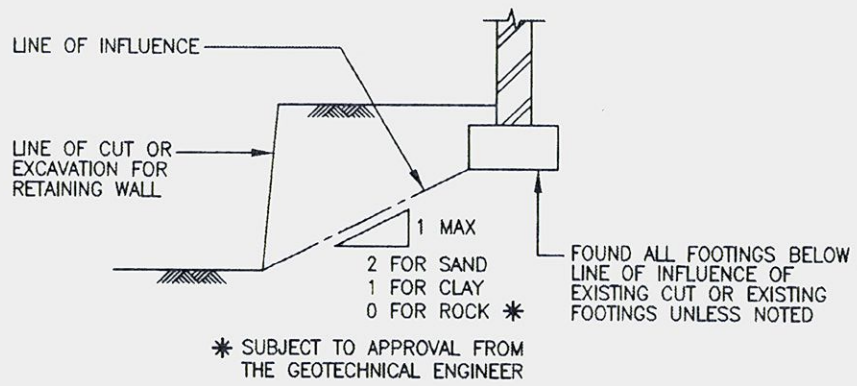
G1. Read these drawings in conjunction with all architectural and other working drawings, specifications and with such other written instructions as may be issued during the course of the contract.
G2. Provide all workmanship and materials in accordance with the requirements of the current editions of the BCA, the Australian Standards and the By–Laws and Ordinances of the relevant Building Authority.
G3. The Builder must comply with requirements of the Occupational Health & Safety Act.
G4. Refer any conflict between these notes, the specification, the drawings or any other relevant documents to the Engineer (Partridge Partners Pty Ltd) for decision prior to proceeding with the work.
G5. Do not obtain dimensions by scaling the drawings. For setting out dimensions and levels refer to architectural drawings.
G6. The Builder is responsible for the provision of all shoring to maintain the stability and integrity of excavations and adjacent structures. Provide details, for review by the Engineer, of any necessary temporary works, including shoring, prior to commencing construction.
G7. During construction it is the Builder's responsibility to maintain the structure in a stable condition and to ensure no part is overstressed.
G8. The design and drawings are copyright and may not be used or reproduced in whole or in part without the written permission of Partridge Partners Pty Ltd
G9. Fire–Resistant Levels (FRL's) required for the various structural elements must be confirmed by the BCA consultant or Architect.

FOUNDATIONS

F1. The minimum safe bearing capacity of foundation material shall be:

Strip footings	: 600	kPa.	in	ROCK	
Slabs	: 50	kPa.	in	NATURAL GROUND OR CONTROLLED FILL	
Piers	: 600	kPa.	in	ROCK	300 min embedment

F2. Foundation material shall be approved by the Geotechnical Engineer prior to placing concrete.
F3. The bases of footing excavations shall be finished clean and horizontal.
F4. Founding levels where shown are for tender purposes only.
F5. Any proposed footing excavation near boundaries, other structures or services shall be approved by the Engineer.
F6. Subgrade shall be approved material compacted to 98% Standard Dry density determined by testing to AS 1289.5.1.1 u.n.o.
F7. Locate all new footings relative to line of cut/excavation including excavations for retaining walls as follows:



LOADINGS

L1. Importance Levels of Building: 2
L2. Superimposed floor live loads are generally in accordance with AS/NZS1170.1 and specifically:
1.5 kPa. GENERALLY
2.0 kPa. BALCONIES
2.0 kPa. STAIRS
L3. Wind loads have been determined in accordance with AS4055
Wind Region: A
Terrain Category: 1
Topographic Class: T1
Shielding: NS
Wind Classification = N3

REINFORCED CONCRETE

C1. Provide all workmanship and materials in accordance with AS3600, the SAA standards cited in AS3600, the drawings and the specification.
C2. Provide concrete composition and minimum clear concrete cover to reinforcement as follows:–

Element	AS3600 f'_c MPa	Cover mm
Ground Beams	32	65
Ground Slabs	32	65
Bored Piers	32	75

Design for an internal A1 category and an external B1

C3. Support all reinforcement at 1m maximum centres both ways on mild steel plastic tipped chairs, plastic chairs or concrete chairs. Use only plastic chairs for externally exposed soffits.
C4. Provide all concrete with 80mm maximum slump, 20mm maximum aggregate with no admixtures, unless approved by the Engineer.
C5. Sizes of concrete are net, exclusive of applied finishes. Beam depths are written first and include slab thickness.
C6. Properly form construction joints and use only where shown or approved by the Engineer.
C7. Make no holes or chases in concrete members without the approval of the Engineer.
C8. Reinforcement is represented diagrammatically and is not necessarily shown in true projection.
C9. Weld or splice reinforcement only in positions approved by the Engineer.
C10. Provide the minimum clear spacing between conduits, cables, pipes and bars as required by AS3600 but not less than three bar diameters. Do not place conduits in slabs above top reinforcement or below bottom reinforcement.
C11.
S denotes hot rolled deformed bars Grade 230S.
N denotes hot rolled deformed bars Grade 500N.
R denotes hot rolled plain round bars Grade 230R.
SL, RL, L(size)TM denotes hard drawn wire fabric Grade 500.
C12. Notify the Engineer a minimum of 24 hours before reinforcement has been completed. Allow 2 hours after the completion of the reinforcement for the Engineer's inspection. Do not order concrete until reinforcement has been approved by the Engineer.
C13. Cure concrete in accordance with AS3600. Commence curing within two hours of finishing operations and continue for a minimum of seven days by using an approved proprietary compound or by keeping continuously wet.
C14. Tie all unsupported bars in transverse direction to N12–300, lapped 500 U.N.O.
C15. Lap fabric in accordance with details fig.13.2.4 of AS3600.
C16. Provide hooks, laps and bends in accordance with AS3600 U.N.O.
C17. Provide Chamfers, drip grooves etc. in accordance with the Architect's details.
C18. Design, construct and strip formwork in accordance with AS3610 & AS3600.
C19. Pre camber formwork upwards by 1/500 of the clear span U.N.O. where supported beams and slabs span greater than 5m.
C20. These slabs have not been designed or detailed for an in–slab hydraulic heating system or for a polished concrete finish. Contact the engineer for redesign and instruction if either is to be featured in these slabs.

FABRIC LAP DIAGRAM

Holmes Accredited Certifiers P/L
These plans have been relied upon by
Holmes Accredited Certifiers for the issue
Of the Construction Certificate

TALL consulting structural engineers
mail@tallengineers.com.au

Location: 12A OCEAN ROAD PALM BEACH	Scale: N/A
Drawing: GENERAL NOTES SHEET 1 OF 2	Job No: 2001/091045
Architect: SMITH & TEANNES	Drawing No: S01 – A

STEELWORK

S1. Ensure materials, fabrication and erection are in accordance with AS4100, the SAA Standards cited in AS4100 and the specification.
S2. Submit three copies of all workshop drawings to the Architect and the Engineer to obtain their written approval prior to fabrication.
S3. Provide all welds as 6mm continuous fillet from E41XX Electrodes, all bolts as M20 4.6/S and all cleats and gussets as 10mm plate u.n.o.
S4. For bolts, the following notation is used:
4–M16 4.6/S denotes 4 x M16 commercial grade bolts snug tight.
6–M20 8.8/TF denotes 6 x M20 high strength structural bolts fully tensioned in a no slip joint.
8–M24 8.8/TB denotes 8 x M24 high strength structural bolts fully tensioned in a bearing joint.
S5. Leave mating surfaces of TF connections unpainted and free of mill scale and rust.
S6. Tighten bolts in TF and TB connections using the part turn method or load indicating washers. Do not use calibrated torque wrenches. Use a hardened washer under the bolt head or nut, whichever is rotated. The re–use of fully tensioned bolts is prohibited.
S7. Provide all cleats and drill all holes necessary for fixing steel to steel or timber.
S8. Fabricate steel beams and trusses spanning greater than 5m with an upward pre camber of 1/500 span u.n.o.
S9. Prepare structural steelwork to class 2 and paint with Zinc Phosphate Primer to a thickness of 70 micrometres u.n.o.
S10. Hot dip galvanise all exposed external steelwork and all steelwork built into an external masonry skin, in accordance with grade HDG600 to AS/NZS2312. Within 100m from the non–surf coast or 1 km from the surf coast, hot dip galvanise above in accordance with grade HDG600 to AS/NZS2312.
S11. Provide fire protection to all steelwork as required.
S12. Ensure all cold formed sections conform to AS1538 and are roll–formed from steel strip, minimum yield stress 450 MPa, 300g/m^2 minimum zinc coating mass U.N.O.

ALL CHEMICAL ANCHORS FOR THREADED FIXINGS OR REINFORCEMENT, SHALL BE HILTI HIT–RE 500 ADHESIVE ANCHOR SYSTEM OR APPROVED EQUIVALENT INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

ALL THREADED CHEMICAL ANCHORS SHALL BE HOT DIP GALVANISED UNLESS NOTED OTHERWISE:
M12 MIN. 100 EMBEDMENT, MIN. 60 EDGE DISTANCE, MIN. 70 SPACING
M16 MIN. 125 EMBEDMENT, MIN. 70 EDGE DISTANCE, MIN. 100 SPACING

MASONRY

M1. Ensure all workmanship and materials are in accordance with AS3700, the Standards cited in AS3700, the drawings and the APPL Standard Technical Specification STD–D905.
M2. Where masonry supports concrete slabs or beams, lay the top course with frogs down and covered with 2 layers of approved slip joint material.
M3. Walls shown shaded on plan are load bearing. Separate non–load bearing walls under slabs from the slab by 15mm of approved compressible material. Where masonry abuts slab downturns, provide 15mm gap between brickwork and side of downturn.
M4. Do not erect masonry supported by concrete slabs or beams until all formwork and props under have been removed.
M5. Provide all bricks of strength f'uc= 20 MPa u.n.o.
M6. Provide all hollow concrete masonry of strength f'uc= 15 MPa u.n.o.
M7. Provide classification M3 masonry mortar u.n.o. Note that within 100m from non–surf coast, or 1km surf coast, provide classification M4 masonry mortar.
M8. Cut no chases into loadbearing masonry without the approval of the Engineer.
M9. Provide movement control joints vertically for full height of wall as follows:–
for general masonry = 8m maximum centres & 4m maximum from corners.
for articulated masonry = 6m maximum centres & 4m maximum from corners.
Provide 15mm minimum joints with an approved compressible filler, tied together every 4th course with an MET 3.3 masonry sliding tie or approved equal.
M10. Construct hollow walls to full height or maximum 3m before filling cores. Provide cleanout openings at the base of all cores to be filled.
M11. Provide hollow F'c 20 MPa core filling concrete with 10mm aggregate, 180 slump. UNO.
M12. Construct hollow masonry retaining walls using "double U blocks".
M13. Unreinforced masonry walls have not been designed unless noted.

TIMBER

T1. Ensure all workmanship and materials are in accordance with AS1720 and AS1684, the SAA Standards cited in AS1720, AS1684 and the specification.
T2. Provide all timber as undressed MGP10 stress grade SEASONED PINE u.n.o. Provide all external timber as undressed hardwood or appropriately treated seasoned pine u.n.o.
T3. Where the use of treated pine for durability is noted on the structural drawings, ensure it complies with the following treatments levels:
Interior above ground = H2
Exterior above ground = H3
Exterior in ground = H4 & H5
} All in accordance with AS1684
T4. Install proprietary timber connectors in accordance with the manufacturer's written instructions.
T5. Retighten bolted connections in unseasoned timber prior to the fixing of cladding.
T6. Timber elements or timber framing have not been designed unless noted.
T7. Provide all new construction with protection from subterranean termites in accordance with AS3660.1–1995. Provide the protection system or systems as specified by the architect.
T8. Submit three copies of all truss workshop drawings to the Engineer for checking prior to fabrication. All trusses to be pre–cambered upward 1/240 span u.n.o.
T9. For bushfire prone areas, use timber species classified as "fire–retardant–treated timbers" in accordance with AS3959 1999, ie. untreated Blackbutt, Kwila (Merbau), Red Iron Bark, River Red gum, Silver Top ash, Spotted Gum or Turpentine.

ALL TIMBER CONNECTIONS, TIE DOWNS BRACING AND TIMBER SIZES NOT NOMINATED ARE TO BE IN STRICT ACCORDANCE WITH AS1684 RESIDENTIAL TIMBER–FRAMED CONSTRUCTION CODE
ALL TIE DOWNS TO BE DESIGNED FOR ULTIMATE LIMIT STATE GUST WIND SPEED OF 50 m/s (CATEGORY N3 AS DETERMINED FROM AS4055 – WIND LOADS FOR HOUSING)

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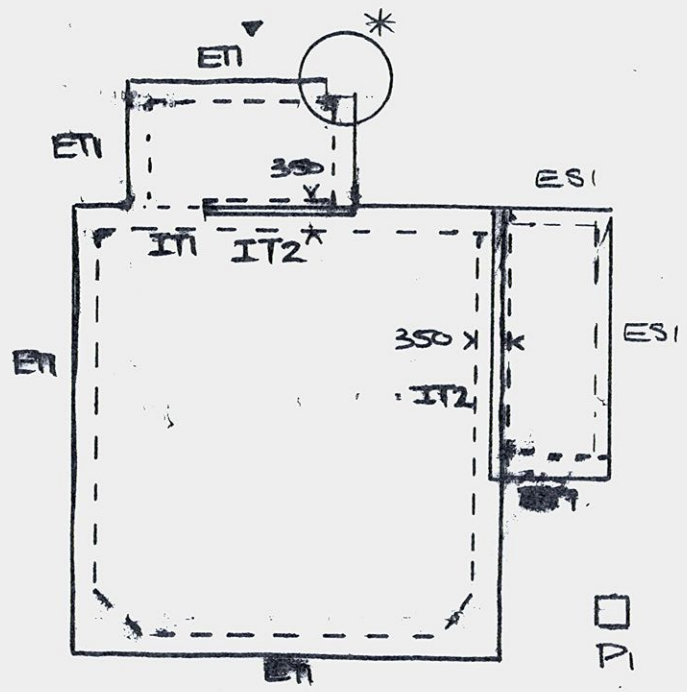
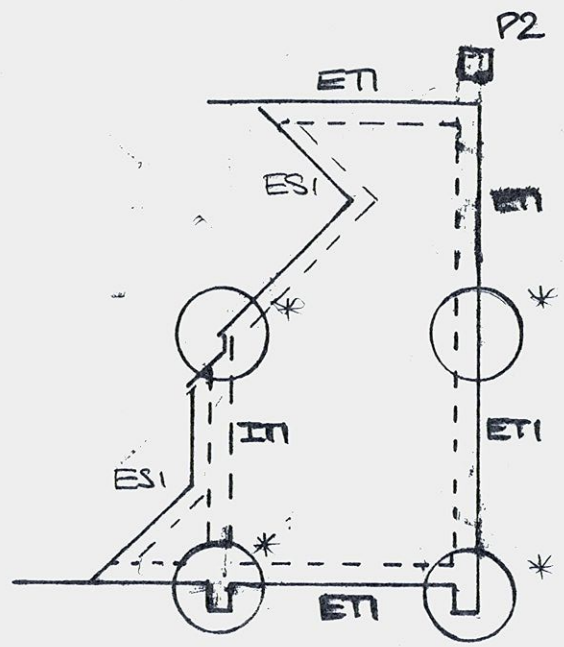
TALL consulting structural engineers
mail@tallengineers.com.au

Location: 12A OCEAN ROAD PALM BEACH	Scale: N/A
Drawing: GENERAL NOTES SHEET 2 OF 2	Job No: 2001/091045
Architect: SMITH & TZANNES	Drawing No: S02 – A





GROUND FLOOR SLAB PLAN 110 THICK SLABS U.N.O.

REINFORCE ALL SLABS WITH **SL82** IN TOP THROUGHOUT, UNLESS NOTED OTHERWISE, WITH EXTRA REINFORCEMENT TRIMMERS AS NOTED ON PLAN.

ALL BEAM DEPTHS ARE A MINIMUM. BEAMS MUST BE EXCAVATED TO ROCK.

THESE SLABS HAVE **NOT BEEN DESIGNED OR DETAILED** FOR AN IN-SLAB HYDRONIC **HEATING SYSTEM** OR FOR A **POLISHED CONCRETE** FINISH. CONTACT THE ENGINEER FOR REDESIGN AND INSTRUCTION IF EITHER IS TO BE FEATURED IN THESE SLABS.

✳ – GROUND BEAMS TO BE DOWELLED INTO EXISTING FOUNDATIONS
DOWEL ARRANGEMENT TO BE DETERMINED ONCE FOUNDATIONS EXPOSED

▼ – EDGE BEAM TO STEP TO MATCH EXTERNAL GROUND LEVEL & STAIR

ETI BEAMS ARE NOT DESIGNED TO RETAIN SOIL/GROUND.

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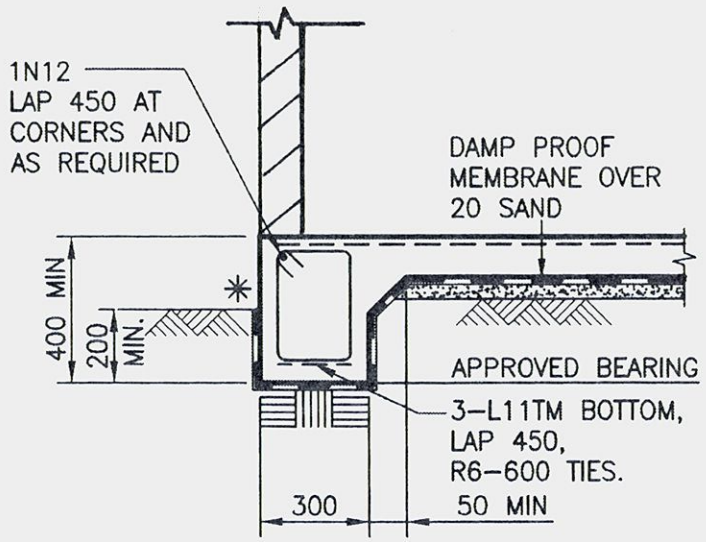
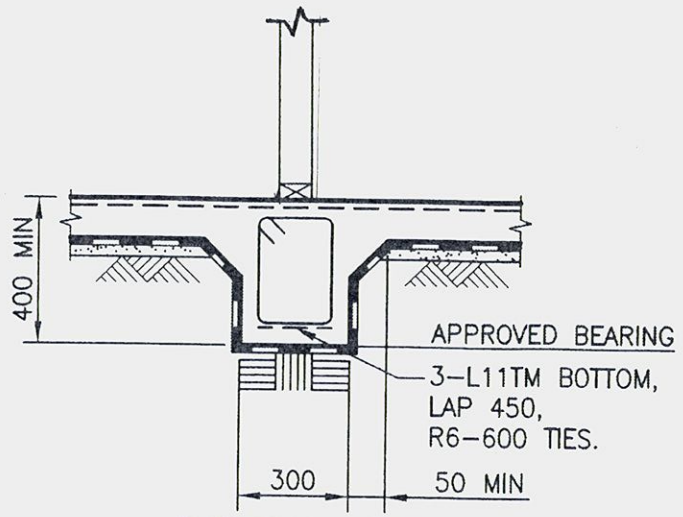
mail@tallengineers.com.au

Location: 12A OCEAN ROAD PALM BEACH	Scale: 1:100
Drawing: GROUND FLOOR SLAB PLAN	Job No: 2001/091045
Architect: SMITH & TZANNES	Drawing No: S03 - A

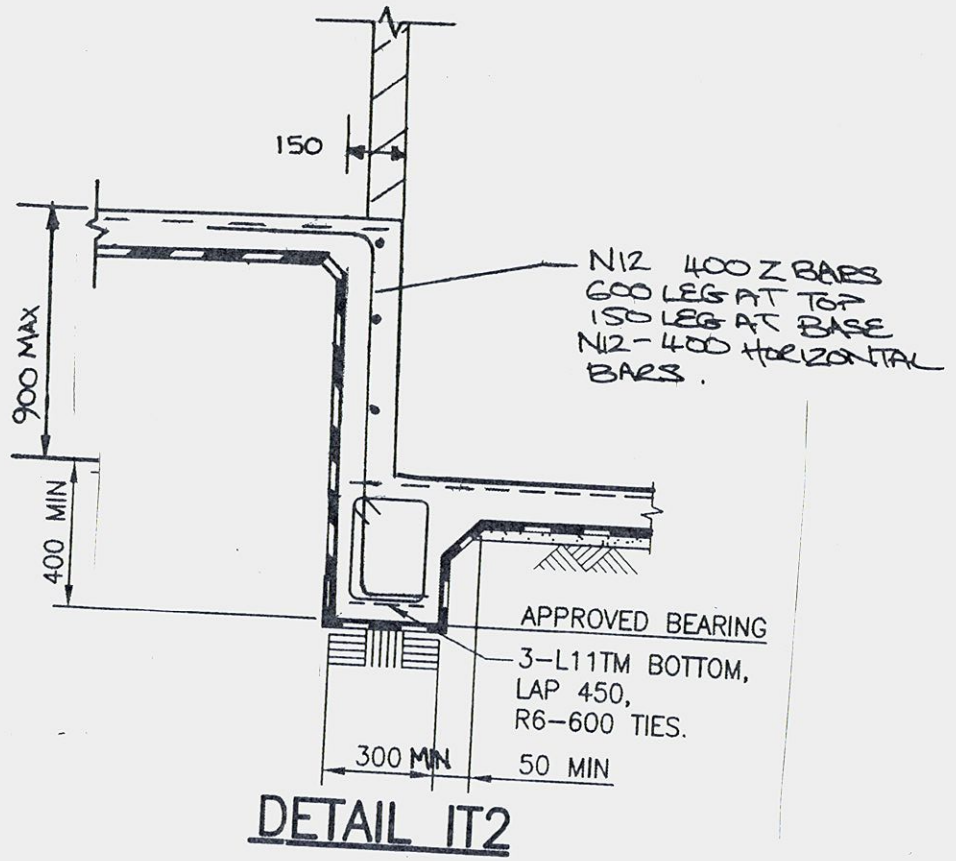


DETAIL ET1

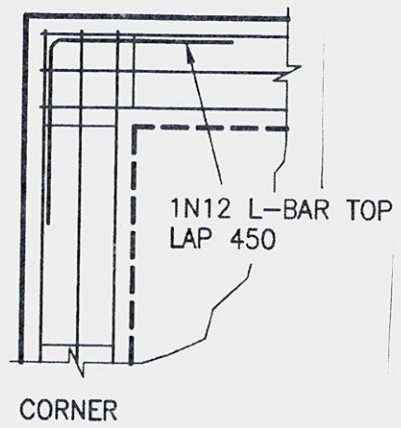
✳ PROVIDE 75 EXPOSED CONCRETE IF NEEDED FOR TERMITE PROTECTION.

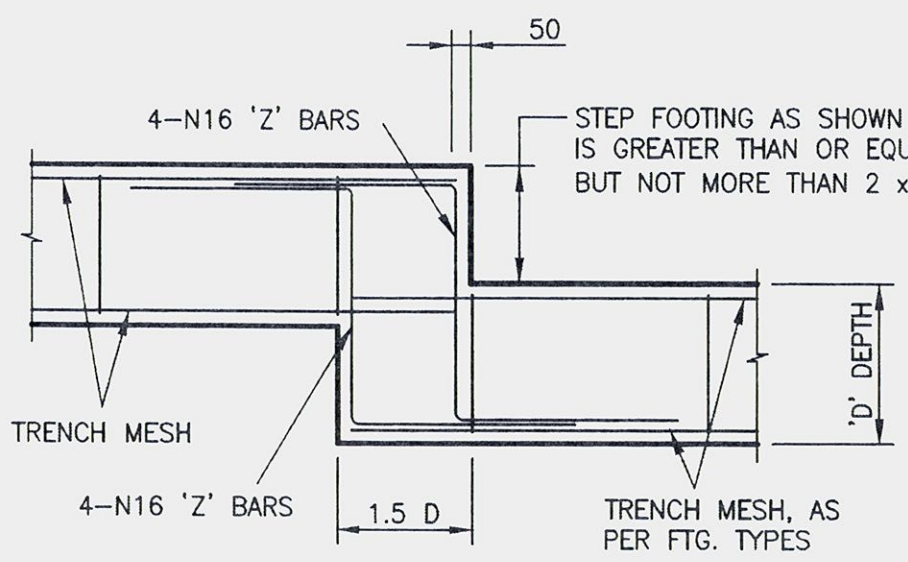


DETAIL IT1

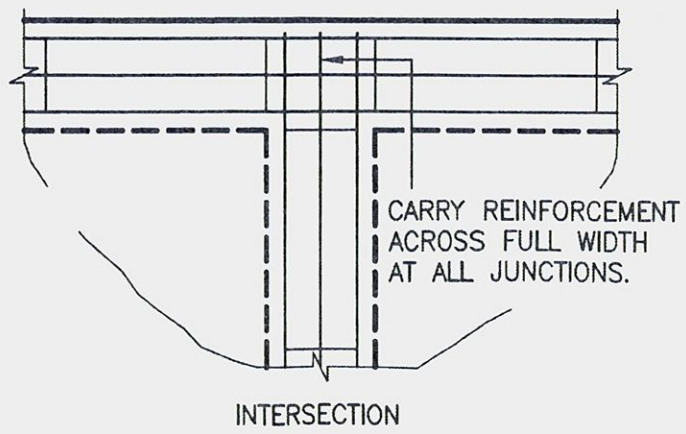


DETAIL IT2





TYP. STRIP FTG. STEP DETAIL



STRIP FOOTING JUNCTIONS

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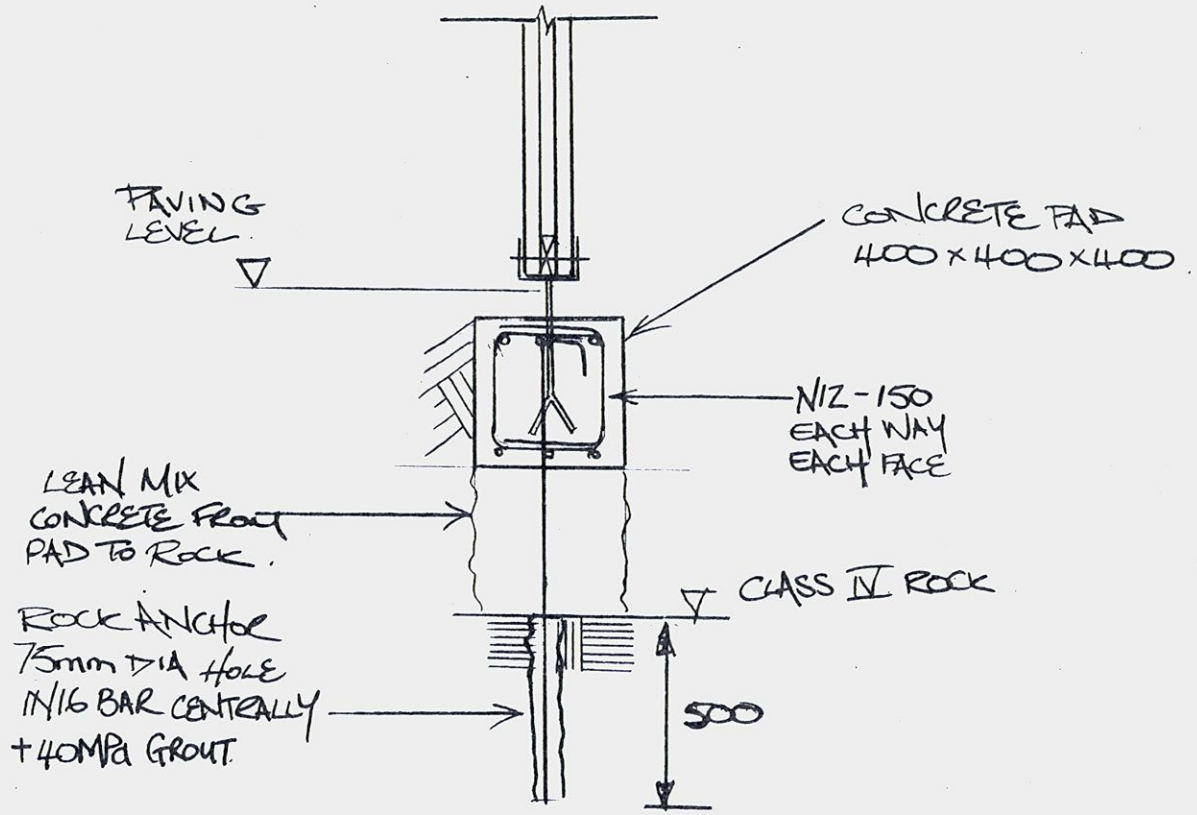
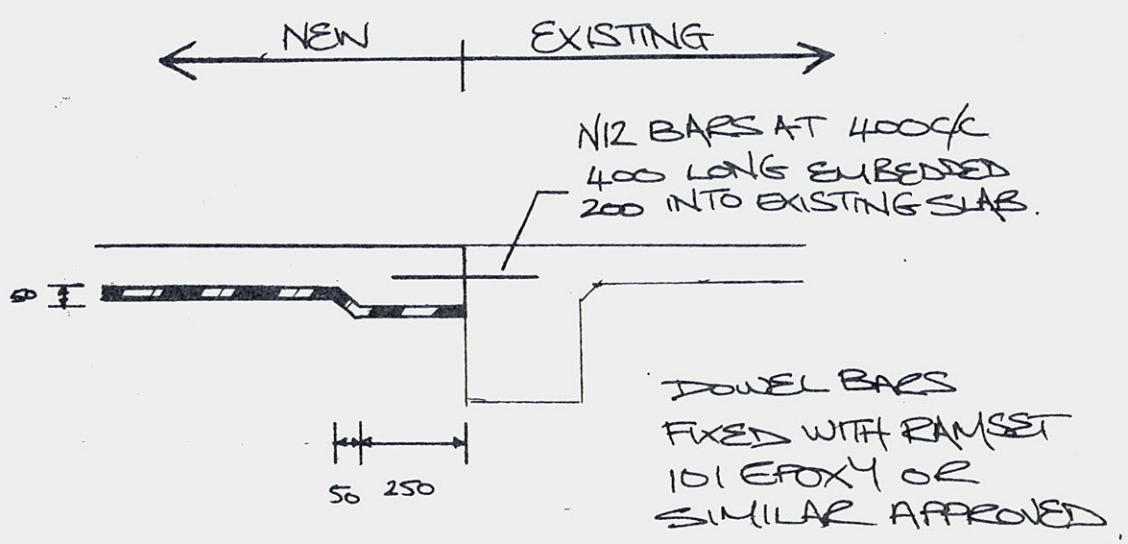
Location: 12A OCEAN ROAD PALM BEACH	Scale: 1:20
Drawing: STRIP FOOTING DETAILS	Job No: 2001/091045
Architect: SMITH & TRANNES	Drawing No: S04 -A



DETAIL P1

P2 SIMILAR BUT ROCK ANCHOR NOT REQUIRED



DETAIL ES1

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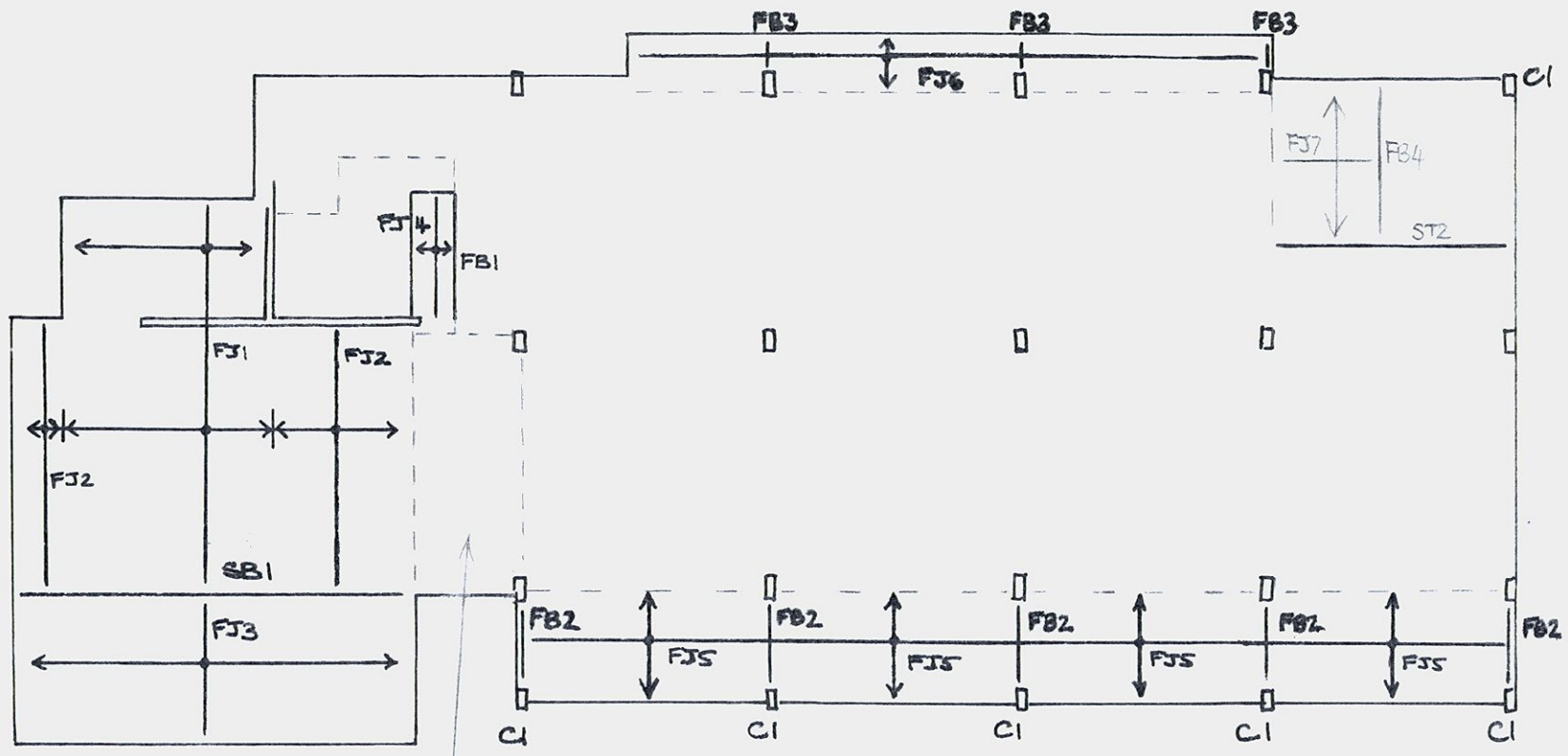
Location: 12A OCEAN ROAD PALM BEACH	Scale: 1:20
Drawing: GROUND FLOOR GENERAL DETAILS	Job No: 2001/091045
Architect: SMITH & TZANNES	Drawing No: S05-A



EXISTING JOISTS PROPPED AND RETAINED WHILE NEW GARAGE WALL BUILT UNDER.

Member code	Member type	Approximate spans	Max spacing	Timber/Steel Type
FB1	Floor beam	1900mm	-	190x35 MGP 10 carrying the end of a 1m span of timber extending past the adjacent main timber frame. This should be checked once the ceiling/floor is opened up.
FB2	Floor beam	1500mm	-	200x75 F7 to be spliced to the existing 300x75 timber
FB3	Floor beam	600mm	-	300x75 F7 to be spliced to the existing 300x75 timber to cantilever out to support the new rear wall
FB4	Floor beam	2400mm	-	Beam to be confirmed once depth of Spa bath confirmed
SB1	Structural beam	5600mm	-	200UC59 or 310UB32. Steels within the depth of floor joist and floor joist mounted on nail plated bolted to the bottom flange of the steel.
SB2	Structural beam	3480mm	-	Beam to be confirmed once depth of Spa bath confirmed
C1	Column	3000mm	-	2x300x50 with 75mm gap between to match existing. Use either treated F8 timber or F11 hard wood.

First floor member schedule

Member code	Member type	Approximate spans	Max spacing	Timber Type
FJ1	Floor Joist	1700mm & 3900mm	450mm	190x35 MGP10 continuous joists. Joists doubled up under line of wall over
FJ2	Floor Joist	3900mm	300mm	190x35 MGP10
FJ3	Floor Joist	2200mm	450mm	190x35 MGP10, designed to support planter box loads
FJ4	Floor Joist	2100mm	450mm	150x50 F7
FJ5	Floor Joist	3 x 3600mm + 3480mm	450mm	190x45 MGP10 spliced over internal joints to act as continous members
FJ6	Floor Joist	2 x 3600mm + 2100mm	450mm	190x35 MGP10 spliced over internal joints to act as continous members
FJ7	Floor Joist	1700mm	450mm	150x50 F7

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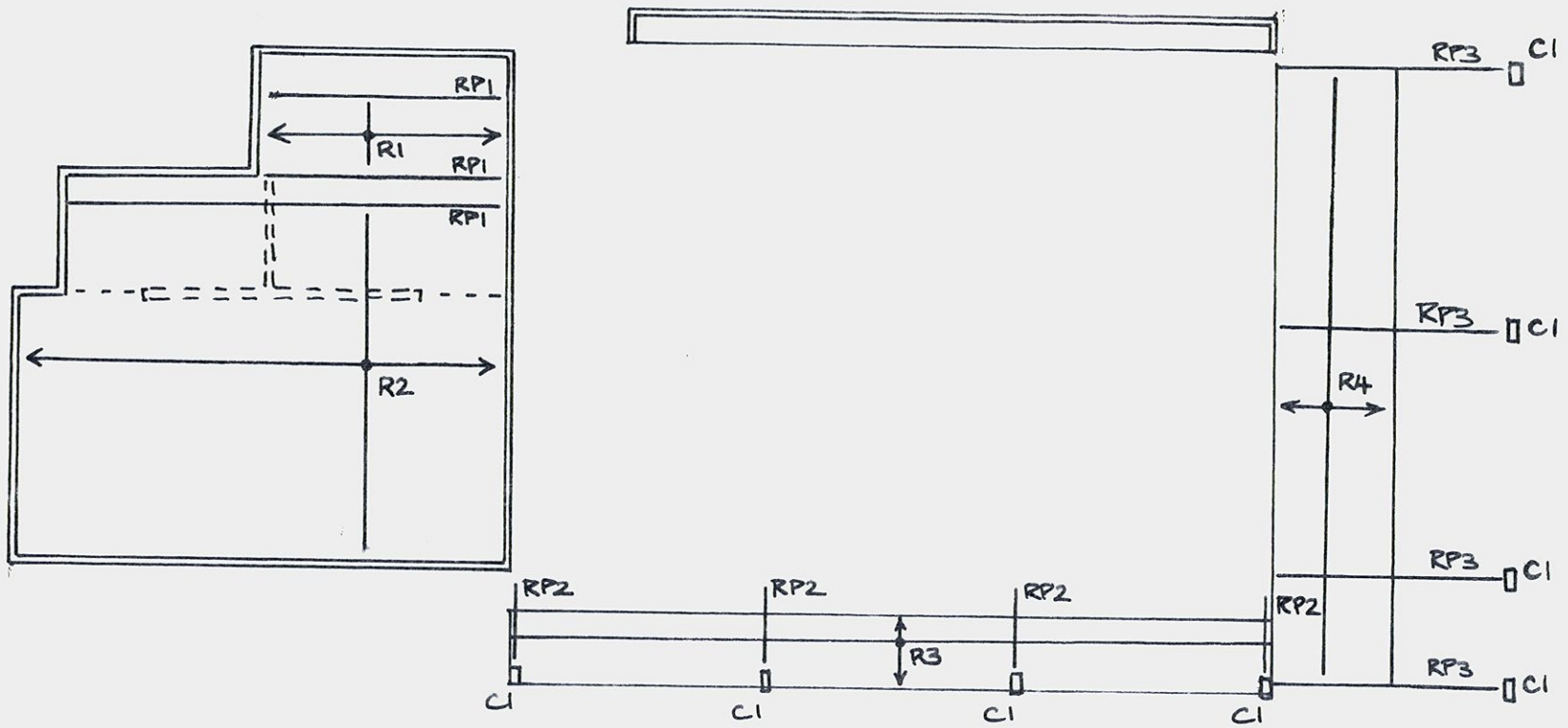
Location: 12A OCEAN ROAD PALM BEACH	Scale: 1:100
Drawing: FIRST FLOOR PLAN	Job No: 2001/031045
Architect: SMITH & TRAYNES	Drawing No: S07 - A



Roof member schedule

Member code	Member type	Approximate spans	Max spacing	Timber Type
R1	Rafter	1400mm	1200mm	90x35 MGP10 or 100x38 F7
R2	Rafter	3900mm and 1200mm	1200mm	190x35 MGP10
R3	Rafter	3 x 3600mm	1200mm	140x35 MGP10 spliced over internal joints or 190x35 in single spans. Depth to match existing roof joists
R4	Pergola rafter	3480mm	To suit architecture	Hardwood joist
RP1	Roof purlin	3700mm		2x190x35 MGP10
RP2	Roof purlin	1500mm		Minimum size 175x38 F7, but sized to match depth and width of existing roof frame.
RP3	Pergola purlin	3600mm		Hardwood joist
	Battens	1200mm	600mm	75x50 F7 unseasoned timber
C1	Column	3000mm		2x300x50 with 75mm gap between to match existing. Use either treated F8 timber or F11 hard wood.

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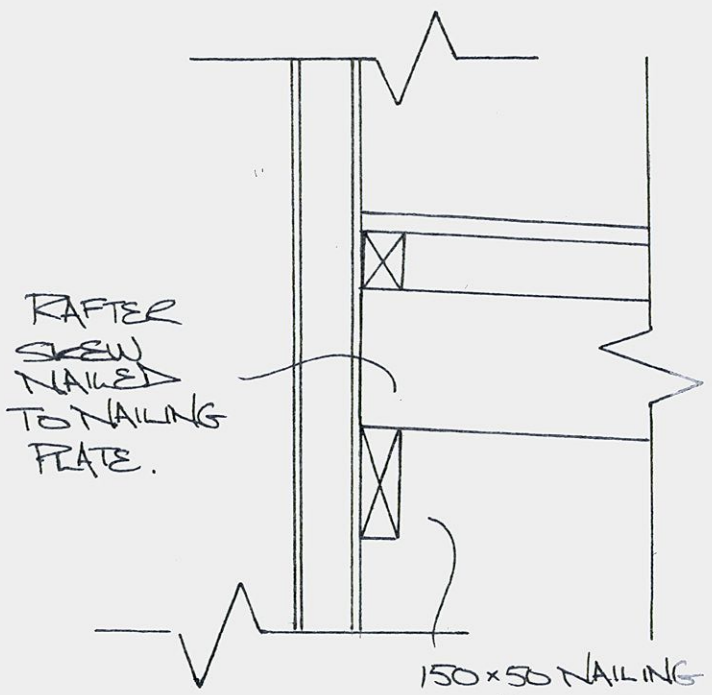
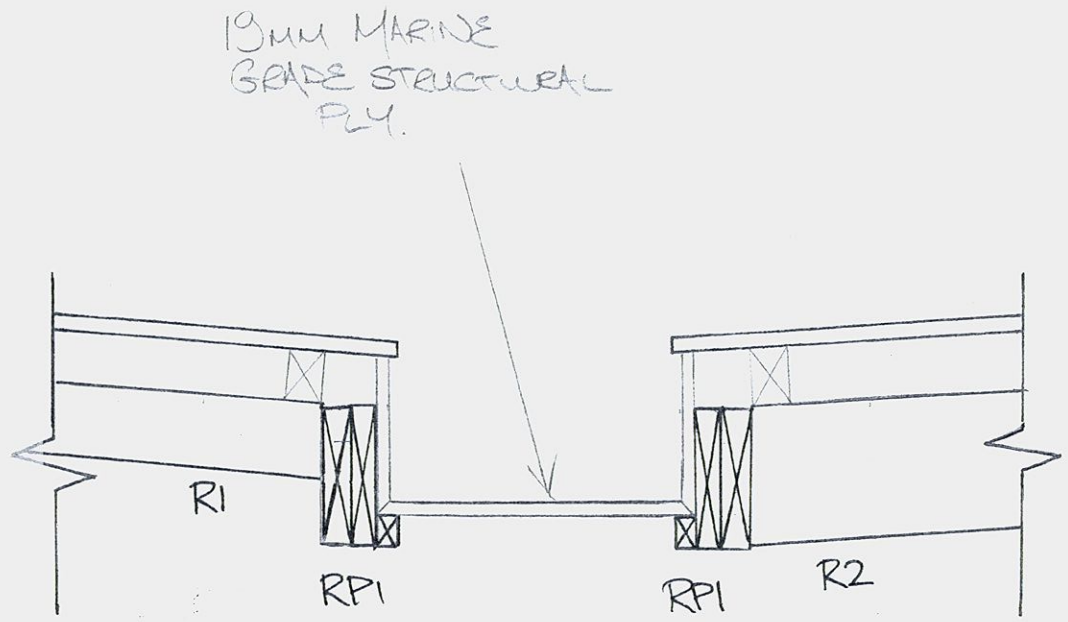
Location: 12A OCEAN ROAD PALM BEACH	Scale: 1:100
Drawing: ROOF PLAN	Job No: 2001/091045
Architect: SMITH & TZANNES	Drawing No: S10 - A.



R1 & R2 PARAPET CONNECTION



BOX GUTTER DETAIL.

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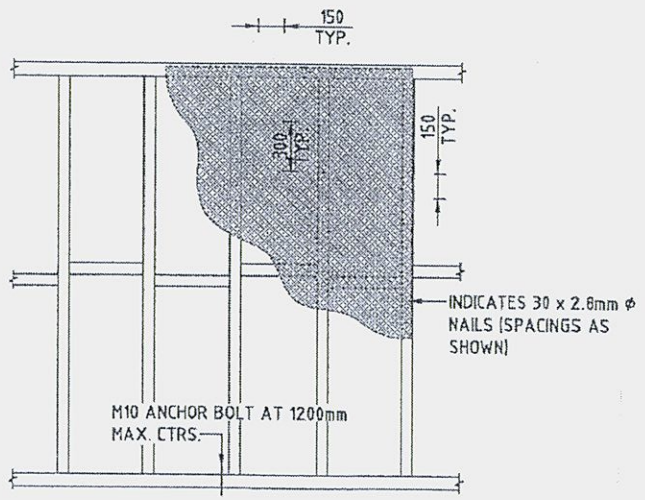
Location: 12A OCEAN ROAD PALM BEACH	Scale: 1:10
Drawing: ROOF DETAILS	Job No: 2061/091045
Architect: SMITH & TANNES	Drawing No: S11 -A

WALL FRAMING

EXTERNAL + INTERNAL LOAD BEARING

STUDS:	70 x 45 F7 @ 450crs.
TOP PLATES:	2/45 x 70 F7
BOTTOM PLATES:	35 x 70 F7



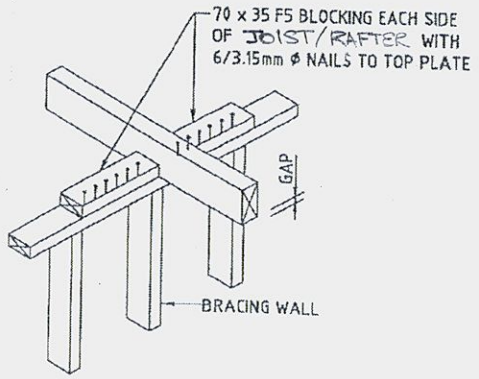
PLYWOOD

PLYWOOD THICKNESS (mm)

STRESS GRADE	STUD SPACING 450mm	STUD SPACING 600mm
F8	7	7
F11	4.5	4.5
F14	4	4
F27	3	3

PROVIDE ONE ROW OF NOGGING TO STUDS

NOTE:
ALL TIMBER FRAMING SHALL GENERALLY BE IN ACCORDANCE WITH AS1684(N3). TIMBER JOINT GROUP - J2 OR JD4 (U.N.O) PROVIDE 1 ROW OF NOGGING AT 1350mm MAX. (TYPICAL) LOAD BEARING WALL PLATES AND STUDS SHALL NOT BE TRENCHED, HOUSED OR NOTCHED UNLESS SPECIFICALLY APPROVED BY THE ENGINEER FIX TOP PLATE OVER LINTELS WITHIN 100mm OF TRUSSES WITH 30 x 0.8mm G.I. STRAP 6/2.8mm ϕ NAILS EACH END. GENERALLY PROVIDE M12 ANCHOR RODS AT CORNERS, ADJACENT TO OPENINGS AND AT 1800mm MAX. CT



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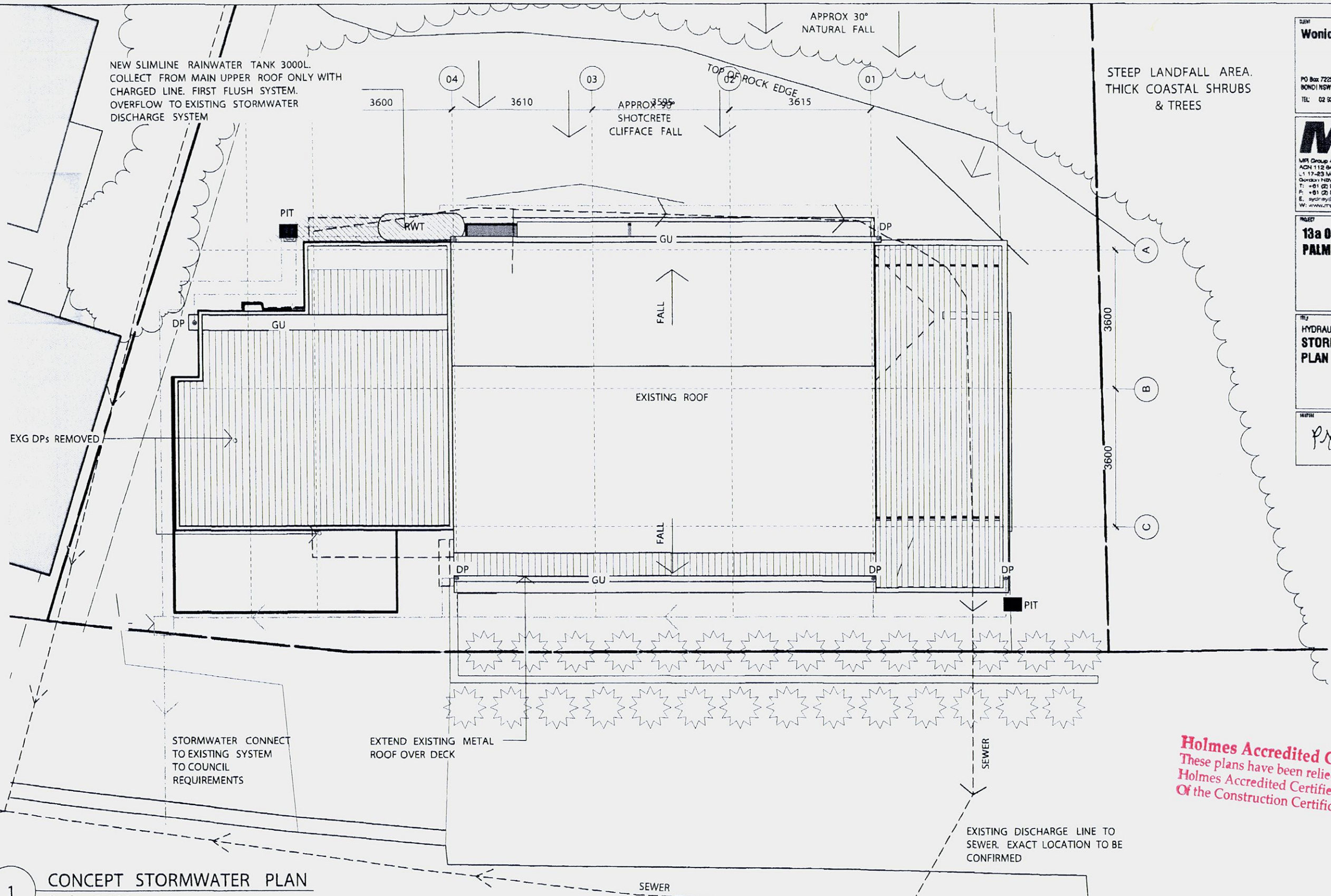
mail@tallengineers.com.au

Location: 12A OCEAN ROAD, PALM BEACH	Scale: N/A
Drawing: WALL DETAILS.	Job No: 2001/091045
Architect: SMITH & TRANNES	Drawing No: S13 - A



1 CONCEPT STORMWATER PLAN
Scale: 1:100

NOTES:

1. NEVER scale off drawings, use figured dimensions only.
2. Verify all dimensions on site prior to commencement & report discrepancies to the architect.
3. Drawings describe scope of works and general setout. These drawings are not shop drawings.
4. All work to be carried out in accordance with the Building Code of Australia
5. Architects work is subject to Copyright. Documents should not be used contrary to the purpose of the issue without written permission from Habitation.

:Scale
A3

CLIENT
Woniora Investments

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BONDI NSW 2026
TEL: 02 9365 4000 FAX: 02 9365 6722

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ACN 112 646 796
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Gordon NSW 2072 Australia
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E: sydney@mpigroup.com.au
W: www.mpigroup.com.au

PROJECT
13a Ocean Rd
PALM BEACH

HYDRAULIC SERVICES
STORMWATER MANAGEMENT PLAN

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STORMWATER CONCEPT PLAN
CONSTRUCTION CERTIFICATE
REV: E 9/9/11

13A OCEAN ROAD PALM BEACH

WONIORA INVESTMENTS

ARCHITECTURE URBAN PLANNING
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PO Box 240 Alexandria NSW 1435
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s-tz.com.au
SMITH & TZANNES

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1

CONSTRUCTION CERTIFICATE

FAHEY DWELLING
13A OCEAN ROAD PALM BEACH
WONIORA INVESTMENTS
9/9/11

Holmes Accredited Certifiers P/L
This Plan is **Approved** as part of
CC NO: CC111/015
Dated: 30/9/11
By BRADLEY HOLMES
ACCREDITATION No: BPB 0184

SMITH & TZANNES

09_154 REV E

General Notes

1. NEVER scale off drawings, use figured dimensions only.
2. Verify all dimensions on site prior to commencement & report discrepancies to the architect.
3. Drawings describe scope of works and general setout. These drawings are not shop drawings. Setout to to be undertaken by surveyor on site. Shop drawings should be prepared where required or necessary
4. All work to be carried out in accordance with the Building Code of Australia.
5. Architects work is subject to Copyright. Documents should not be used contrary to the purpose of the issue without written permission from Smith & Tzannes.

DRAWING LIST

SELECTIONS LEGEND

REFER TO SELECTIONS SCHEDULE FOR MORE DETAIL

CODE	ELEMENT
AW	ALUMINIUM WINDOW
CON	CONCRETE TO ENGINEERS DETAILS
CB	CONCRETE BLOCKWORK
CPT	CARPET
DES	DEMOLISH EXISTING STRUCTURE
DP	DOWNPIPE
EQ	EQUAL
EXG	EXISTING
FC	FIBRE CEMENT
FG	FIXED GLAZING
G BAL	GLASS BALUSTRADE
GU	GUTTER
LS	LOUVERED SHUTTER
LV	LOUVRED GLAZING
MR	METAL DECK ROOFING
OD	GARAGE DOOR
PCON	POLISHED CONCRETE FLOOR
PD	PIVOT DOOR
REM	REMAINDER
REN	PAINTED RENDER
SAD	SLIDING ALUMINIUM DOOR
SAW	SLIDING ALUMINIUM WINDOW
TC	TIMBER CLADDING
TD	TIMBER DECKING
TF	TIMBER FLOORBOARDS
TFD	TO FUTURE DETAIL
TG	TRANSLUCENT GLAZING
ZN	ZINC CLADDING

WALL TYPES

EXISTING FLOOR AREA

PROPOSED FLOOR AREA

DEMOLISHED STRUCTURE

EXISTING WALLS

PROPOSED WALLS

PROPOSED EXCAVATION

BASIX COMMITMENTS

HOT WATER: 5.5 star gas instantaneous hot water system must be installed to all dwellings.

WATER RATING FOR FIXTURES:
Showerheads: 3 star
Toilet flushing systems: 3 star
Taps: 3 star

RAINWATER TANKS:
Minimum rainwater tank size to dwelling is 973 litres.
Rainwater tank is to collect rainwater runoff from 116sqm of roof area.
Rainwater tank to be connected to a tap located within 10metres of the edge of the outdoor spa.

OUTDOOR SPA
Maximum spa capacity not greater than 2 kilolitres .
Spa must have a cover , a timber spa pump and a solar gas boosted heating system .

LIGHTING
A min. of 40% of new and or altered light fixtures are to be either fluorescent , compact fluorescent or LED .

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CC NO: CC111015
Dated: 30/9/11
By BRADLEY HOLMES
ACCREDITATION No: BPB 0184

NOTES
CONSTRUCTION CERTIFICATE 9 Sep 2011
REV: 3:56:55 PM

13A OCEAN ROAD PALM BEACH

WONIORA INVESTMENTS

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PO Box 240 Alexandria NSW 1435
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SMITH & TZANNES

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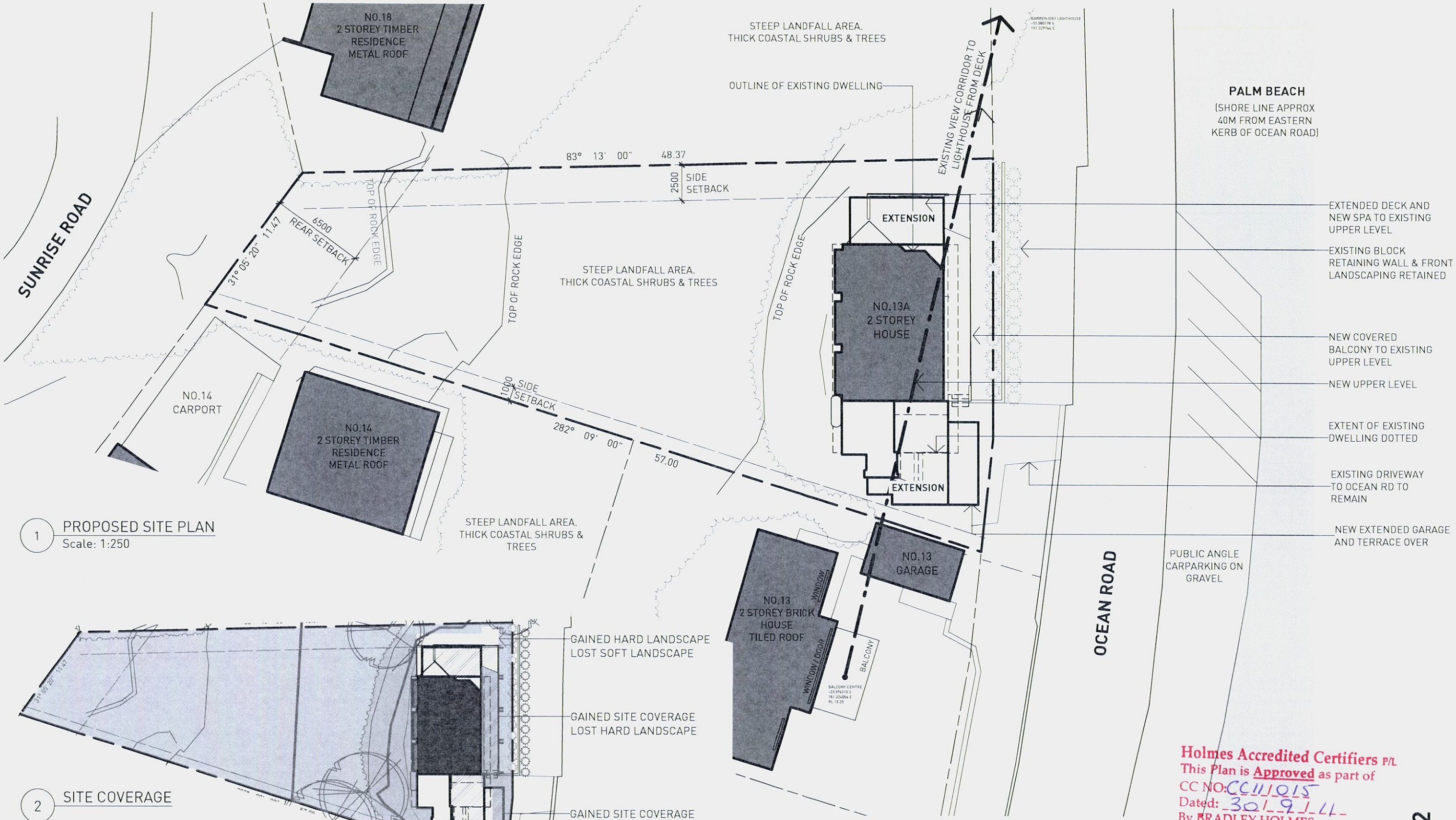

1 PROPOSED SITE PLAN
Scale: 1:250

2 SITE COVERAGE

NOTES:

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SITE COVERAGE (SITE AREA=984m²)

	EXISTING	PROPOSED
HARD LANDSCAPE	238m²	181m²
SOFT LANDSCAPE	640m²	636m²
SITE COVERAGE	106m² (11%)	198m² (20%)

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CC NO: CC111015
Dated: 30/9/11
By BRADLEY HOLMES
ACCREDITATION No: BPB 0184

PROPOSED SITE PLAN
CONSTRUCTION CERTIFICATE
REV:E 9/9/11

13A OCEAN ROAD PALM BEACH

WONIORA INVESTMENTS

Scale
A3

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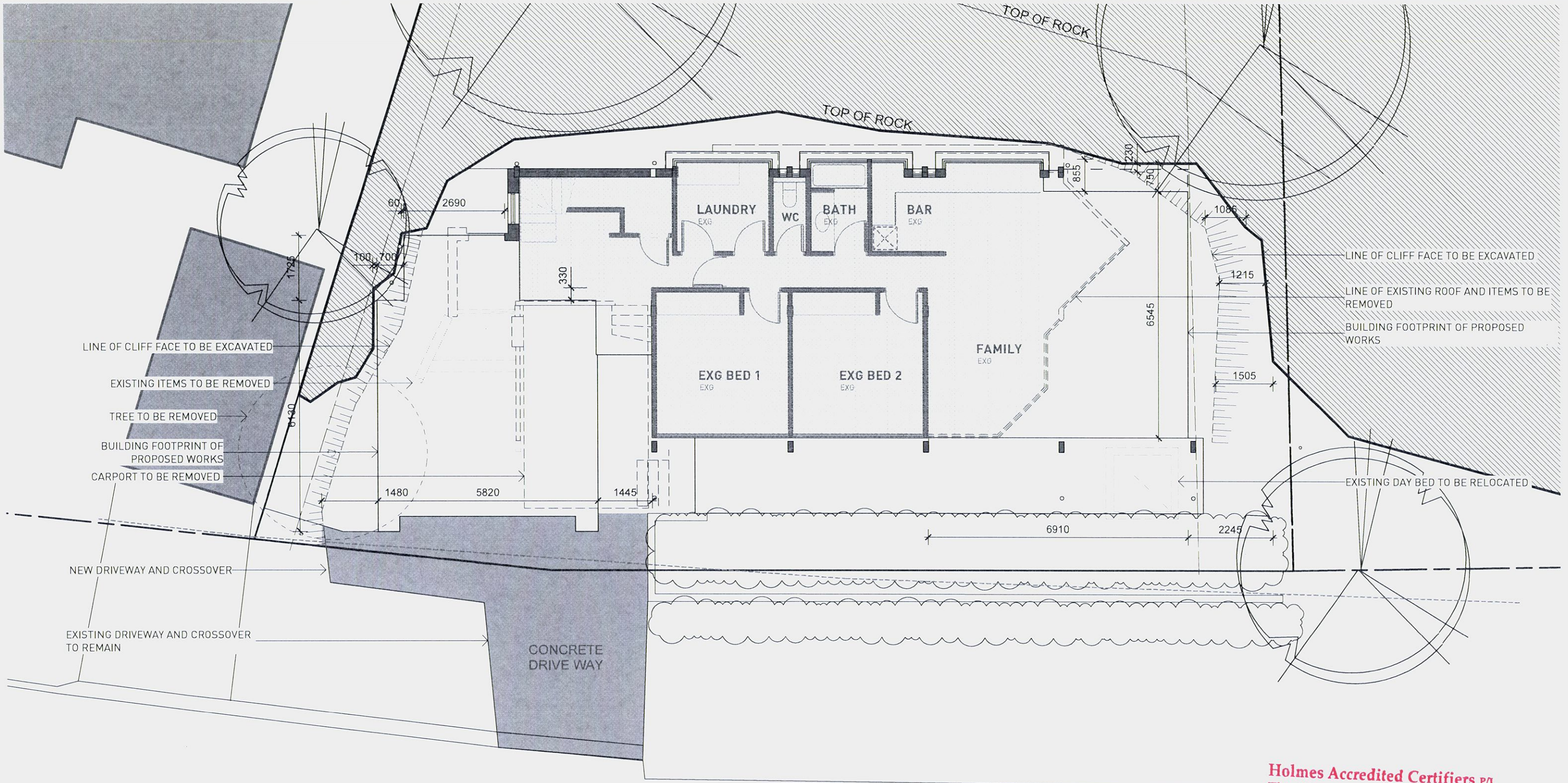
1



1 GROUND FLOOR - DEMOLITION / EXCAVATION PLAN
Scale: 1:100

OCEAN ROAD

NOTES:

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LEGEND

- DENOTES EXISTING ITEMS TO BE REMOVED
- EXISTING R.L
- EXTENT OF CLIFF FACE TO BE EXCAVATED
- PROPOSED BUILDING FOOTPRINT
- DENOTES EXISTING ITEMS / BUILDING FOOTPRINT TO REMAIN
- EXISTING TREE TO BE REMOVED

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CC NO: CC11/1015
Dated: 30/9/11
By BRADLEY HOLMES
ACCREDITATION No: BPB 0184

GROUND FLOOR DEMOLITION PLAN
CONSTRUCTION CERTIFICATE
REV:E 9/9/11
13A OCEAN ROAD PALM BEACH

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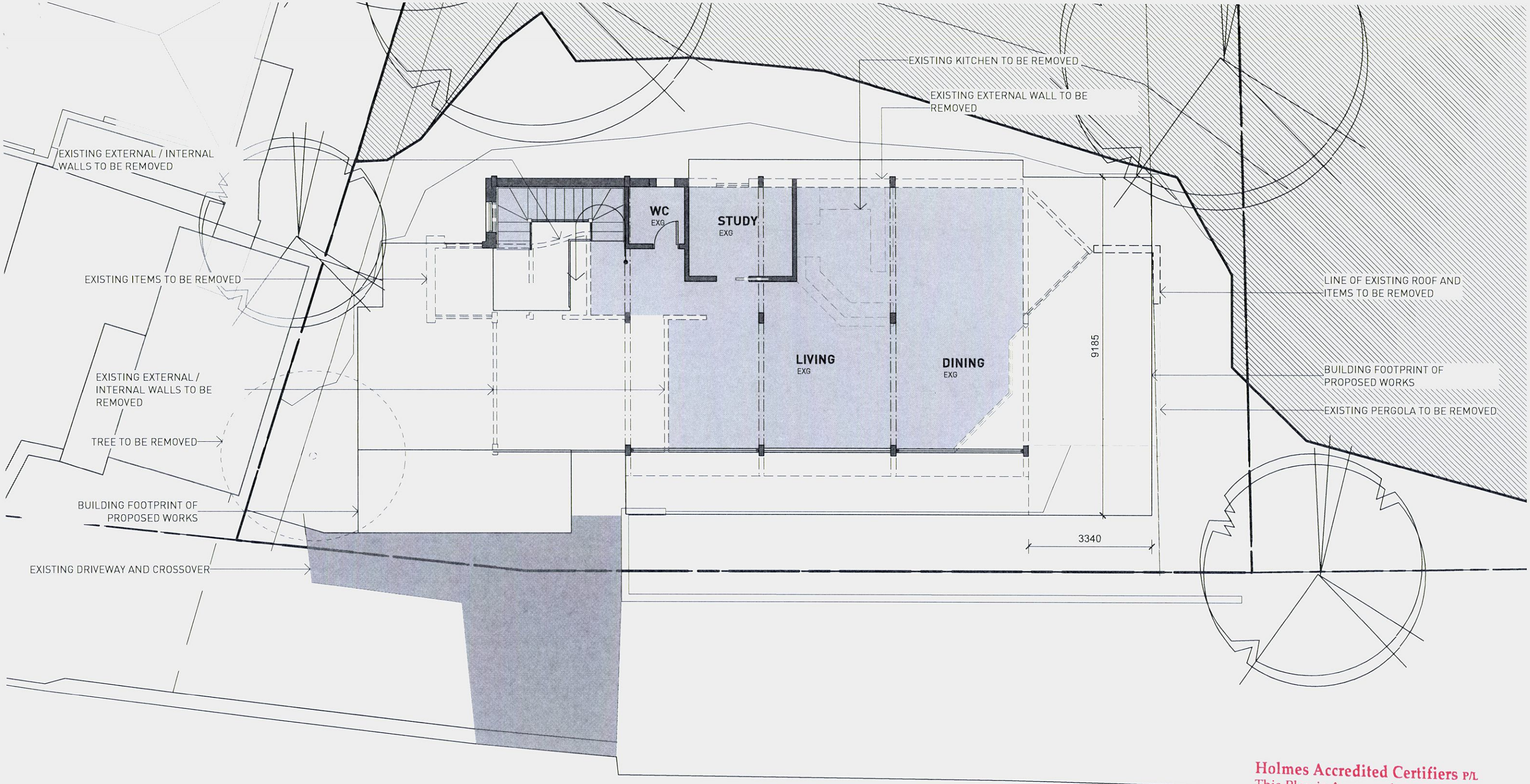

1 FIRST FLOOR - DEMOLITION / EXCAVATION PLAN
Scale: 1:100

OCEAN ROAD

NOTES:

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LEGEND

- DENOTES EXISTING ITEMS TO BE REMOVED
- PROPOSED BUILDING FOOTPRINT
- 5.18 EXISTING R.L
- DENOTES EXISTING ITEMS / BUILDING FOOTPRINT TO REMAIN
- EXTENT OF CLIFF FACE TO BE EXCAVATED
- EXISTING TREE TO BE REMOVED

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This Plan is **Approved** as part of
CC NO: CC11/015
Dated: 30/9/11
By BRADLEY HOLMES
ACCREDITATION No: BPB 0184

FIRST FLOOR DEMOLITION PLAN
CONSTRUCTION CERTIFICATE
REV:E 9/9/11
13A OCEAN ROAD PALM BEACH

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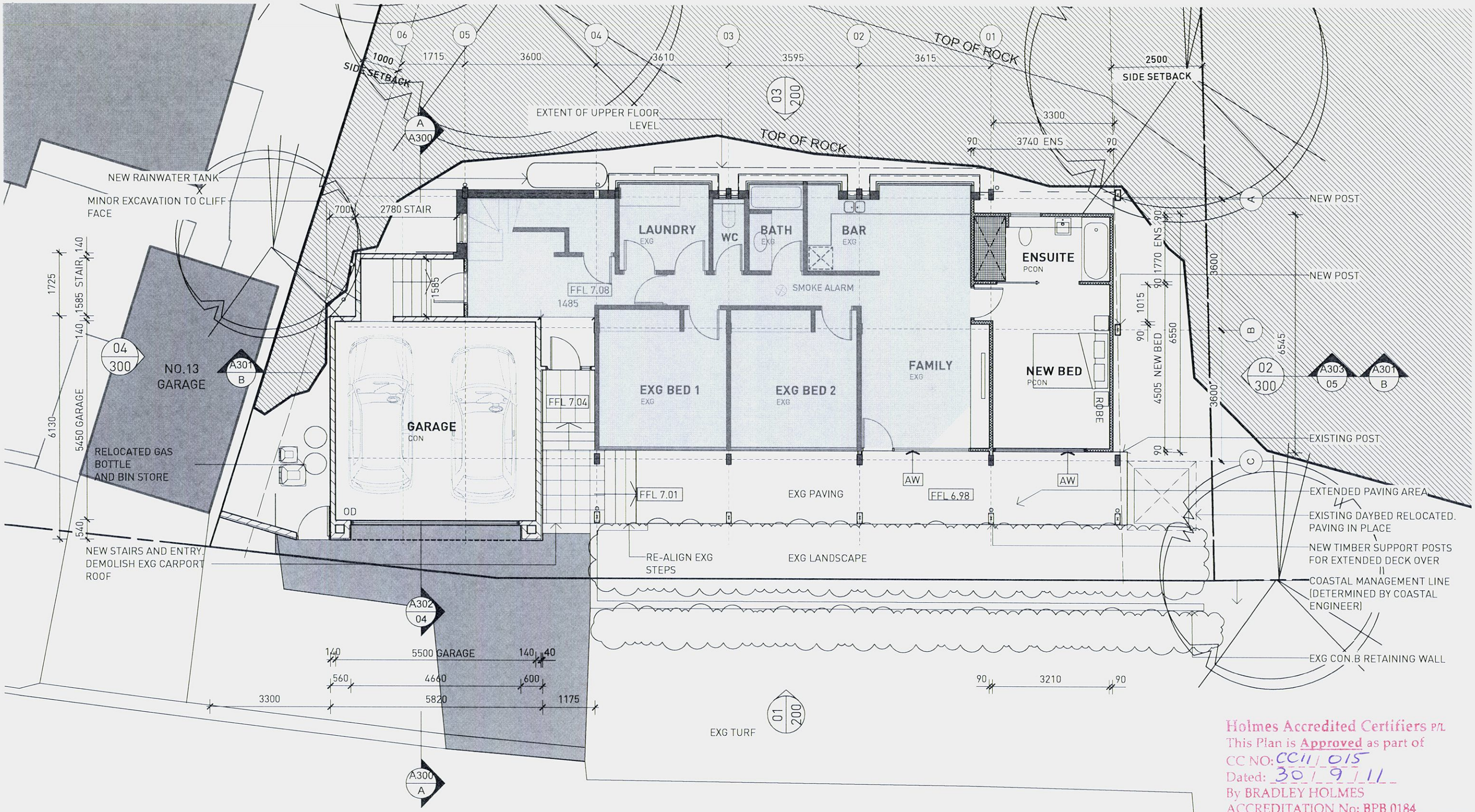
Scale
A3



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CC NO: CC11/015
Dated: 30/9/11
By BRADLEY HOLMES
ACCREDITATION No: BPB 0184

OCEAN ROAD

NOTES:

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1 GROUND FLOOR PLAN
Scale: 1:100

:Scale
A3

PROPOSED GROUND FLOOR PLAN
CONSTRUCTION CERTIFICATE
REV:E 9/9/11
13A OCEAN ROAD PALM BEACH

WONIORA INVESTMENTS

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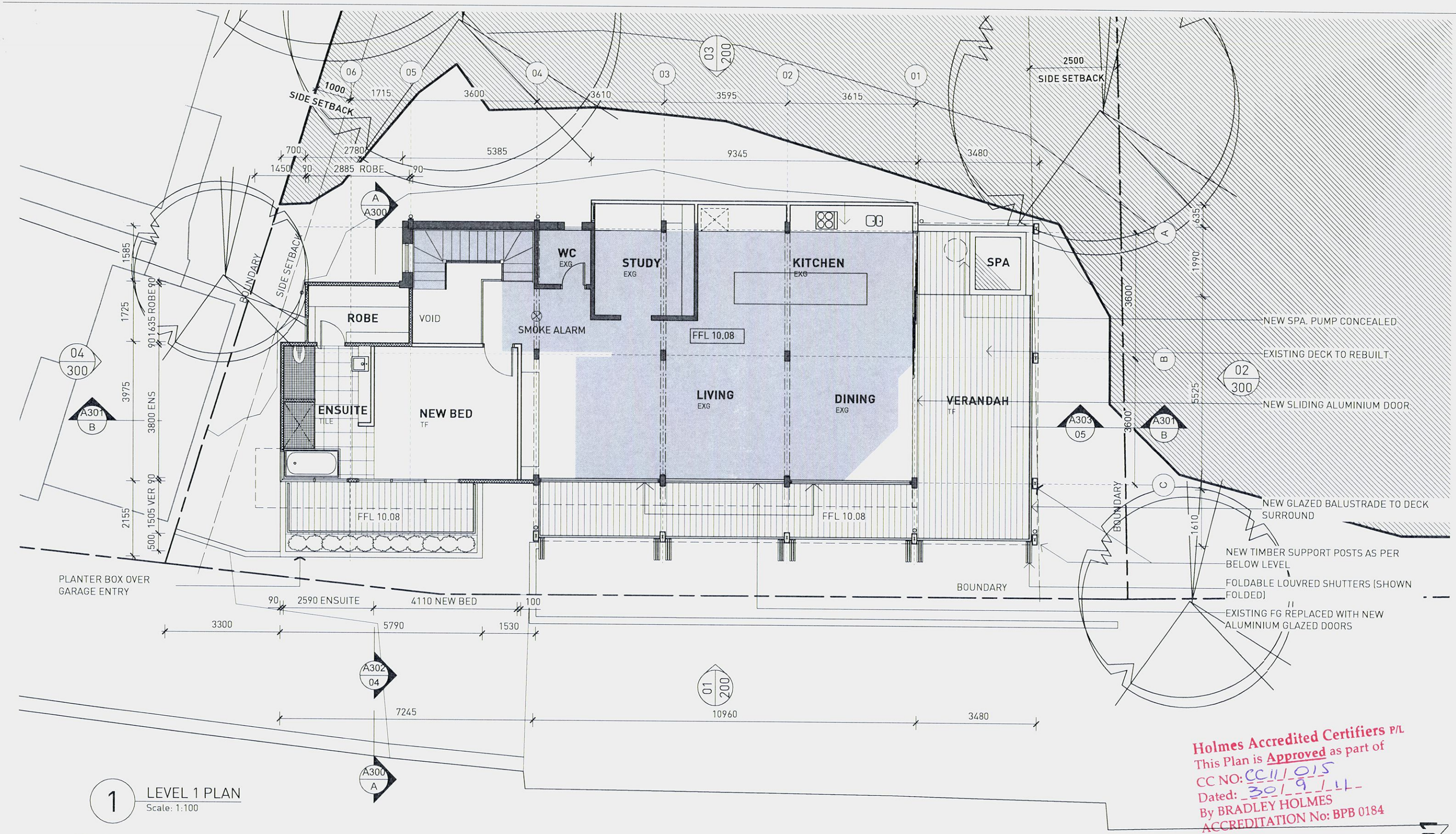
09_154 A100
1



1 LEVEL 1 PLAN
Scale: 1:100

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OCEAN ROAD

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Dated: 30/9/11
By BRADLEY HOLMES
ACCREDITATION No: BPB 0184

:Scale
A3

PROPOSED UPPER FLOOR PLAN
CONSTRUCTION CERTIFICATE
REV:E 9/9/11
13A OCEAN ROAD PALM BEACH

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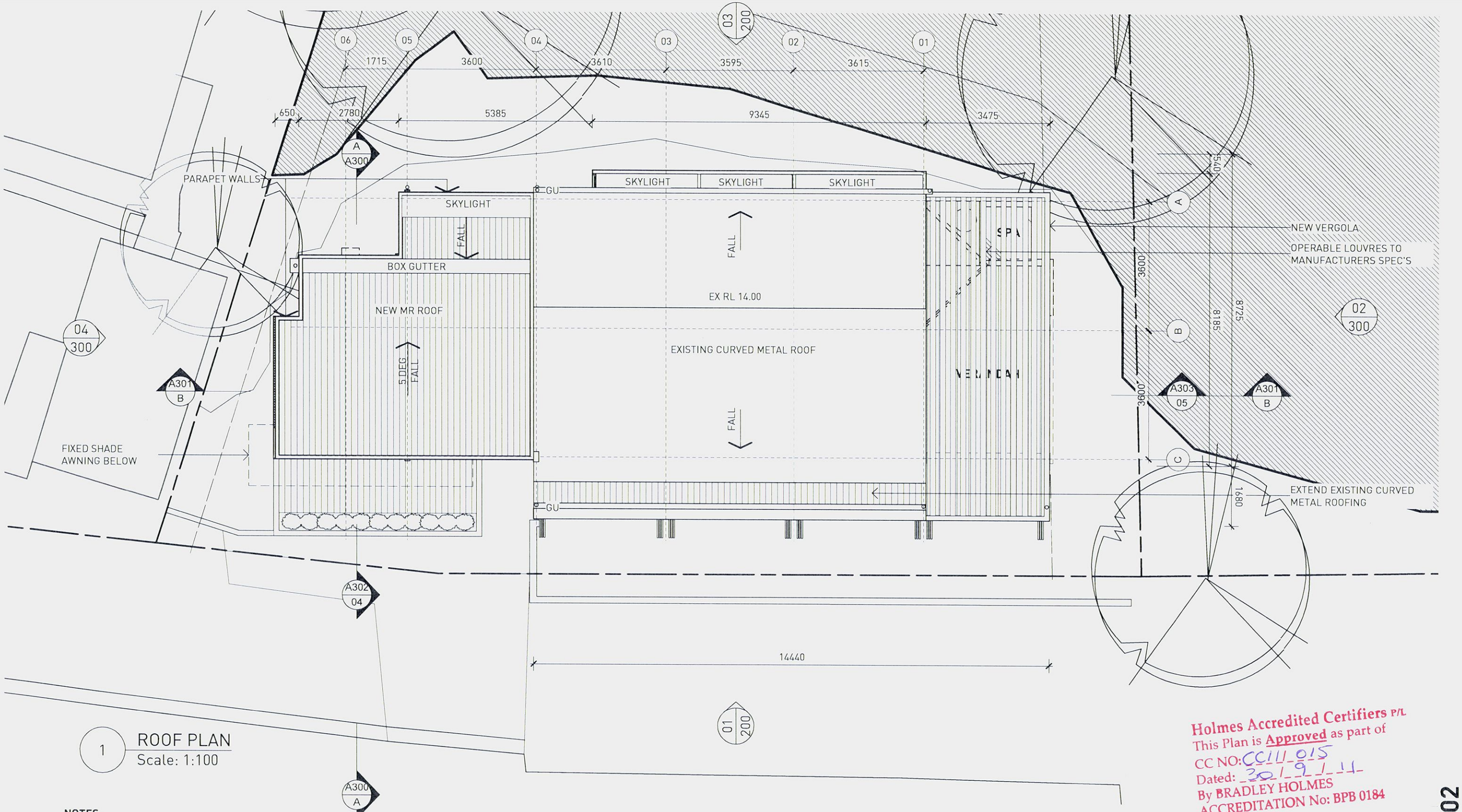
09_154 A101
1



1 ROOF PLAN
Scale: 1:100

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Scale A3

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PROPOSED ROOF PLAN
CONSTRUCTION CERTIFICATE
REV:E 9/9/11

13A OCEAN ROAD PALM BEACH

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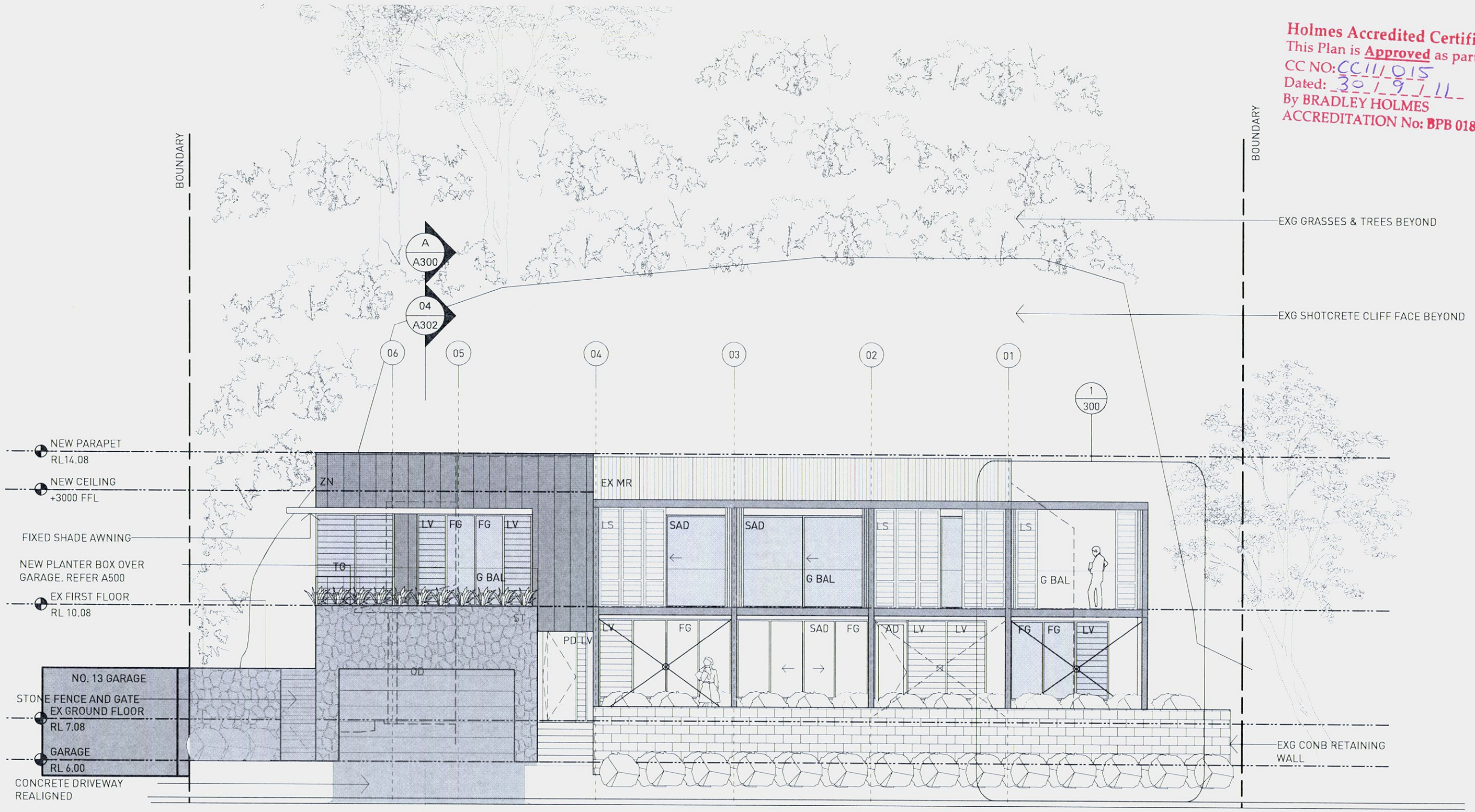
09_154 A102
1



1 ELEVATION EAST
Scale: 1:100

A302 / 04

A300 / A

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:Scale
A3

PROPOSED ELEVATION
CONSTRUCTION CERTIFICATE
REV:E 9/9/11
13A OCEAN ROAD PALM BEACH

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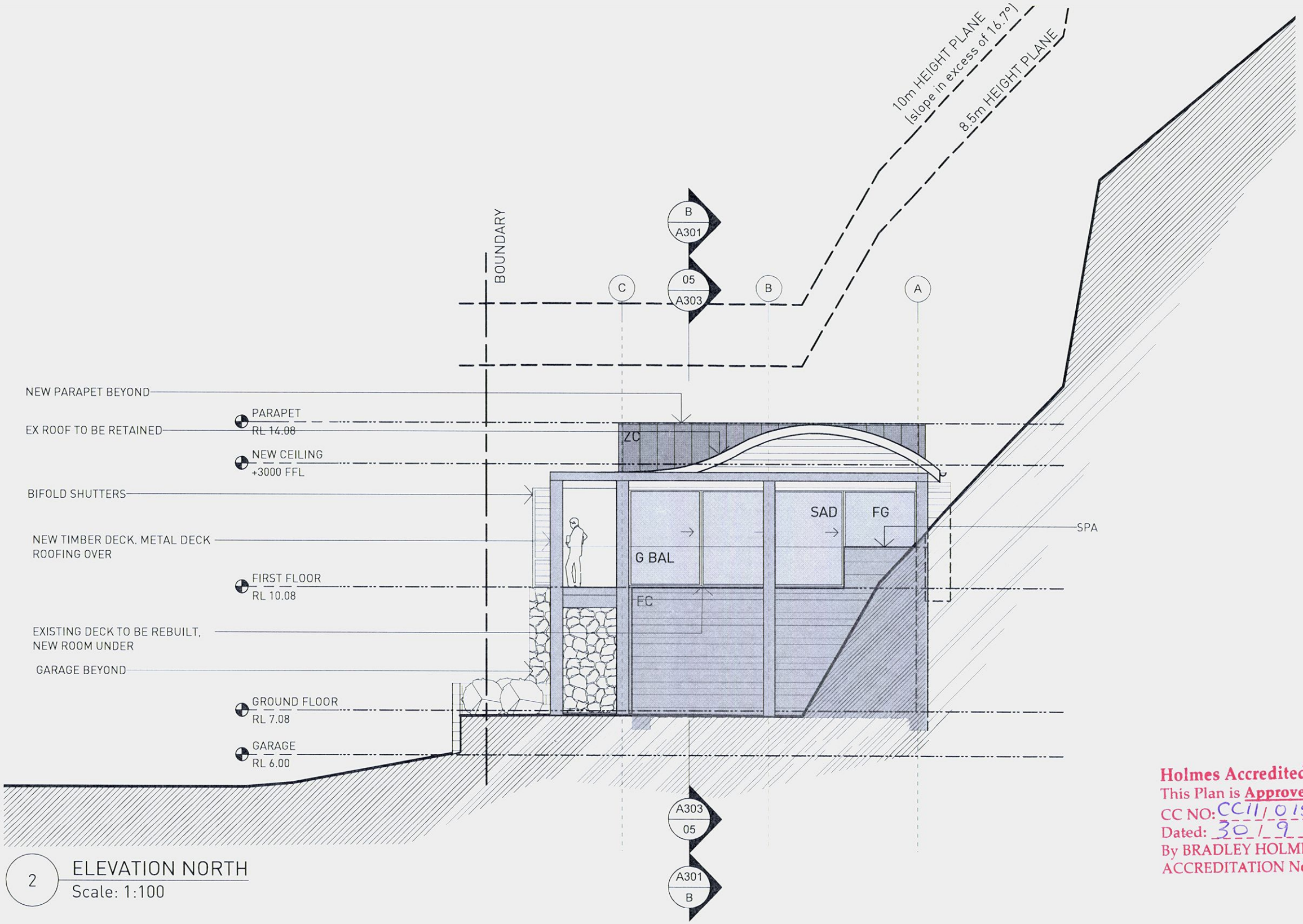
09_154 A200



2 ELEVATION NORTH
Scale: 1:100

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:Scale
A3

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PROPOSED ELEVATION - NORTH
CONSTRUCTION CERTIFICATE
REV:E 9/9/11
13A OCEAN ROAD PALM BEACH

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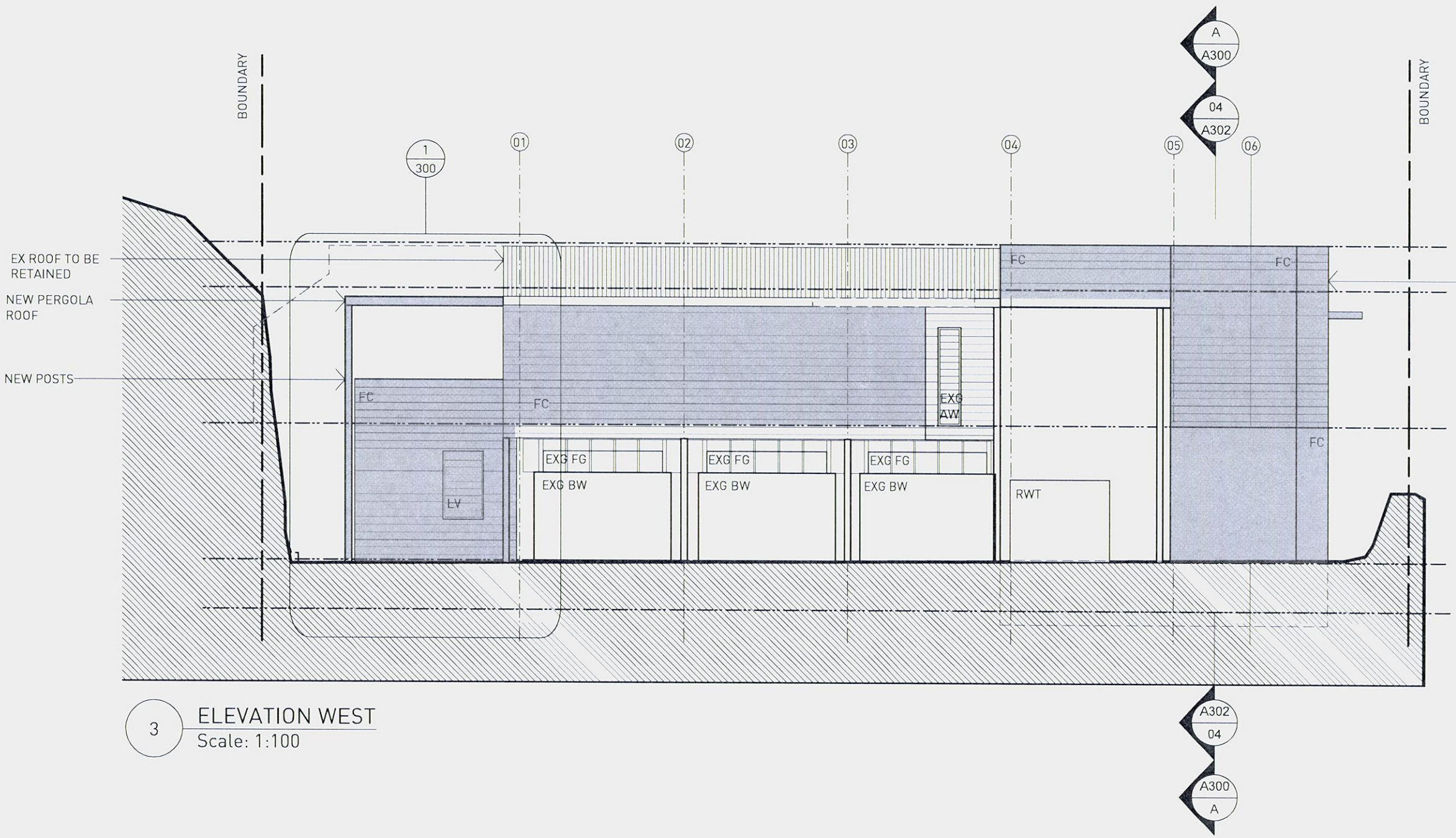
09_154 A201



3 ELEVATION WEST
Scale: 1:100

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:Scale
A3

PROPOSED ELEVATION - WEST
CONSTRUCTION CERTIFICATE
REV:E 9/9/11
13A OCEAN ROAD PALM BEACH

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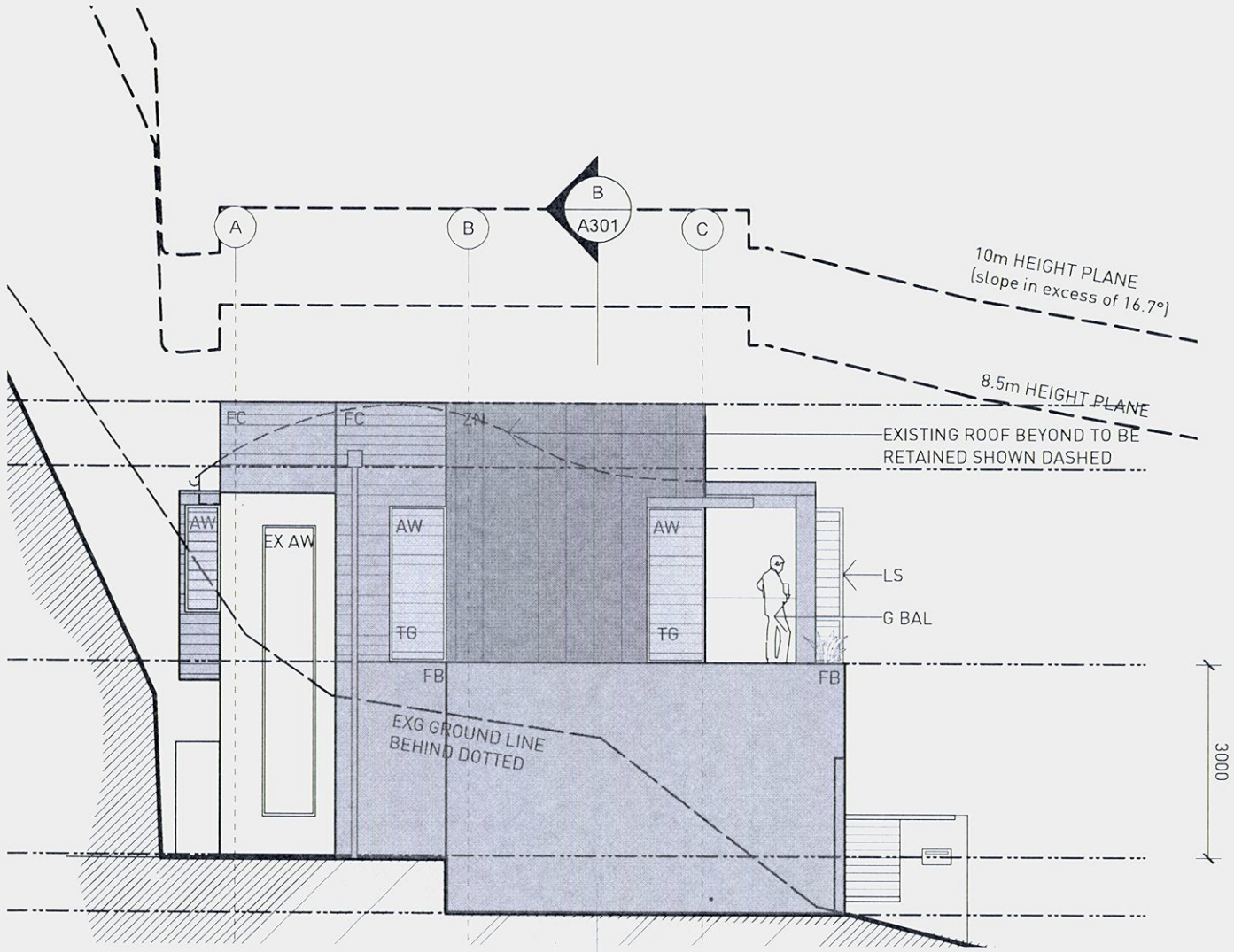
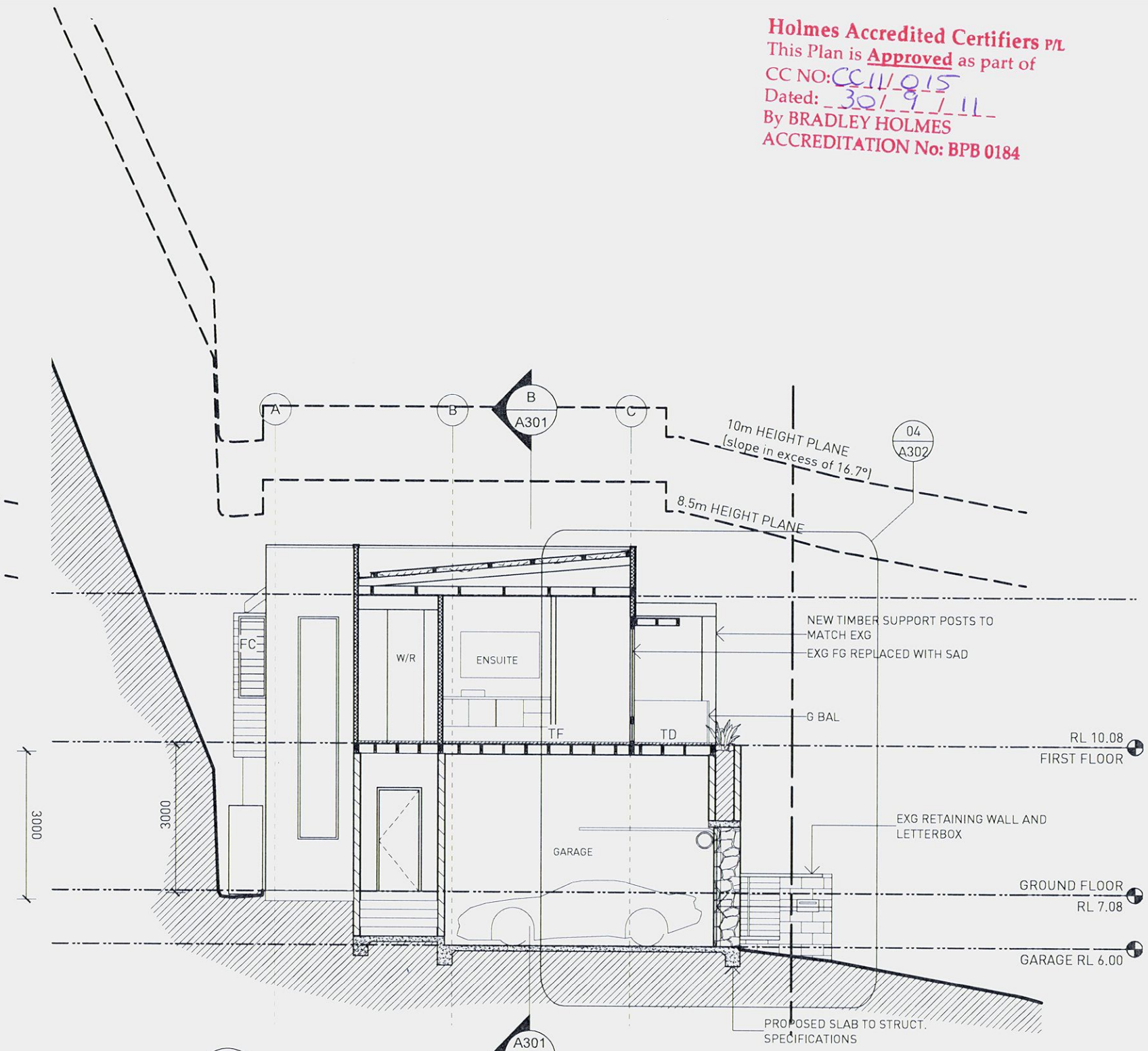


4 SOUTHERN ELEVATION
Scale: 1:100

A301
B



1 SECTION
Scale: 1:100

A301
B

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:Scale
A3

PROPOSED SECTION SHORT
CONSTRUCTION CERTIFICATE
REV:E 9/9/11

13A OCEAN ROAD PALM BEACH

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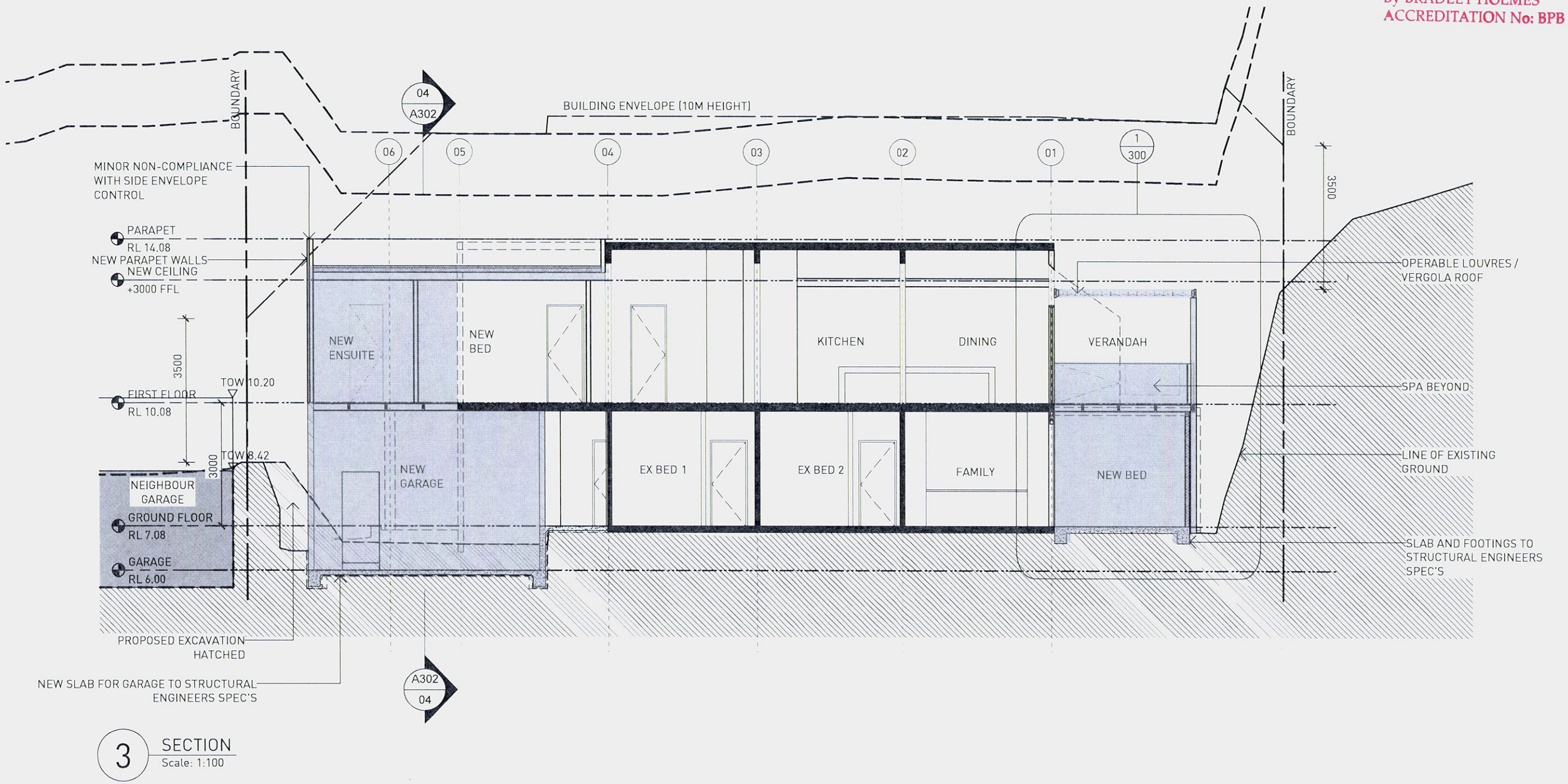

3 SECTION
Scale: 1:100

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Scale
A3

PROPOSED SECTION LONG
CONSTRUCTION CERTIFICATE
REV:E 9/9/11

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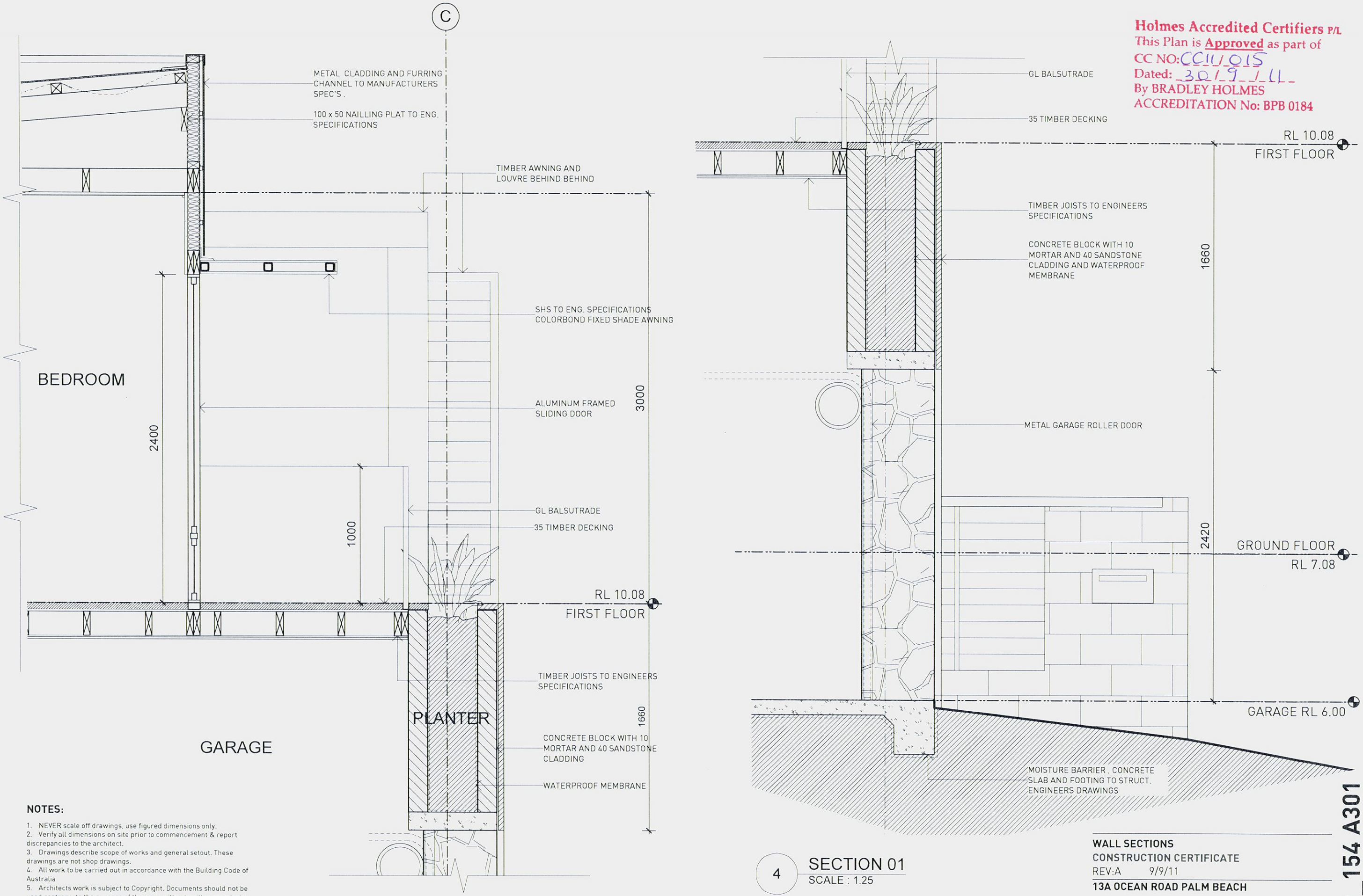

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CC NO: CC11/015
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ACCREDITATION No: BPB 0184

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4 SECTION 01
SCALE : 1.25

:Scale
A3

WALL SECTIONS
CONSTRUCTION CERTIFICATE
REV:A 9/9/11
13A OCEAN ROAD PALM BEACH

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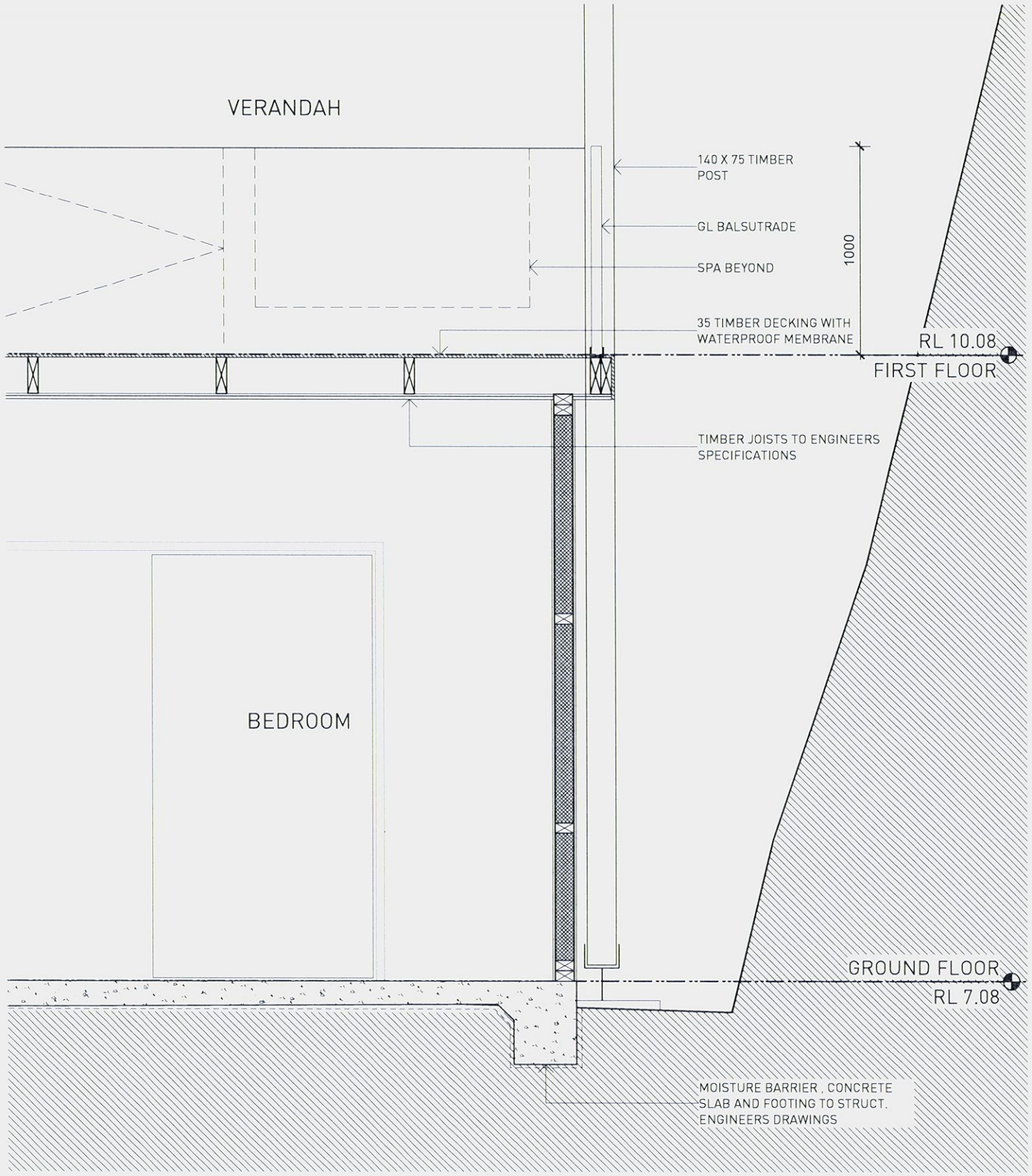

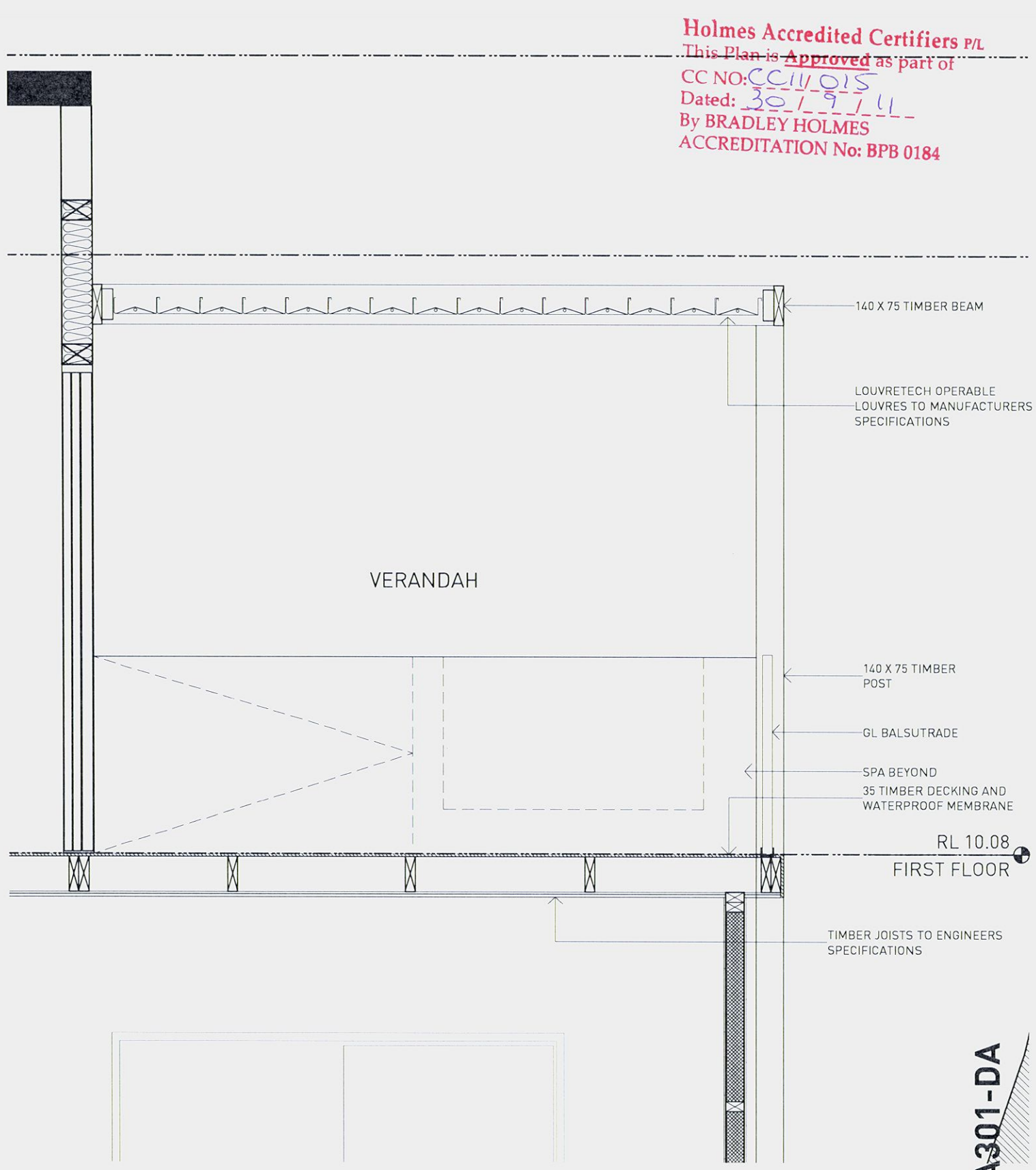

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5 SECTION 02
SCALE : 1.25

:Scale
A3

WALL SECTIONS
CONSTRUCTION CERTIFICATE
REV:A 9/9/11
13A OCEAN ROAD PALM BEACH

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