Tauranga City Council
91 Willow Street, Tauranga / Private Bag 12022, Tauranga 3143
info@tauranga.govt.nz
(07) 577 7000

BC301286

Alpha ID: 301286

Application Type: Building Consent

Site Address: 1 TE WHARO DRIVE, PAPAMOA, TAURANGA

Project Description: Erect single level, three bedroom dwelling with attached single garage.

Project Status: Code Compliance Certificate Issued

Please note: attachments have been excluded from Emails/Correspondence and lodged Application Form/s since the approved versions are incorporated into the issued documents.

Creation Date: 17 February 2021

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Date Submitted: Friday, 26 June 2020

Form 2
Application for project information memorandum and/or building consent

Section 33 or section 45, Building Act 2004

The building

Street address of building:	1 Te Wharo Drive Papamoa 3118
Legal description of land where building is located:	Lot 444 DP 530967
Building name:	Main Building
Location of building within site/block number:	1 Te Wharo Drive Papamoa 3118
Number of levels:	No information provided
Level/unit number:	No information provided
Area:	Total: 126.70 m2, Change: 126.70 m2
Current, lawfully established, use:	2.0 Housing: 2.0.2 Detached Dwelling
Year first constructed:	2020

The owner

Name of owner:	Paul Colin and Katie Creamer
Contact person:	Paul Creamer
Mailing address:	51 Te Wharo Drive Papamoa Tauranga 3118
Street address/registered office:	51 Te Wharo Drive Papamoa Tauranga 3118
Phone number:	Landline: 021920440 Mobile: 021920440
Daytime:	Landline: 021920440 Mobile: 021920440
After hours:	Landline: 021920440 Mobile: 021920440
Facsimile number:	No information provided
Email address:	pkcreamer@gmail.com
Website:	No information provided

The following evidence of ownership is attached to this application:

1. 80966_Creamer_-_02._Certificate_of_Title.pdf (179.22K)
2. 80966_Creamer_-_03._Interests.pdf (1.23M)

Agent

Name of agent:	STEEL FRAME CONSTRUCTION LIMITED			
Contact person:	Craig Wearne			
Mailing address:	P.O. Box 4411 Mount Maunganui 3149			
Street address/registered office:	P.O. Box 4411 Mount Maunganui			
Phone number:	Landline:	075742340	Mobile:	075742340
Daytime:	Landline:	075742340	Mobile:	075742340
After hours:	Landline:	075742340	Mobile:	075742340
Facsimile number:	No information provided			
Email address:	consents@dinex.co.nz			
Website:	No information provided			
Relationship to owner:	Application made on owners behalf			

First point of contact for communications with the council/building consent authority:

Full name:	STEEL FRAME CONSTRUCTION LIMITED
Mailing address:	P.O. Box 4411 Mount Maunganui 3149
Phone number(s):	075742340
Facsimile number(s):	N/A
Email address(es):	consents@dinex.co.nz

Application

I request that you issue a building consent for the building work described in this application.

Signature of agent on behalf of and with the authority of the owner:

CRAIG WEARNE

Date: 26 Jun 2020

space for council use

Application Type	Building Consent only
Application Sub-Type:	Dinex / Code Mark Application
Reference Key:	93125398KG
Name:	Craig Wearne
Application Role:	Agent
Pre-application reference number:	N/A

The project

Description of the building work:

Construct a single level three bedroom detached dwelling with a single garage

Will the building work result in a change of use of the building?	No
Intended life of the building if less than 50 years:	50 years
List building consents previously issued for this project (if any):	No information provided
Estimated value of the building work on which the building levy will be calculated (including goods and services tax):	$322,000

Restricted building work

Will the building work include any restricted building work? Yes

If Yes, provide the following details of all licensed building practitioners who will be involved in carrying out or supervising the restricted building work:

Name	Craig Wearne
Licensing class	Design
Licensed building practitioner number (or registration number if treated as being licensed under section 291 of Act)	BP101178

Building consent

The following plans and specifications are attached to this application:

1. 80966_Creamer_-_13._Consent_Plans.pdf (8.87M)
2. 80966_Creamer_-_14._Detailing.pdf (9.71M)
3. 80966_Creamer_-_15._Specification.pdf (2.20M)

The building work will comply with the building code as follows:

Main Building

B1 - Structure	ALT
B2 - Durability	ALT
C1 - C6 - Protection from Fire (current)	ALT
D1 - Access Routes	ALT
E1 - Surface Water	ALT
E2 - External Moisture	ALT
E3 - Internal Moisture	ALT
F2 - Hazardous Building Materials	ALT
F4 - Safety from Falling	ALT

F5 - Construction and Demolition Hazards	AS1
F7 - Warning Systems	ALT
G1 - Personal Hygiene	ALT
G2 - Laundering	ALT
G3 - Food Preparation	ALT
G4 - Ventilation	ALT
G5 - Interior Environment	ALT
G7 - Natural Light	ALT
G9 - Electricity	ALT
G10 - Piped Services	ALT
G12 - Water Supplies	ALT
G13 - Foul Water	ALT
H1 - Energy Efficiency	ALT
Waiver / Modification Required:	N/A

Compliance schedule

There are no specified systems associated with this project.

Attachments

The following documents are attached to this application:

Plans and specifications

1. 80966_Creamer_-_13._Consent_Plans.pdf (8.87M)
2. 80966_Creamer_-_14._Detailing.pdf (9.71M)
3. 80966_Creamer_-_15._Specification.pdf (2.20M)

Record of title

1. 80966_Creamer_-_02._Certificate_of_Title.pdf (179.22K)
2. 80966_Creamer_-_03._Interests.pdf (1.23M)

Restricted building work memorandums / Owner-builder declaration

1. 80966_Creamer_-_05._Owners_Authorisation.pdf (24.72K)
2. 80966_Creamer_-_10._Designer_Memorandum_CRAIG.pdf (565.33K)
3. 80966_Creamer_-_10._Foundation_Structural_Engineer_Memorandum_-_E3C.pdf (359.62K)

Supporting documents

1. 80966_Creamer_-_11._DINEX_CodeMark_Certficate_-_CM70023_-_24_September_2019.pdf (321.75K)
2. 80966_Creamer_-_12._DINEX_Design_Summary.pdf (586.12K)
3. 80966_Creamer_-_07._Developers_approval.pdf (8.63M)

4. 80966_Creamer_-_16._Soakage_Testing_and_Assessment_-_Aurecon_ref_247593_-_21_Jan_2019.pdf (2.54M)
5. 80966_Creamer_-_16._Subdivision_Geotech_Completion_Report_-_Aurecon_ref_247593-320_Rev_3_-_8_March_2019.pdf (15.62M)
6. 80966_Creamer_-_16._Timber_Pole_Retaining_Wall_Construction_-_Aurecon_ref_245883_-_22_Nov_2019.pdf (11.07M)
7. 80966_Creamer_-_07._Resource_Consent_RC26514.pdf (9.48M)
8. 80966_Creamer_-_16._Soakage_Assessment_-_Lysaght_ref_152870_-_1_Feb_2019.pdf (3.66M)

Tauranga City

Building Consent Application: 93125398KG

Date Submitted: Friday, 26 June 2020

FORM PLG 1

National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil to Protect Human Health

For assistance in answering these questions please refer to (PLG 1A)

Please note that any inaccuracies may result in the applicant being in breach of the Resource Management Act 1991 and/or exposed to liability if the site is subsequently found to be contaminated, including being liable for remedial works.

Is the building work and all associated activities:

Changing the use of the land? **YES**

(Please note that "changing the use of the land" includes erecting a dwelling on an area of land which previously had no dwelling erected upon it.)

Disturbing soil? **YES**

(more than 25m3 per 500m2 of land) or removing soil? (more than 5m3 per 500m2 of land) (e.g.: foundations, on-site effluent treatment and disposal systems, wells or bores)

Is the land currently being used, has been used in the past, or is likely to have been used for an activity described on the HAIL?

NO

For more information on this process please contact the Duty Planner on 07 577 7000 or go the Ministry for the Environment website: http://www.mfe.govt.nz/laws/standards/contaminants-in-soil/

Signature

The name below as AGENT has the authority for the application to proceed to processing and accept the associated charges.

Signed By:

Craig Wearne

26 Jun 2020

The Agent will be the first point of contact for communications with the Council/Building Consent authority regarding this application / building work and will receive all correspondence including all invoices.

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **866647**
Land Registration District **South Auckland**
Date Issued 20 March 2019

Prior References
854978

Estate	Fee Simple
Area	347 square metres more or less
Legal Description	Lot 444 Deposited Plan 530967

Registered Owners
Paul Colin Creamer and Katie Creamer

Interests

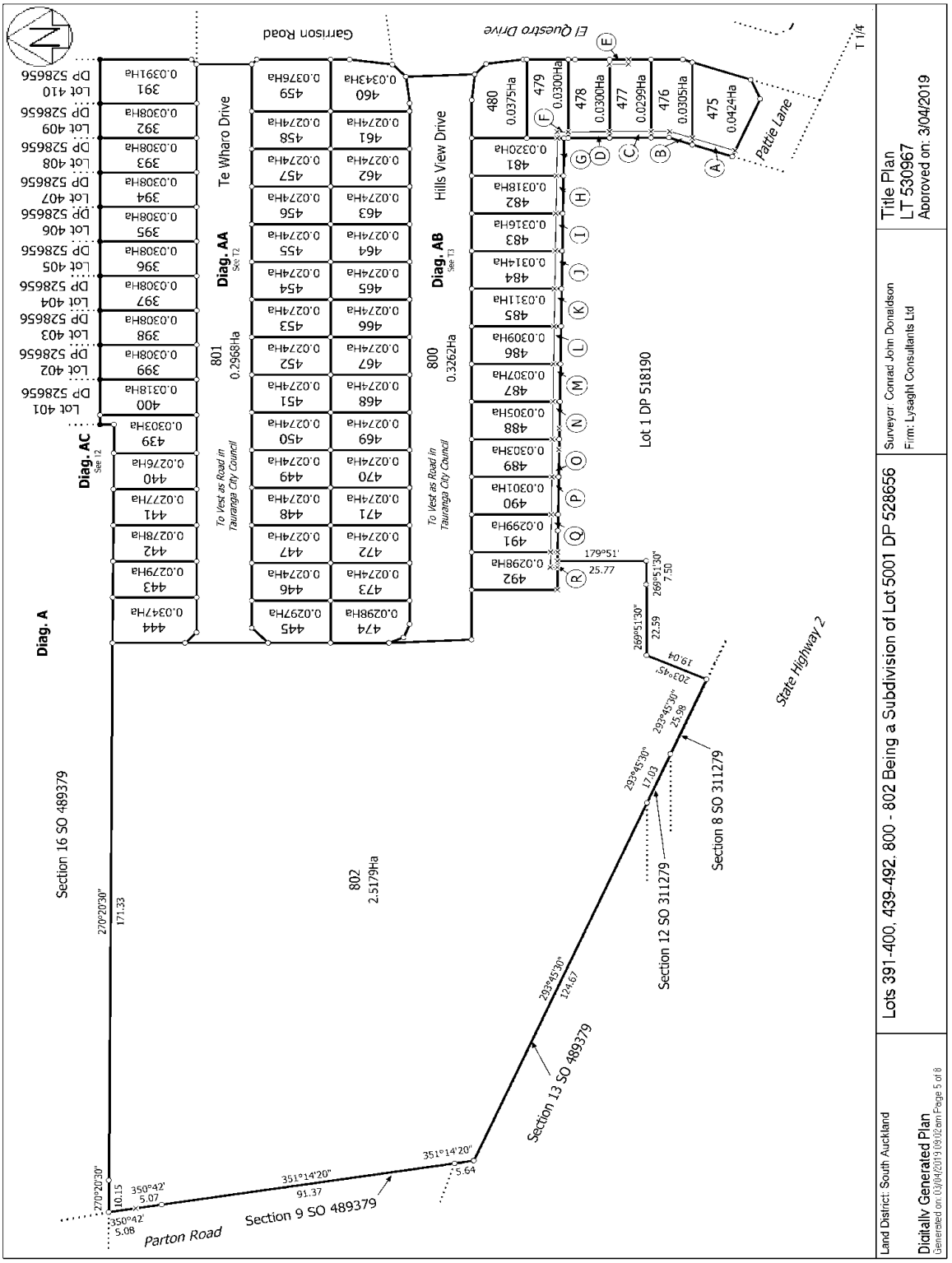
11333786.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 20.3.2019 at 12:31 pm

Land Covenant in Covenant Instrument 11333786.5 - 20.3.2019 at 12:31 pm (Limited as to duration)

11507442.1 Encumbrance to Tauranga City Council - 9.8.2019 at 1:11 pm

11714800.3 Mortgage to Bank of New Zealand - 27.3.2020 at 1:12 pm

Identifier **866647**



View Instrument Details

Instrument No.	11333786.2
Status	Registered
Date & Time Lodged	20 Mar 2019 12:31
Lodged By	Taylor, Tracey
Instrument Type	Consent Notice under s221(4)(a) Resource Management Act 1991

Affected Records of Title	Land District
866631	South Auckland
866633	South Auckland
866634	South Auckland
866635	South Auckland
866636	South Auckland
866637	South Auckland
866638	South Auckland
866639	South Auckland
866640	South Auckland
866641	South Auckland
866642	South Auckland
866643	South Auckland
866644	South Auckland
866645	South Auckland
866646	South Auckland
866647	South Auckland
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866658	South Auckland
866659	South Auckland
866660	South Auckland
866661	South Auckland
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866663	South Auckland
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866665	South Auckland
866666	South Auckland
866667	South Auckland
866668	South Auckland
866669	South Auckland
866670	South Auckland
866671	South Auckland
866672	South Auckland

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Affected Records of Title	Land District
866673	South Auckland
866674	South Auckland
866675	South Auckland
866676	South Auckland
866677	South Auckland
866678	South Auckland
866679	South Auckland
866680	South Auckland
866681	South Auckland
866682	South Auckland
866683	South Auckland
866684	South Auckland
866685	South Auckland
866686	South Auckland
866687	South Auckland
866688	South Auckland
866689	South Auckland
866690	South Auckland
866691	South Auckland
866692	South Auckland
866693	South Auckland
866694	South Auckland
866695	South Auckland

Annexure Schedule: Contains 1 Page.

Signature

Signed by Hamish Roderick Craig Murray as Territorial Authority Representative on 03/04/2019 12:48 PM

***** End of Report *****

TAURANGA CITY COUNCIL

CONSENT NOTICE PURSUANT TO SECTION 221 RESOURCE MANAGEMENT ACT 1991

TCC RC26514

IN THE MATTER OF	Plan DP 530967
AND	
IN THE MATTER OF	Subdivision Consent Notice pursuant to Section 104, 108, 220 & 221 of the Resource Management Act 1991.

Pursuant to Section 221 of the Resource Management Act 1991, the Tauranga City Council hereby certifies that by way of resolution passed under delegated authority on 29 November 2018 the following condition is imposed on the subdivision consent for Lot 5001 DP 528656.

That a consent notice be registered on the Record of Title for the following lots advising owners and subsequent owners of the following requirement to be complied with on a continuing basis as set out below:

Lots 391 to 400, and 439 to 492

(i) **The design and construction of any building or structures requiring a Building Consent in accordance with the Building Act 2004 shall comply with the recommendations contained in the Geotechnical Completion Report prepared by Aurecon New Zealand Limited, referenced 247593-320, Revision 3, dated 8 March 2019 [TCC reference TL10627].**

(ii) **Stormwater disposal from these lots shall be in accordance with the report prepared by Lysaght Consultants Limited entitled 'Soakage Assessment for Proposed Residential Dwellings in Stage 3D and 3E at Terrace Views, Te Okuroa Drive, Papamoa,' referenced 152870, dated 1 February 2019 [TCC reference TL10638].**

Dated at Tauranga this 15th day of March 2019

.....

Authorised Officer
Tauranga City Council

View Instrument Details

Instrument No.	11333786.5
Status	Registered
Date & Time Lodged	20 Mar 2019 12:31
Lodged By	Taylor, Tracey
Instrument Type	Land Covenant under s116(1)(a) or (b) Land Transfer Act 2017

Affected Records of Title	Land District
866631	South Auckland
866633	South Auckland
866634	South Auckland
866635	South Auckland
866636	South Auckland
866637	South Auckland
866638	South Auckland
866639	South Auckland
866640	South Auckland
866641	South Auckland
866642	South Auckland
866643	South Auckland
866644	South Auckland
866645	South Auckland
866646	South Auckland
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866656	South Auckland
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866660	South Auckland
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866666	South Auckland
866667	South Auckland
866668	South Auckland
866669	South Auckland
866670	South Auckland
866671	South Auckland
866672	South Auckland

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Affected Records of Title	Land District
866673	South Auckland
866674	South Auckland
866675	South Auckland
866676	South Auckland
866677	South Auckland
866678	South Auckland
866679	South Auckland
866680	South Auckland
866681	South Auckland
866682	South Auckland
866683	South Auckland
866684	South Auckland
866685	South Auckland
866686	South Auckland
866687	South Auckland
866688	South Auckland
866689	South Auckland
866690	South Auckland
866691	South Auckland
866692	South Auckland
866693	South Auckland
866694	South Auckland
866695	South Auckland

Annexure Schedule: Contains 8 Pages.

Covenantor Certifications

I certify that I have the authority to act for the Covenantor and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Signature

Signed by Hamish Roderick Craig Murray as Covenantor Representative on 18/03/2019 10:47 AM

Covenantee Certifications

I certify that I have the authority to act for the Covenantee and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

Covenantee Certifications

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Signature

Signed by Hamish Roderick Craig Murray as Covenantee Representative on 18/03/2019 10:47 AM

***** End of Report *****

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Covenant Instrument to note land covenant

(Section 116(1)(a) & (b) Land Transfer Act 2017)

Covenantor

ZARIBA PROPERTIES LIMITED

Covenantee

ZARIBA PROPERTIES LIMITED

Grant of Covenant

The Covenantor, being the registered owner of the burdened land(s) set out in Schedule A, **grants to the Covenantee** (and, if so stated, in gross) the covenant(s) set out in Schedule A, with the rights and powers or provisions set out in the Annexure Schedule(s).

Schedule A

Continue in additional Annexure Schedule, if required

Purpose of covenant	Shown (plan reference)	Burdened Land (Record of Title)	Benefited Land (Record of Title) or in gross
Land Covenant	DP 530967	Lot 391 to 400 inclusive, and Lot 439 to 492 inclusive on Deposited Plan 530967 (RT 866631, 866633, 866634, 866635, 866636, 866637, 866638, 866639, 866640, 866641, 866642, 866643, 866644, 866645, 866646, 866647, 866648, 866649, 866650, 866651, 866652, 866653, 866654, 866655, 866656, 866657, 866658, 866659, 866660, 866661, 866662, 866663, 866664, 866665, 866666, 866667, 866668, 866669, 866670, 866671, 866672, 866673, 866674, 866675, 866676, 866677, 866678, 866679, 866680, 866681, 866682, 866683, 866684, 866685, 866686, 866687, 866688, 866689, 866690, 866691, 866692, 866693, 866694, 866695)	Lot 391 to 400 inclusive, and Lot 439 to 492 inclusive on Deposited Plan 530967 (RT 866631, 866633, 866634, 866635, 866636, 866637, 866638, 866639, 866640, 866641, 866642, 866643, 866644, 866645, 866646, 866647, 866648, 866649, 866650, 866651, 866652, 866653, 866654, 866655, 866656, 866657, 866658, 866659, 866660, 866661, 866662, 866663, 866664, 866665, 866666, 866667, 866668, 866669, 866670, 866671, 866672, 866673, 866674, 866675, 866676, 866677, 866678, 866679, 866680, 866681, 866682, 866683, 866684, 866685, 866686, 866687, 866688, 866689, 866690, 866691, 866692, 866693, 866694, 866695)

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Covenant rights and powers (including terms, covenants and conditions)

Delete phrases in [ ] and insert memorandum number as required.
Continue in additional Annexure Schedule if required.

The provisions applying to the specified covenants are those set out in the Annexure Schedule.

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Annexure Schedule Page of Pages

Insert instrument type

Easement Instrument

Continue in additional Annexure Schedule, if required

A. Definitions

In this Easement Instrument the following words have the definitions set out below:

Zariba means Zariba Properties Limited, a company incorporated in New Zealand under number 5660948 or any other person or entity nominated in writing by Zariba Properties Limited.

Land means all the land described in Schedule A being both the dominant and servient tenements.

Property means the servient tenement set out in Schedule A and as the context requires each servient lot (also referred to in this Easement Instrument as a 'section' or 'sections')

B. Covenant provisions

The provisions applying to the specified covenants are those set out in this Annexure Schedule.

C. Continuation of "Creation of Covenant"

The Grantor creates the covenants set out in this Easement Instrument over each of the servient lots for the benefit of each of the other lots so that the servient lots will be bound by the land covenants in this Easement Instrument, and Zariba and the registered proprietors and occupiers for the time being of the dominant tenement may enforce the covenants against the registered proprietor(s) for the time being of the servient tenement.

The Grantor accordingly covenants and agrees on behalf of the Grantor and the Grantor's successors in title to observe and perform the land covenants set out in this Easement Instrument and that those covenants will run with and bind the Property for the benefit of each dominant lot forming part of the Land.

The Grantee and Grantor agree:

That the Property is part of the Grantor's subdivision which includes the dominant tenement, and that it is in the interests of all parties and all present or future registered proprietors of any section forming part of the Land ("subdivision") that the subdivision is developed and maintained in accordance with certain standards. In recognition of these objectives, the Grantor for its Property and for the benefit of all of the dominant tenement agrees and covenants with the Grantee until 1 January 2036 (after which date the covenants in this Easement Instrument shall be of no further effect) as follows:

1. Not to erect any structure other than a new residential dwelling and associated ancillary building. Should the Grantor wish to incorporate an additional self-contained living area within the same roofline, a pre-built transportable or relocatable dwelling, or any other building, then the prior written approval of Zariba must be obtained.

2. Not to apply for a building consent or commence construction on the Property unless Zariba has given written approval to the Grantor's:

   (a) site plan for the Property showing driveways, fencing, building layout and location, patios and basic landscaping including positions of trees, shrubs, garden beds and lawn areas;

   (b) Floor plans of the dwelling to be constructed on the Property showing floor areas and locations of windows and doors;

   (c) A full set of elevations of the dwelling to be constructed on the Property from all sides;

   (d) A list of materials indicating all exterior materials, finishes and colours (walls, roof, window and door frames, gutters and driveways) for the dwelling to be constructed on the Property;

   Zariba shall be entitled to withhold its consent if the documents described in this clause and presented by the Grantor to Zariba for approval do not comply with Zariba's development and design guidelines.

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Annexure Schedule Page of Pages

Insert instrument type

Easement Instrument

Continue in additional Annexure Schedule, if required

3. Not to erect or allow to be erected a dwelling of a floor area less than 80 square metres unless otherwise approved in writing by Zariba (the floor area measurement to be exclusive of garage, carports, decking, breezeways, entry porches, verandas and roof overhang). All dwelling plans and siting of the dwelling house/primary building and associated landscaping are to be approved in writing by Zariba prior to application for a building consent, and/or commencing site works, pegging out or preparatory work on site for the erection of such a dwelling house/primary building. In determining whether or not to approve the plans and specifications, Zariba will take into account both the appearance of the proposed dwelling and the appearance of other dwellings in close vicinity to the dwelling to the intent there should be a range of style, design and appearance of dwellings within the subdivision. The written approval by Zariba is for subdivision standard control purposes only and implies no warranty as to the product, design, quality or suitability of the dwelling on the section in any manner whatsoever. The Grantor shall construct the dwelling in accordance with the plans approved in writing, however any modification or variation to the plans already approved by Zariba for the dwelling shall require further written approval by Zariba prior to such modifications or variations commencing.

4. To construct any dwelling with more than one hip or one gable in the roofline and to construct such dwelling to a shape other than a simple square or rectangle. Flat roofed dwellings are acceptable provided that they comply with the following covenants and are approved in writing by Zariba.

5. The elevations of any dwelling predominantly facing any road frontages shall be finished in subdued, non-vibrant colours unless otherwise approved in writing by Zariba.

6. To construct any dwelling with a minimum of 60% of the non-glazed exterior cladding of the dwelling consisting of any of the following materials: kiln fired or concrete brick, stucco textured finish, stone, linea, or timber weatherboard with a maximum erected width not exceeding 150mm, or any other exterior cladding material for which the Grantor has first obtained Zariba's consent in writing. Any other weatherboard, vinyl, metal or plastic products will require the prior written approval of Zariba. The approval by Zariba is for subdivision standard control purposes only and implies no warranty to the quality or products used or their suitability to the dwelling in any manner whatsoever.

7. Any dwelling with an exterior finish in the form of flat cladding, concrete block, poured concrete or similar shall have the surface textured at the time of construction in such a manner as to fully cover that exterior finish unless otherwise approved in writing by Zariba. All exterior surfaces which are not pre-colour coated or finished shall be painted or stained prior to the dwelling being occupied.

8. Where a dwelling has a basement, exposed subfloors, framing and/or decks, the exposed areas shall be clad in permanent materials in conformity with the main parts of the dwelling.

9. Any dwelling or garage wall predominantly facing a road frontage must include at least one window or feature unless approved otherwise in writing by Zariba.

10. The final colour of the exterior cladding of those areas of the dwelling predominantly facing all road frontages is to be of subdued or non-vibrant colours unless otherwise approved in writing by Zariba.

11. To construct a minimum of one garage which is to be attached to the dwelling unless approved otherwise in writing by Zariba. The garage must be constructed in the same architectural style with the same cladding materials as the dwelling.

12. Unless approved otherwise in writing by Zariba, all other sheds or buildings are not to be located beyond the front building alignment of the dwelling and are to have their exterior cladding colours in keeping with the main dwelling.

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13. In order not to create a glare offensive to adjoining property owners, not to use any metal clad roofing that has not been factory pre-painted.

14. Not to use reflective surfaces or bright colour finishes on any exterior cladding or roofing on the dwelling and any other buildings unless approved otherwise in writing by Zariba.

15. Not to erect any more than one dwelling on the land nor subdivide the Property further unless approved in writing by Zariba.

16. Not to allow any buildings, structures, driveways, landscaping, signs or fencing to fall into disrepair.

17. Not to allow to remain on any walls, fence, signs, structure or building on the Property any graffiti or similar disfiguring for more than five (5) working days from the date that such graffiti or disfiguring occurred or was brought to the notice of the Grantor.

18. Not to alter in any way, including but not limited to painting or repainting in any other style or colour any fencing and/or walls installed by Zariba without the written approval of Zariba and in the event of any damage to such fencing or walls whether by the Grantor or otherwise the Grantor shall reinstate such fence or wall in the style and colour as existing before such damage and further that should the Grantor fail to promptly repair or reinstate such fence or wall as aforesaid Zariba shall have the right (but without being obliged so to do) to so repair or reinstate such fence or wall and to recover the cost of so doing as a debt owing from the Grantor to Zariba.

19. Not to permit or suffer any rubbish to accumulate or be placed upon the Property nor to permit any excessive growth of grass, hedges and gardens so that the same becomes long, unsightly or a fire hazard and should such grass, hedges or gardens become long, unsightly or a fire hazard Zariba may by itself or its agents mow the same and recover the costs of so doing from the Grantor.

20. Not to construct any road or access-way on any part of the Property which provides access to any other land adjoining the Property without the prior written approval of Zariba. In no event shall any section (including any section that is amalgamated or joined with any other land) be used for access to, or be vested as road which provides access to, Section 16 SO 489379 without the prior written approval of Zariba.

21. Unless prior written approval from Zariba is sought, to complete any construction of the dwelling (including exterior painting and decorating) within nine (9) months of commencement of excavation of the dwelling site and further within that nine (9) month period construct in a proper and tradesmanlike manner a driveway, or vehicle access in a permanent continuous surfacing of concrete, concrete block, brick paving, or sealing. The driveway concrete from the kerb to the section boundary shall be constructed of the same exposed aggregate or plain concrete as the footpaths in that precinct of the subdivision.

22. Within six (6) months of the completion of the dwelling, lawns shall be laid, landscaping work encompassing fences, paths, retaining walls and sufficient plants, trees and shrubs to enhance the street appeal of the dwelling, and reinstatement of any land owned by the Tauranga City Council (road reserve) adjoining the Property shall be completed unless prior written approval from Zariba is given. Further, within six (6) months of the completion of the dwelling, interior window furnishings shall be hung, unless prior written approval from Zariba is given.

23. Except for driveways, not to carry out landscaping on the road frontage of any land owned by Tauranga City Council (road reserve) except in accordance with the general overall landscaping plan prepared by Zariba and approved by the Tauranga City Council.

24. While any dwelling is under construction the Grantor and his contractors and tradesmen shall comply fully and comprehensively with all relevant governmental legislation and local authority bylaws relating to workplace safety including but not limited to the Health and Safety at Work Act 2015.

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25. To keep and maintain in a neat and tidy condition and prevent from becoming unsightly at all times, the Property and any land adjoining the Property owned by Tauranga City Council (road reserve).

26. Not to bring on to or to allow to remain on the Property (except during the time of construction of the dwelling), or permanently park on any road within the subdivision or any Council owned land, any:

- vehicle (including recreational and trade vehicles) with a gross laden weight exceeding 3,500 kilograms; or
- temporary building (including sheds); or
- caravan; or
- motorhome; or
- trailer; or
- boat; or
- any other equipment, materials or machinery

unless garaged or as otherwise approved by Zariba and such approval must be obtained in writing.

27. No caravan, motorhome, boat, vehicle (including recreational and trade vehicles) with a gross laden weight exceeding 3,500 kilograms, bus, or other equipment or materials or machinery or trailers are to be regularly located or parked on the street or footpath.

28. No caravan, motorhome, boat, vehicle (including recreational and trade vehicles), bus or other equipment or materials or machinery or trailers shall have any maintenance or repair work carried out to them on the street, footpath or other land owned by Tauranga City Council.

29. Any bus, recreational vehicles and boats shall be garaged so as not to be visible from the road, or to prevent noise likely to cause offence to residents unless prior written approval of Zariba is given and meets Tauranga City Council's requirements.

30. No vehicle, caravan, bus or motorhome shall be placed on or near the Property or be used for residential accommodation.

31. Except during construction, not to erect any boundary fence constructed of shade-cloth, netting, iron or steel of any profile, untextured woodfibre cement panels, plywood, fibrolite or post and wire unless prior written approval of Zariba is given.

32. All fences along the common boundaries between those areas on DP 530697 subject to rights of way and the adjoining lots shall be erected so that the fence posts and rails face into the adjoining lots and not into the areas on DP 530697 subject to rights of way to the intent that the fence palings shall face into the areas on DP 530697 subject to rights of way.

33. All final and permanent boundary fences that are constructed must comply with Zariba's design guidelines and fencing plan unless otherwise approved by Zariba in writing. All final and permanent boundary fences that are constructed along, near or within three (3) metres of any road boundary or recreation reserve are to comply with Tauranga City Council requirements and must not exceed 1.2 metres in height above the finished ground level of the Property (at the date Title is issued for the Property).

34. Retaining structures on any boundary between the Property and any public road shall meet Tauranga City Council's requirements but shall not in any event exceed 1.2 metres in height above the finished ground level of the Property (at the date Title is issued for the Property) unless prior written approval from Zariba has been given. Retaining structures between the front of any building and the road frontage boundary that are required to exceed 1.2 metres in height shall be stepped and landscaped to soften the visual appearance of the retaining structure. No stepped increment shall exceed 1.2 metres in height.

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35. To pay for construction and maintenance of any fence constructed on the boundary of any adjoining land owned by Zariba and/or the Tauranga City Council and not to seek contribution from Zariba or the Tauranga City Council for such construction or maintenance cost.

36. Not to attach, affix, hang, or lean, or permit to be attached, affixed, hung, or lent, anything on the boundary fences.

37. Not to display or permit to be displayed any advertisement, sign, banner, billboard or hoarding on over or near any boundary fence.

38. Not to permit the Property to be occupied or used as a residence unless the dwelling on the Property has been substantially completed in accordance with these covenants and a Code Compliance Certificate has been issued for the dwelling.

39. Not to permit a garage or other outbuildings erected on the Property to be lived in without the prior written approval of Zariba.

40. Not to display more than one advertisement, sign or hoarding of a commercial nature measuring in excess of 1000mm x 1000mm on any part of the Property, dwelling, or land owned by Tauranga City Council unless first approved in writing by Zariba and permitted by the Tauranga City Plan and Resource Consent RC26514.

41. Within three (3) months of completion of the dwelling on the Property, to construct a letterbox that is aesthetically sensitive in terms of quality, design and location and not to site any such letterbox on land owned by Tauranga City Council. Not to site any clotheslines in such a way as to be highly visible from the street or neighbouring properties. The final location and design of clotheslines and letterboxes shall be at the sole discretion of Zariba. Should consent be required, it shall be by way of prior written approval from Zariba.

42. The Grantor shall use best endeavours to locate any attachments around or on to the dwelling and buildings (including but not necessarily limited to television antenna, solar hot water panels and air conditioning units) so they are not highly visible from any road frontages.

43. To ensure due allowance is made for adequate current and future drainage of all storm-water from the Property, such storm-water drainage not to be detrimental to the water quality entering the stormwater network. The Grantor shall also ensure that no discharge from the Property whether of a soluble or insoluble nature shall occur. The Grantor is responsible for all costs, claims or demands for any remedial action undertaken for any breach thereof.

44. To observe and comply with the recommendations of the Geotechnical Completion Report for the subdivision dated 8 March 2019 reference 247593-320 Rev 3 prepared by Aurecon New Zealand Limited.

45. Before the commencement of any construction on the Property, the Grantor shall erect either a temporary or permanent fence around the perimeter of the Property to define the construction zone. Any temporary fencing erected for the construction phase of the dwelling shall be removed within eight (8) weeks of construction being completed.

46. Not to allow contractors and subcontractors to commence work on the Property without first informing them of the restrictions created by these covenants and ensuring their compliance therewith.

47. Before construction of the dwelling, stockpiling and storage of materials and dumping and/or accumulating of rubbish is strictly prohibited on the Property. Once construction has commenced the Grantor shall ensure container bins shall be kept on the Property for the accumulation and disposal of all rubbish. When necessary all such rubbish shall be removed from the Property.

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48. Before, during and after construction, the use of adjacent or abutting land and footpaths for access, stockpiling and storage of materials and dumping of rubbish is strictly prohibited, provided however, that the Grantor or the Grantor's agents or invitees may only have access across any other section upon obtaining prior written approval from the registered proprietor of that section.

49. The Grantor shall ensure that during any construction, due allowance is made for the protection of the footpaths and the land owned by Tauranga City Council including road reserve by way of placing appropriate material over those areas where vehicular traffic is to run to minimise dirt being carried on to the road and footpaths and kerbs being broken.

50. The Grantor shall ensure that all landscaping, berms, roads, footpaths and kerbs are kept clean and free from debris prior, during and after construction.

51. The Grantor shall re-instate, replace and be responsible for all costs arising from damage to the landscaping, berms, roads, footpaths, kerbs, street lights, street signs, concrete or any other structures arising directly or indirectly from or through the Grantor's actions or omissions or those of the Grantor's agents, consultants, contractors or invitees.

52. Not to bring on to raise, breed or keep any animals, reptiles, poultry or livestock on the Property except to keep a maximum of three animals limited to dogs or cats unless prior written approval is given by Zariba and is in keeping with Tauranga City Council's regulations. Animals shall not be allowed to become a nuisance to others adjoining or near the Property and shall be controlled by the Grantor so as to prevent them from roaming the Land at will.

53. Not to object to, frustrate, hinder or prevent any lawful subdivision and development of the Land and any other land owned or acquired by Zariba or its related or associated parties or subsidiaries, nor lodge any appeal or objection to any application by Zariba for any resource consent, building consent, plan change or variation for the Land or any other land owned or acquired by Zariba, but to provide unconditional consent to any application by Zariba for the development of such land.

54. Where Zariba has been dissolved, wound up, removed from the Companies Office register or liquidated, "approval by Zariba" shall mean approval by any party appointed and/or nominated by the directors and/or shareholders of Zariba at the date of its dissolution for this purpose.

55. The Grantor covenants that they will at all times save harmless and keep indemnified Zariba from all proceedings, costs, claims and demands in respect of breaches by the Grantor of any of the stipulations, restrictions and covenants contained in the preceding clauses.

56. In any circumstances where Zariba approval is required in respect of any covenant, then any approval shall be at Zariba's sole discretion and in no circumstance shall Zariba be required to give any reason for its decision.

57. To provide a copy of these covenants to any tenant and/or occupier of the Property and to ensure that any tenant and/or occupier are aware of and comply with the requirements of these covenants.

If there should be any breach or non-observance of any of the foregoing covenants and without prejudice to any other liability which the Grantor or Zariba may have to any person having the benefit of this covenant, should the Grantor not rectify the breach or non-observance of any of the foregoing covenants within ten (10) working days of written notice being made by Zariba or any of the registered proprietors of the Land, then the Grantor will pay to Zariba or to the person making such demands as liquidated damages the sum of $250 per day for every day that such breach or non-observance continues after the date upon which written demand has been made until the date the breach is remedied, together with any costs and expenses incurred by Zariba or any registered proprietor to remedy the breach or non-observance.

View Instrument Details

Instrument No.	11507442.1
Status	Registered
Date & Time Lodged	09 Aug 2019 13:11
Lodged By	Van Veen, Caryn Daphne
Instrument Type	Encumbrance

Affected Records of Title	Land District
866642	South Auckland
866643	South Auckland
866644	South Auckland
866645	South Auckland
866646	South Auckland
866647	South Auckland

Annexure Schedule Contains 6 Pages.

Encumbrancer Certifications

I certify that I have the authority to act for the Encumbrancer and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Signature

Signed by Hamish Roderick Craig Murray as Encumbrancer Representative on 07/08/2019 12:23 PM

Encumbrancee Certifications

I certify that I have the authority to act for the Encumbrancee and that the party has the legal capacity to authorise me to lodge this instrument ☑

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☑

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☑

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☑

Signature

Signed by Chad Allen Wallace as Encumbrancee Representative on 09/08/2019 10:12 AM

***** End of Report *****

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ENCUMBRANCE INSTRUMENT

PARTIES:

1. **ENCUMBRANCER: ZARIBA PROPERTIES LIMITED** together with their successors, executors, administrators and assigns (the "Encumbrancers"); and

2. **ENCUMBRANCEE: TAURANGA CITY COUNCIL**, together with its successors, executors, administrators and assigns (the "Council")

BACKGROUND:

A. The Encumbrancers own:

   (i) an estate in fee simple in that piece of land containing 303 square metres being Lot 439 on Deposited Plan 530967 comprised in Record of Title 866642 ("Lot 439"); and

   (ii) an estate in fee simple in that piece of land containing 276 square metres being Lot 440 on Deposited Plan 530967 comprised in Record of Title 866643 ("Lot 440")

   (iii) an estate in fee simple in that piece of land containing 277 square metres being Lot 441 on Deposited Plan 530967 comprised in Record of Title 866644 ("Lot 441"); and

   (iv) an estate in fee simple in that piece of land containing 278 square metres being Lot 442 on Deposited Plan 530967 comprised in Record of Title 866645 ("Lot 442")

   (v) an estate in fee simple in that piece of land containing 279 square metres being Lot 443 on Deposited Plan 530967 comprised in Record of Title 866646 ("Lot 443"); and

   (vi) an estate in fee simple in that piece of land containing 347 square metres being Lot 444 on Deposited Plan 530967 comprised in Record of Title 866647 ("Lot 444")

   (Lots 439 440, 441, 442, 443 and 444 together called "the Encumbrancer's Land").

B. The Encumbrancers have applied to the Council for Building Consent under number 191200 (the "Building Consent") to erect a retaining wall on the Encumbrancer's Land ("the Retaining Wall").

C. The Council has agreed to the erection of the Retaining Wall on the basis that the Encumbrancers will be responsible for the construction, maintenance and repair of the Retaining Wall and the Encumbrancers have agreed to encumber the Encumbrancers Land on the basis set out in this Encumbrance Instrument.

ENCUMBRANCE:

1. The Encumbrancers hereby encumbers the Encumbrancer's Land for the benefit of the Council, with an annual rent charge of $1.00 to be paid on the 1st day of January each year if demanded by that date.

2. The intention of this Encumbrance is to secure the ongoing performance by the Encumbrancers of the obligations described in the Schedule.

COVENANTS:

3. The Encumbrancers covenant with the Council to observe and perform the covenants contained in the Schedule.

4. The Encumbrancers further covenant and agree with the Council that the obligations of the Encumbrancers will run with the Encumbrancers' Land and bind every person who becomes the owner of the Encumbrancers' Land. No person or body will be liable to pay any monies or perform any obligation under this Encumbrance other than in relation to the period in which that person or body is an owner of the Encumbrancers' Land.

5. Notwithstanding clause 4 of this encumbrance registration of a transfer of an owner's interest in any of the Encumbrancers' Land shall not release the transferor from any liability arising pursuant to this Encumbrance prior to the date of registration of such transfer.

PRIORITY OF CHARGE:

6. This Encumbrance shall rank as a first charge in respect of the Encumbrancer's Land and the Encumbrancers shall enter into a priority with any chargeholder or mortgagee to reflect the same.

DISCHARGE:

7. The Encumbrancers shall be entitled to a discharge of this Encumbrance at the request and cost of the Encumbrancers upon it being established to Council's reasonable satisfaction that the covenants in this Encumbrance have become obsolete.

SCHEDULE

1. The Encumbrancers (for themselves and their successors in title) covenant with Council to:

   a. forthwith and diligently complete erection of the Retaining Wall in accordance with the Lysaght plans and diagrams for the Retaining Wall issued with the Building Consent ("the Plans") and the conditions of the Building Consent;

   b. maintain the Retaining Wall and any co-dependent components of the Retaining Wall erected pursuant to the Building Consent which are intrinsic to the operation, design and structural integrity of the Retaining Wall ("Co-Dependent Components") in good condition and repair at all times; and

   c. undertake all work required in terms of 1.a. and 1.b. (the "Building Work"):

      (i) at the cost of the Encumbrancer;

      (ii) to Council's satisfaction; and

      (iii) in accordance with all plans, specifications and reports prepared and lodged as part of the Building Consent; any subsequent building consent required in respect of any maintenance, repair or replacement work on the Retaining Wall; the Building Code provisions applicable at the time any repairs, maintenance or replacement are carried out; and the provisions of all applicable statutes, ordinances, regulations and by-laws.

2. The parties further acknowledge and agree that:

   a. Construction, maintenance, repair and replacement (including any costs) of that part of the Retaining Wall located on Lot 439 and any Co-Dependent Components located on Lot 439 will be the responsibility of the registered owners from time to time of Lot 439;

   b. Construction, maintenance, repair and replacement (including any costs) of that part of the Retaining Wall located on Lot 440 and any Co-Dependent Components located on Lot 440 will be the responsibility of the registered owners from time to time of Lot 440;

   c. Construction, maintenance, repair and replacement (including any costs) of that part of the Retaining Wall located on Lot 441 and any Co-Dependent Components located on Lot 441 will be the responsibility of the registered owners from time to time of Lot 441;

   d. Construction, maintenance, repair and replacement (including any costs) of that part of the Retaining Wall located on Lot 442 and any Co-Dependent Components located on Lot 442 will be the responsibility of the registered owners from time to time of Lot 442;

   e. Construction, maintenance, repair and replacement (including any costs) of that part of the Retaining Wall located on Lot 443 and any Co-Dependent Components located on Lot 443 will be the responsibility of the registered owners from time to time of Lot 443; and

f. Construction, maintenance, repair and replacement (including any costs) of that part of the Retaining Wall located on Lot 444 and any Co-Dependent Components located on Lot 444 will be the responsibility of the registered owners from time to time of Lot 444.

3. Subject to the provisions of clause 2 of this Schedule, the Encumbrancers further covenant with Council:

   a. to keep the Council indemnified against any claims or liability for damage, loss or injury which may occur as a result of the erection of the Retaining Wall and any Co-Dependent Components;

   b. to permit the Council to have access to the Encumbrancers' Land for the purpose of undertaking any repair, maintenance, replacement or removal of the Retaining Wall and any Co-Dependent Components should the Encumbrancers fail to maintain the Retaining Wall and any Co-Dependent Components in accordance with the provisions of this Encumbrance, it being acknowledged that any such work undertaken by Council will be at the cost of the Encumbrancers and the Council shall not be answerable for any loss resulting from the entry by the Council on to the Encumbrancers' Land or the work undertaken by Council in terms of this clause.

4. the Encumbrancers (for themselves and their successors in title) covenant and agree with each other that:

   a. The construction, maintenance, repair and replacement of the Retaining Wall and any Co-Dependent Components and any costs relating specifically to the Retaining Wall and any Co-Dependent Components will be the responsibility of:

      (i) the Encumbrancers in accordance with the provisions of clause 2 of the Schedule to this Encumbrance PROVIDED THAT;

      (ii) any maintenance, repair or replacement (including the cost thereof) of the Retaining Wall and any Co-Dependent Components that is necessary because of any act or omission of the respective registered owners from time to time of Lot 439, Lot 440, Lot 441, Lot 442, Lot 443 or Lot 444 must be carried out promptly by that respective party at its sole cost or in such proportion as relates to the act or omission.

   b. The Encumbrancers shall have the right to enter upon each other's land to seek access to the Retaining Wall and any Co-Dependent Components for the purpose of carrying out any construction, repair and replacement work as referred to in clauses 1, 2, 3 and 4 of this Schedule.

   c. It is acknowledged that for the purposes of clause 4(b) of this Schedule above, the Encumbrancers include any of the agents, employees, contractors, subcontractors or invitees of the respective registered owners; and

   d. The Encumbrancers will each at their cost respectively and at all times:

      (i) maintain a policy of insurance over their respective parcels of land that includes natural disaster cover; and

      (ii) if any part of the Retaining Wall or any Co-Dependant Components is damaged or destroyed by natural disaster or other event that the parties are insured for, each party will apply to their insurer (or to EQC

if relevant) for cover in respect of the cost of maintenance, repair or replacement for the proportion of the Retaining Wall or any Co-Dependant Components that sit on their land.

5. The Encumbrancers:

   a. shall pay the Council's costs of and incidental to the preparation and registration of this Encumbrance Instrument and any subsequent surrender of the Encumbrance Instrument; and

   b. shall pay the Council's legal costs (as between Solicitor and client) of and incidental to any Court action or prosecution or enforcement action instituted by the Council following a breach by the Encumbrancers of any of the provisions of this Encumbrance.

6. The Council's consent shall not be required for the registration of any instrument against the Encumbrancers' Land which has priority behind this instrument.

7. The Council's consent shall not be required for a transfer of the titles to which this Encumbrance Instrument relates.

8. Sections 203, 204 and 205 of the Property Law Act 2007 apply to this Encumbrance Instrument but otherwise (and without prejudice to the Council's rights of action at common law as a rent charger or encumbrancee):

   a. The Council shall be entitled to none of the powers and remedies given to encumbrancees by the Land Transfer Act 2017 and the Property Law Act 2007; and

   b. No covenants on the part of the Encumbrancers and their successor in title are implied in this Encumbrance other than the covenants for further assurance implied by Section 208 of the Land Transfer Act 2017.

9. To the fullest extent possible the Encumbrancers indemnify and release Council from any and all liability for loss, damage, costs or proceedings arising out of or in relation to breach of the covenants terms and conditions set out in this Encumbrance Instrument.

ENCUMBRANCE INSTRUMENT

LAND TRANSFER ACT 2017

CLIENT CONSENT FOR PIM AND / OR BUILDING CONSENT APPLICATION

To whom it may concern:

I/We Paul Colin Creamer & Katie Creamer

Confirm that I/we give consent to DINEX Ltd and to Steel Frame Construction Ltd to act as our agent for the lodgement of either a PIM or a Building Consent Application for the completion of the work they are currently undertaking on our behalf for the property located at:

Section Address: 1 TeWharo Drive

Lot 444 DP 530967 CT No: -

Name: Katie Creamer Signed:

Name: Paul Creamer Signed:

Name: Signed:

Dated this 13th day of FEB 2020

Memorandum from licensed building practitioner: Certificate of design work

Section 45 and section 30C, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING			
Street address:	Lot 444 DP 530967 01 Te Wharo Drive		
Suburb:	Papamoa		
Town/City:	Tauranga	Postcode:	3118

THE OWNER(S)			
Name(s):	Paul Colin and Katie Creamer		
Mailing address:	51 Te Wharo Drive		
Suburb:	Papamoa	PO Box/Private Bag:	
Town/City:	Tauranga	Postcode:	3118
Phone number:	021920440	Email address:	pkcreamer@gmail.com

BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the: Please tick the option that applies ✓

☐	**sole** designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design work myself – no other person will be providing any additional memoranda for the project
☐	**lead** designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and **no other** person will be providing any additional memoranda for the project
☑	**lead** designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the **other** designers will provide their own memorandum relating to their specific RBW design
☐	**specialist** designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK (RBW)

I *Craig Wearne* carried out / supervised the following design work that is restricted building work

PRIMARY STRUCTURE: B1

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ☒ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
All RBW design work relating to B1 ☐ ☒		○ Carried out ☐ Supervised	
Foundations and subfloor framing ☐ ☒		○ Carried out ☐ Supervised	

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Walls ☐ ☒		◯ Carried out ☐ Supervised	
Roof ☐ ☒		☐ Carried out ☐ Supervised	
Columns and beams ☐ ☒		◯ Carried out ☐ Supervised	
Bracing ☑ ☐	Roof Bracing	◯ Carried out ☑ Supervised	Refer to Roof Truss Fixing and Bracing (D03)
Other ☐ ☒		◯ Carried out ☐ Supervised	

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2			
All RBW design work relating to E2 ☐ ☒		○ Carried out ☐ Supervised	
Damp proofing ☑ ☐	Damp proof membrane to underside of floor slab	○ Carried out ☑ Supervised	Refer to Foundation Details page
Roof cladding or roof cladding system ☑ ☐	Pressed Metal Tile Roofing on underlay	☐ Carried out ☑ Supervised	Refer to Elevations, Cross Section and Roof Cladding Details pages
Ventilation system (for example, subfloor or cavity) ☑ ☐	Cavity to Wall Cladding	○ Carried out ☑ Supervised	Refer to Cross Section and Cladding Details pages
Wall cladding or wall cladding system ☑ ☐	Brick Veneer AAC Panel	○ Carried out ☑ Supervised	Refer to Cross Section and Wall Cladding Details pages
Waterproofing ☐ ☒	N/A	○ Carried out ☐ Supervised	
Other ☐ ☒	N/A	☐ Carried out ☐ Supervised	

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
FIRE SAFETY SYSTEMS: C1 - C6			
☑ Emergency warning systems	Domestic Smoke Detectors	☐ Carried Out ☑ Supervised	Refer Electrical Plan
☑ Evacuation and fire service operation systems	Domestic Escape Path <25m	☐ Carried Out ☑ Supervised	Refer Electrical Plan
☐ Suppression or control systems		☐ Carried Out ☐ Supervised	
☐ Other ☒	N/A	☐ Carried Out ☐ Supervised	

Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.

WAIVERS AND MODIFICATIONS

Waivers or modifications of the Building Code are required. ☐ Yes ☑ No

If Yes, provide details of the waivers or modifications below:

Clause	Waiver/modification required
List relevant clause numbers of building code	Specify nature of waiver or modification of building code required

ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work.

Name: **Craig Wearne**	LBP or Registration number: **BP101178**
The practitioner is a: ☑ Design LBP ○ Registered architect ☐ Chartered professional engineer	
Design Entity or Company (optional): **RCDC Limited**	
Mailing address (if different from below): **P.O Box 4411**	
Street address/Registered office: **63 Hewletts Road**	
Suburb: **Mount Maunganui**	Town/City: **Tauranga**
PO Box/Private Bag: **4411**	Postcode: **3149**
Phone number: **07 574 2340**	Mobile:
After hours:	Fax: **07 574 9537**
Email address: **tauranga@zog.co.nz**	Website: **N/A**

DECLARATION

I ***Craig Wearne*** LBP, state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code, or
- ~~Complies with the building code subject to any waiver or modification of the building code recorded on this form~~

Signature: 

Date: 12/06/2020

Memorandum from licensed building practitioner: Certificate of design work

Section 45 and section 30C, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING			
Street address:	Lot 444 DP 530967 01 Te Wharo Drive		
Suburb:	Papamoa		
Town/City:	Tauranga	Postcode:	3118

THE OWNER(S)			
Name(s):	Paul Colin and Katie Creamer		
Mailing address:	51 Te Wharo Drive		
Suburb:	Papamoa	PO Box/Private Bag:	
Town/City:	Tauranga	Postcode:	3118
Phone number:	021920440	Email address:	pkcreamer@gmail.com

BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the: Please tick the option that applies ✓

☐	**sole** designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design work myself – no other person will be providing any additional memoranda for the project
☐	**lead** designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and **no other** person will be providing any additional memoranda for the project
☐	**lead** designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the **other** designers will provide their own memorandum relating to their specific RBW design
☑	**specialist** designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK (RBW)

I Hamish Pearse-Danker carried out / supervised the following design work that is restricted building work

PRIMARY STRUCTURE: B1

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
All RBW design work relating to B1 [r]		☐ Carried out ☐ Supervised	
Foundations and subfloor framing [a]	Foundations, and waffle slab	☑ Carried out ☑ Supervised	Golden Homes job no. 80966 plans and specifications

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Walls [a]	Cold formed steel wall framing	☐ Carried out ☑ Supervised	Golden Homes job no. 80966 plans and specifications
Roof [a]	Cold formed steel roof and ceiling framing	☐ Carried out ☑ Supervised	Golden Homes job no. 80966 plans and specifications
Columns and beams [a]	Steel lintels, beams and columns	☐ Carried out ☑ Supervised	Golden Homes job no. 80966 plans and specifications
Bracing [a]	Bracing	☐ Carried out ☑ Supervised	Golden Homes job no. 80966 plans and specifications
Other [r]		☐ Carried out ☐ Supervised	

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2			
All RBW design work relating to E2 r		☐ Carried out ☐ Supervised	
Damp proofing r		☐ Carried out ☐ Supervised	
Roof cladding or roof cladding system r		☐ Carried out ☐ Supervised	
Ventilation system (for example, subfloor or cavity) r		☐ Carried out ☐ Supervised	
Wall cladding or wall cladding system r		☐ Carried out ☐ Supervised	
Waterproofing r		☐ Carried out ☐ Supervised	
Other r		☐ Carried out ☐ Supervised	

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
FIRE SAFETY SYSTEMS: C1 - C6			
Emergency warning systems Evacuation and fire service operation systems ☐r Suppression or control systems Other		☐ Carried out ☐ Supervised	

Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.

WAIVERS AND MODIFICATIONS

Waivers or modifications of the Building Code are required. ☐ Yes ☑ No

If Yes, provide details of the waivers or modifications below:

Clause	Waiver/modification required
List relevant clause numbers of building code	Specify nature of waiver or modification of building code required

ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work.

Name: Hamish Pearse-Danker	LBP or Registration number: 1011810
The practitioner is a: ☐ Design LBP ☐ Registered architect ☑ Chartered professional engineer	
Design Entity or Company (optional): e3 Consultants NZ Ltd	
Mailing address (if different from below):	
Street address/Registered office: 100 Spring Street	
Suburb: CBD	Town/City: Tauranga
PO Box/Private Bag: 13207	Postcode: 3141
Phone number: 07 577 9757	Mobile: 0226085734
After hours:	Fax:
Email address: hamish@e3c.co.nz	Website: www.e3c.co.nz

DECLARATION

I Hamish Pearse-Danker LBP, state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code, or
- ~~Complies with the building code subject to any waiver or modification of the building code recorded on this form~~

Signature: 

Date: 11/06/2020

Construction Monitoring Schedule

We recommend e3 Consultants carry out construction monitoring level CM2 on the following elements:

- Foundation and slab reinforcement

Number of inspections depends on number of concrete pours and builders construction sequence

We recommend the Building Consent Authority carry out inspections of the following elements:

- Cold formed steel framing

Form 3
Development contribution notice

Section 36, Building Act 2004

To: Paul Colin and Katie Creamer, 51 Te Wharo Drive, Papamoa Beach, Papamoa, 3118

A code compliance certificate for the building work referred to in the attached project information memorandum or building consent number BC301286 will not be issued until a development contribution of $9,818.58 (inclusive of GST) is paid. The development contribution must be paid to the Tauranga City Council. It can be paid:
- by cheque or cash at Tauranga City Council customer service centre at 91 Willow Street
- by online bank direct transfer (to the account number specified on the building consent invoice)

If the development contribution is not paid,-
(a) the Council may, under section 208(b) of the Local Government Act 2002, withhold the code compliance certificate that would be issued under section 95 of the Building Act 2004:
(b) the building consent authority, under section 94(4) of the Building Act 2004, must refuse to issue a code compliance certificate for the building work until it has received-
(i) evidence that the development contribution has been paid or made by the owner to the Council; or
(ii) a copy of a written agreement between the owner and the Council that the code compliance certificate may be issued:
(c) the Council may, under section 208(d) of the Local Government Act 2002, register the development contribution under subpart 5 of Part 3 of the Land Transfer Act 2017 as a charge on the title of the land in respect of which the development contribution was required.

Kim Larking
Dev Contributions
On behalf of: Tauranga City Council
Issue Date: 08 July 2020

EXPLANATORY NOTE
The amount of the development contribution/s above is an estimate based on the Councils operative Development Contribution Policy at the time this Notice is given. Details of the calculation are set out in the attached Development Contributions Assessment.

Development contributions are required when an application for the building works described in the PIM is

granted, and are due and payable before the building consent is issued in accordance with the provisions of Councils Development Contributions Policy.

If the development contribution described above has already been paid in full, you do not need to take any further action. If any part of the development contribution remains unpaid the provisions set out in the Notice above will apply.

The development contribution due following the grant of a building consent may differ from that set out above to reflect any amendment of the Development Contributions Policy subsequent to the Issue of this Notice.

Tauranga City

Development Contribution Assessment Notice

Local Government Act 2002

08 Jul 2020

Creamer, Paul Colin
51 Te Wharo Drive
Papamoa 3118

This notice is to advise you that the proposed development at 1 TE WHARO DRIVE (Council reference 301286) triggers the requirement to pay a Development Contribution to Tauranga City Council. The information below sets out the contribution amount and details regarding payment.

This is NOT an invoice

DEVELOPMENT DETAILS

Building Consent No: 301286

Date consent lodged: 26 Jun 2020 **Assessment date:** 08 JUL 2020

Street address: 1 TE WHARO DRIVE

Legal description: LOT 444 DP530967

Project description: Erect single level, three bedroom dwelling with attached single garage.

ASSESSMENT DETAILS

Operative development contribution policy: 2019/20

Assessment based on: Fees for 1 household unit equivalent (HUE)

Credits applied: none

Amount required to be paid: Set out within the table below

Code	Contribution type	Activity	$ Per HUE Excl.GST	HUE	Total Excl.GST	$ Per HUE Incl.GST
BIWS	Citywide	Water	3,413.42	1	3,413.42	3,925.43
BIFW	Citywide	Wastewater	3,870.60	1	3,870.60	4,451.19
BIRD	Citywide	Transportation	180.21	1	180.21	207.24
BIRC	Citywide	Reserves	536.95	1	536.95	617.49
BICI	Citywide	Community Infrastructure	536.72	1	536.72	617.23
	Total		**$8,537.90**		**$8,537.90**	**$9,818.58**

When is payment required?

Development contributions will be invoiced along with other fees relating to the consent and are to be paid immediately prior to the issue of the consent. The invoice should be considered formal notice of the requirement to pay development contributions in accordance with Section 198(1) of the Local Government Act 2002.

What if payment is not made?

Council will pursue an overdue development contribution through its normal debt collection processes. In addition the Local Government Act 2002 gives Council the power to:

- Withhold a code of compliance certificate under section 95 of the Building Act 2004 and;
- Register the development contribution under the Statutory Land Charges Registration Act 1928 as a charge on the title of the land

How has the contribution amount been calculated?

The contributions are calculated in accordance with the information set out within the building consent application and with the criteria set in Council's operative development contributions policy. By law, the fees are based on the amounts published within the operative policy at the date that the building consent was lodged.

The final development contribution that is invoiced may change if any alterations, revised plans or further information are provided during the processing that affect the development contribution assessment.

Additional development contributions

Further development on the allotment may result in a requirement to pay additional development contributions. Types of development that may trigger development contributions can include:

- Alterations or extensions to existing buildings
- Change in use of the land or buildings
- New or additional buildings
- Subdivision

What if I disagree with the development contribution charge or the assessment criteria?

If you have any queries regarding the development contribution charge then in the first instance you should contact Council's Development Contributions Advisor. If the advisor considers that any error was made or the policy was applied incorrectly then a revised development contribution notice will be issued. If you are still unhappy with the charge then you can request that the Council's development contributions panel review the development contributions required. Under Section 199A of the Local Government Act 2002 an application for reconsideration may be on the grounds that:

(a) The development contribution was incorrectly calculated or assessed under the Council's Development Contributions Policy; or

(b) The Council incorrectly applied its Development Contributions Policy; or

(c) The information used to assess the development against the Development Contributions Policy, or the way the Council has recorded or used it when requiring a development contribution, was incomplete or contained errors.

All applications should be addressed to:

Development Contribution Waiver Panel
General Manager: Strategy & Growth
Tauranga City Council
Post: Private Bag 12022,Tauranga, 3143
Email: info@tauranga.govt.nz

You also have the right to object to a development contribution charge under section 199C of the Local Government Act 2002. The grounds on which this objection may be based are set out within Section 199D the Local Government Act 2002 and within Council's Development Contributions Policy.

Form 5
Building consent - BC301286

Section 51, Building Act 2004

The building

Street address of building:	1 TE WHARO DRIVE, PAPAMOA, TAURANGA
Legal description of land where building is located:	LOT 444 DP 530967
Building name:	
Location of building within site/block number:	1 Te Wharo Drive Papamoa Beach Papamoa 3118
Level/unit number:	0

The owner

Name of owner:	Paul Colin and Katie Creamer
Customer number:	356970
Contact person:	Paul Creamer
Mailing address:	51 Te Wharo Drive Papamoa Beach Papamoa 3118
Street address/registered office:	51 Te Wharo Drive Papamoa Beach Papamoa 3118
Phone number:	Landline: 021920440 Mobile: 021920440
Daytime:	No information provided
After hours:	No information provided
Facsimile number:	No information provided
Email address:	pkcreamer@gmail.com
Website:	No information provided

First point of contact for communications with the building consent authority:
Craig Wearne (STEEL FRAME CONSTRUCTION LIMITED); Mailing Address: P.O. Box 4411 Mount Maunganui 3149; Phone: 075742340; Email: consents@dinex.co.nz

Building work

The following building work is authorised by this building consent:
Erect single level, three bedroom dwelling with attached single garage.

This building consent is issued under section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building). This building consent also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction,

alteration, demolition, or removal would be in breach of any other Act.

This building consent is subject to the following conditions:

Section 90 - Inspections by Building Consent Authorities: (1) Every building consent is subject to the condition that agents authorised by the building consent authority for the purposes of this section are entitled, at all times during normal working hours or while building work is being done, to inspect-
(a) land on which building work is being or is proposed to be carried out; and
(b) building work that has been or is being carried out on or off the building site; and
(c) any building.

(2) The provisions (if any) that are endorsed on a building consent in relation to inspection during the carrying out of building work must be taken to include the provisions of this section.

(3) In this section, inspection means the taking of all reasonable steps to ensure that building work is being carried out in accordance with a building consent.

Ground Bearing Check: Chartered professional engineer (CPEng) to confirm ground bearing is suitable for slab design.
Building Finished Floor Level and Soakage System Level: to be confirmed by a Licensed Cadastral Surveyor
PS4-Construction Monitoring: Chartered Professional Engineer to provide for TC2 slab (See Construction Monitoring Requirements for further details)
Electrical Energy Works Certificate as per section 92 (4) by a Registered Electrician
Note: The above required PS4 and specialist documentation are in support of the required Council Inspections specified on the Form 5. These do not negate the requirements for the Council Inspections but are additional to them.

Construction monitoring requirements
Please contact the following consultants directly to arrange the construction monitoring identified which they have been engaged to carry out.

e3 Consultants NZ Ltd
Construction monitoring to level CM2 for:
- TC2 Foundation and slab reinforcement

Compliance schedule
A compliance schedule is not required for this building.

Inspections

The following inspections are required:

- Siting and Site Scrape Inspection
- Floor Slab
- Post Wrap / Cavity
- Half High Brick
- Preline Building
- Drainage
- Building Final
- Wastepipes
- Framing / Pre-wrap
- Pre-plaster
- Preline Plumbing
- Post Line
- P+D final

Documents required

Siting and Site Scrape Inspection

- Survey Certificate Building Location Certificate - Confirming FFL At 6.100
- B1: Ground Bearing Certificate - Confirming That Assumed Bearing Capacity 200kPa UBC 67kPa Allowable For The Foundations Are Available

Floor Slab

- B1: Slab - PS4 And Construction Monitoring Records

Drainage

- Survey Certificate - Confirming Soakage System Founded At 3.0 RL
- G13: As-builts, drainlayer details, pipework test

Building Final

- Form 6a - LBP Record Of Building Work - Roofing - Pressed Metal Tile
- Form 6a - LBP Record Of Building Work - External Plastering - Hebel PowerPanel 50 With Plaster Facade System
- Form 6a - LBP Record Of Building Work - Foundations - TC2 Slab
- B1: Slab - Concrete Verification - 25 MPa Concrete With 15kgm3 Of Dramix 3D8060BG TC2
- B1: Truss And Frame Certification - PS3 To Confirm Compliance Of The Manufactured Zog Metal Framing And Trusses
- PS3 - Installer To Confirm Truss And Frame Construction Is In Accordance With Consented Plans
- Form 6a - LBP record of building work - Carpentry
- Form 6a - LBP record of building work - Brick and blocklaying
- G9: Energy works certificate

Copies of all site reports/records must be provided to the Building Consent Authority as work proceeds for their records, please upload these to your consent.

Attachments

Copies of the following documents are attached to this building consent:

- Advice notes / Endorsements
- Form 3: Development Contribution Notice

Signature: Denella Brydon
Position: Supervisor BCO Processing (07) 5777200 ext 7451
On behalf of: Tauranga City Council
Issue Date: 18 August 2020

Advice notes / Endorsements

Section 36 - Development Contribution Notice: Attached to this consent is a development contribution notice issued by the Territorial Authority, in accordance with section 36 of the Building Act 2004. Please note that the code compliance certificate will not be issued unless the development contributions have been paid in full.

Hazardous Materials: As with any construction project there is a likelihood that some materials used may potentially emit quantities of gas, liquid, radiation or solid particles i.e. glues, paints, dust or particles from insulation etc. that could be harmful. Please ensure spaces remain well ventilated and clean to mitigate potential build-up or concentration of these.

Site Safety: Please ensure all appropriate site safety measures are provided throughout the contract works to comply with NZ Building Code Clause F5 and all occupational safety and health requirements.

Ground Bearing Check: A ground confirmation statement to be provided from a Chartered Professional Engineer confirming that assumed bearing capacity (200 kPa UBC, 67 kPa allowable) for the foundations are available. The ground confirmation statement shall be provided prior to the floor slab being poured. An amendment to the building consent will be required if a redesign of the foundations is required.

Raft Floor - TC2 Ground : The design engineer (or approved representative) is to provide a producer statement construction review (PS4) verifying the engineered design raft floor slab system has been formed in accordance with the building consent prior to concrete pour.

Concrete Verification (Dinex): 25 mPa concrete with 15kg/m3 of Dramix 3D80/60BG (TC2).

Finished Floor Level: This will need to be confirmed with a Building location Certificate by a Licensed Cadastral Surveyor. Finished Floor level must be 6.100m.

Producer Statement Construction (PS3): This will be required to confirm compliance of the manufactured zog metal framing and trusses.

Electrical Energy Works Certificate: The Building Consent Authority places full reliance of the issue of energy work certificates to verify that the installation and completion of electrical services comply with the provisions of New Zealand Building Code Clauses G9. Code compliance certificate will not be issued unless the energy works certificates identifies compliance with this specific code clause and confirms compliance with this building consent.

As-built Drainage : As-built drawings and required documents need to be provided along with drain-layer details - (name, company, license number, contact details).

Soakage System: A Licensed Cadastral Surveyor to provide a report confirming that the base of the soakage chambers are founded at 3.0 m RL
Under section 92 (2A) of the Building Act 2004, If applicable, the owner must include with the application for Code Compliance Certificate, any records of work provided by licensed building practitioners under section 88(1).

Form 3
Development contribution notice

Section 36, Building Act 2004

To: Paul Colin and Katie Creamer, 51 Te Wharo Drive, Papamoa Beach, Papamoa, 3118

A code compliance certificate for the building work referred to in the attached project information memorandum or building consent number BC301286 will not be issued until a development contribution of $9,818.58 (inclusive of GST) is paid. The development contribution must be paid to the Tauranga City Council. It can be paid:
- by cheque or cash at Tauranga City Council customer service centre at 91 Willow Street
- by online bank direct transfer (to the account number specified on the building consent invoice)

If the development contribution is not paid,-
(a) the Council may, under section 208(b) of the Local Government Act 2002, withhold the code compliance certificate that would be issued under section 95 of the Building Act 2004:
(b) the building consent authority, under section 94(4) of the Building Act 2004, must refuse to issue a code compliance certificate for the building work until it has received-
(i) evidence that the development contribution has been paid or made by the owner to the Council; or
(ii) a copy of a written agreement between the owner and the Council that the code compliance certificate may be issued:
(c) the Council may, under section 208(d) of the Local Government Act 2002, register the development contribution under subpart 5 of Part 3 of the Land Transfer Act 2017 as a charge on the title of the land in respect of which the development contribution was required.

Kim Larking
Dev Contributions
On behalf of: Tauranga City Council
Issue Date: 08 July 2020

EXPLANATORY NOTE
The amount of the development contribution/s above is an estimate based on the Councils operative Development Contribution Policy at the time this Notice is given. Details of the calculation are set out in the attached Development Contributions Assessment.

Development contributions are required when an application for the building works described in the PIM is

granted, and are due and payable before the building consent is issued in accordance with the provisions of Councils Development Contributions Policy.

If the development contribution described above has already been paid in full, you do not need to take any further action. If any part of the development contribution remains unpaid the provisions set out in the Notice above will apply.

The development contribution due following the grant of a building consent may differ from that set out above to reflect any amendment of the Development Contributions Policy subsequent to the Issue of this Notice.

Tauranga City

Development Contribution Assessment Notice

Local Government Act 2002

08 Jul 2020

Creamer, Paul Colin
51 Te Wharo Drive
Papamoa 3118

This notice is to advise you that the proposed development at 1 TE WHARO DRIVE (Council reference 301286) triggers the requirement to pay a Development Contribution to Tauranga City Council. The information below sets out the contribution amount and details regarding payment.

This is NOT an invoice

DEVELOPMENT DETAILS

Building Consent No: 301286

Date consent lodged: 26 Jun 2020 **Assessment date:** 08 JUL 2020

Street address: 1 TE WHARO DRIVE

Legal description: LOT 444 DP530967

Project description: Erect single level, three bedroom dwelling with attached single garage.

ASSESSMENT DETAILS

Operative development contribution policy: 2019/20

Assessment based on: Fees for 1 household unit equivalent (HUE)

Credits applied: none

Amount required to be paid: Set out within the table below

Code	Contribution type	Activity	$ Per HUE Excl.GST	HUE	Total Excl.GST	$ Per HUE Incl.GST
BIWS	Citywide	Water	3,413.42	1	3,413.42	3,925.43
BIFW	Citywide	Wastewater	3,870.60	1	3,870.60	4,451.19
BIRD	Citywide	Transportation	180.21	1	180.21	207.24
BIRC	Citywide	Reserves	536.95	1	536.95	617.49
BICI	Citywide	Community Infrastructure	536.72	1	536.72	617.23
	Total		**$8,537.90**		**$8,537.90**	**$9,818.58**

When is payment required?

Development contributions will be invoiced along with other fees relating to the consent and are to be paid immediately prior to the issue of the consent. The invoice should be considered formal notice of the requirement to pay development contributions in accordance with Section 198(1) of the Local Government Act 2002.

What if payment is not made?

Council will pursue an overdue development contribution through its normal debt collection processes. In addition the Local Government Act 2002 gives Council the power to:

- Withhold a code of compliance certificate under section 95 of the Building Act 2004 and;
- Register the development contribution under the Statutory Land Charges Registration Act 1928 as a charge on the title of the land

How has the contribution amount been calculated?

The contributions are calculated in accordance with the information set out within the building consent application and with the criteria set in Council's operative development contributions policy. By law, the fees are based on the amounts published within the operative policy at the date that the building consent was lodged.

The final development contribution that is invoiced may change if any alterations, revised plans or further information are provided during the processing that affect the development contribution assessment.

Additional development contributions

Further development on the allotment may result in a requirement to pay additional development contributions. Types of development that may trigger development contributions can include:

- Alterations or extensions to existing buildings
- Change in use of the land or buildings
- New or additional buildings
- Subdivision

What if I disagree with the development contribution charge or the assessment criteria?

If you have any queries regarding the development contribution charge then in the first instance you should contact Council's Development Contributions Advisor. If the advisor considers that any error was made or the policy was applied incorrectly then a revised development contribution notice will be issued. If you are still unhappy with the charge then you can request that the Council's development contributions panel review the development contributions required. Under Section 199A of the Local Government Act 2002 an application for reconsideration may be on the grounds that:

(a) The development contribution was incorrectly calculated or assessed under the Council's Development Contributions Policy; or

(b) The Council incorrectly applied its Development Contributions Policy; or

(c) The information used to assess the development against the Development Contributions Policy, or the way the Council has recorded or used it when requiring a development contribution, was incomplete or contained errors.

All applications should be addressed to:

Development Contribution Waiver Panel
General Manager: Strategy & Growth
Tauranga City Council
Post: Private Bag 12022,Tauranga, 3143
Email: info@tauranga.govt.nz

You also have the right to object to a development contribution charge under section 199C of the Local Government Act 2002. The grounds on which this objection may be based are set out within Section 199D the Local Government Act 2002 and within Council's Development Contributions Policy.

SPECIFICATION of work to be done and materials to be used in carrying out the works shown on the accompanying drawings

80966

Lot 444, DP 530967, 1 Te Wharo Drive, Papamoa, Tauranga

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1220 PROJECT

1. GENERAL

This general section describes the project including:
- A description of the work
- Site description, features and restrictions
- Design parameters for design by contractor
- Archaeological discovery

1.1 READ ALL SECTIONS TOGETHER
Read all general sections together with all other sections.

Description of the work

1.2 SCOPE OF THE WORK
New Dwelling as per Drawings

1.3 RESTRICTED BUILDING WORK
This project includes Restricted Building Work.

Site

1.4 SITE
The site Refer to drawings

1.5 LEGAL DESCRIPTION
The site of the works, the street address and the legal description are shown on the drawings.

Site environment - Wind

1.6 WIND DESIGN PARAMETERS - NON SPECIFIC DESIGN
The design wind pressures are to NZS 3604, Table 5.4 Determination of wind zone, up to and including Extra High Wind Zone.
Building wind zone Refer to drawings (refer to NZS 3604, table 5.4)

Site environment - Durability

1.7 EXPOSURE ZONE
The exposure zone is to NZS 3604, Section 4 Durability, 4.2 Exposure zones and NZBC E2/AS1.
The site zone is: Refer to drawings

Site environment - Seismic

1.8 EARTHQUAKE ZONE - NON SPECIFIC DESIGN
The zone is to NZS 3604, Section 5 Bracing design, 5.3 Earthquake bracing demand.
The earthquake zone is: Refer to drawings

Archaeological discovery

1.9 ANTIQUITIES AND ITEMS OF VALUE
Report the finding of any fossils, antiquities and other items of value, to the Contract Administrator. All to remain undisturbed until approval is given for removal.

Pre-1900, items or evidence of human activity on the site, come under the Heritage New Zealand Pouhere Taonga Act 2014. If such items or evidence is discovered work must stop immediately and the Contract Administrator must be notified immediately. The site may be classified as an Archaeological Site under the Act, and the Contract Administrator or Owner must contact the Heritage New Zealand for authority to proceed.

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Post-1900 items remain the property of the owner, pre-1900 items may remain the property of the owner or the Crown subject to what is found.

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1232 INTERPRETATION & DEFINITIONS

1. GENERAL

This general section relates to definitions and interpretation that are used in this specification.

1.1 DEFINITIONS

Required:	Required by the documents, the New Zealand Building Code or by a statutory authority.
Proprietary:	Identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.
Provide and fix:	"Provide" or "fix" or "supply" or "fix" if used separately mean provide and fix unless explicitly stated otherwise.
Review:	Review by the contract administrator is for general compliance only. Review does not remove the need for the contractor to comply with the stated requirements, details and specifications of the manufacturers and suppliers of individual components, materials and finishes. Neither can the review be construed as authorising departures from the contract documents.
Working day:	Working day means a calendar day other than any Saturday, Sunday, public holiday or any day falling within the period from 24 December to 5 January, both days inclusive, irrespective of the days on which work is actually carried out.
Workplace:	Workplace means the place where work is being carried out, or is customarily carried out, for a business or undertaking including any place where a worker goes, or is likely to be, while at work (under Health and Safety at Work Act 2015).

1.2 PERSONNEL

Owner:	The person defined as "owner" in the New Zealand Building Code.
Principal:	The person defined as "principal" in the conditions of contract.
Contractor:	The person contracted by the principal to carry out the contract.
Contract administrator:	The person appointed by the principal to administer the contract on the principal's behalf. Where no person has been appointed by the Principal, it means the Principal or the Principal's representative.

1.3 ABBREVIATIONS

The following abbreviations are used throughout the specification:

AAMA	American Architectural Manufacturers Association
AS	Australian Standard
AS/NZS	Joint Australian/New Zealand Standard
ASTM	American Society for Testing and Materials
AWCINZ	Association of Wall and Ceiling Industries of New Zealand Inc.
BCA	Building Consent Authority
BRANZ	Building Research Association of New Zealand
BS	British Standard
COP	Code of practice
CSIRO	Commonwealth Scientific and Industrial Research Organisation
HERA	Heavy Engineering Research Association
LBP	Licensed Building Practitioner
MBIE	Ministry of Business, Innovation and Employment
MPNZA	Master Painters New Zealand Association Inc
NZBC	New Zealand Building Code
NZS	New Zealand Standard
NZS/AS	Joint New Zealand/Australian Standard
NZTA	New Zealand Transport Agency
NUO	Network Utility Operator
PCBU	Person Conducting a Business or Undertaking (under Health and Safety at Work Act 2015)
OSH	Occupational Safety and Health
TA	Territorial Authority

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TNZ	Transit New Zealand(Transit New Zealand is now New Zealand Transport Agency NZTA - some specifications are still prefixed TNZ)
RBW	Restricted Building Work
SARNZ	Scaffolding and Rigging New Zealand Inc
SED	Specific Engineering Design

1.4 DEFINED WORDS

Words defined in the conditions of contract, New Zealand Standards, or other reference documents, to have the same interpretation and meaning when used in their lower case, title case or upper case form in the specification text.

1.5 WORDS IMPORTING PLURAL AND SINGULAR

Where the context requires, words importing singular only, also include plural and vice versa.

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1233 REFERENCED DOCUMENTS

1. GENERAL

1.1 REFERENCED DOCUMENTS

Throughout this specification, reference is made to various New Zealand Building Code Compliance Documents (NZBC __), acceptable solutions (__ AS_) and verification methods (__ VM_) for criteria and/or methods used to establish compliance with the New Zealand Building Code.

Reference is also made to various standards produced by Standards New Zealand (NZS, AS/NZS, NZS/AS), overseas standards and to listed Acts, Regulations and various industry codes of practice and practice guides. The latest edition (including amendments and provisional editions) at the date of this specification applies unless stated otherwise.

It is the responsibility of the contractor to be familiar with the materials and expert in the techniques quoted in these publications.

Documents cited both directly and within other cited publications are deemed to form part of this specification. However, this specification takes precedence in the event of it being at variance with the cited documents.

1.2 DOCUMENTS

Documents referred to in the GENERAL sections are:

NZBC F4/AS1	Safety from falling
NZBC F5/AS1	Construction and demolition hazards
AS/NZS 1170.2	Structural design actions - Wind loads
AS/NZS 3012	Electrical installations - Construction and demolition sites
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
NZS 3109	Concrete construction
NZS 3114	Specification for concrete surface finishes
NZS 3404:1997	Steel structures standard
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NZS 4210	Masonry construction: Materials and workmanship
NZS 6803	Acoustics - Construction Noise

Building Act 2004
Building Regulations 1992
Health and Safety at Work Act 2015
Health and Safety at Work (General Risk and Workplace Management) Regulations 2016
Health and Safety at Work (Hazardous Substances) Regulations 2017
Health and Safety in Employment Regulations 1995 (reprint 4 April 2016)
New Zealand Building Code
Heritage New Zealand Pouhere Taonga Act 2014
Resource Management Act 1991
Smoke-free Environments Act 1990

WorkSafe NZ	Guidelines for the provision of facilities and general safety in the construction industry
WorkSafe NZ	Good Practice Guidelines - Excavation Safety
WorkSafe NZ	Scaffolding in New Zealand - Good Practice Guidelines
SARNZ	Best practice guideline for scaffolding in New Zealand

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1234 DOCUMENTATION

1. GENERAL

This general section relates to documentation required by the Territorial Authority/Building Consent Authority for compliance with the New Zealand Building Code. It also includes documentation relating to:
- Substitutions
- Manufacturers documents

Building Consent Authority documentation

1.1 BUILDING CONSENT
Obtain the building consent forms and documents from the owner and keep them on site. Liaise with the BCA for all notices to be given and all inspections required during construction to ensure compliance. Return the consent form and documents to the owner on completion.

1.2 BUILDING CONSENT COMPLIANCE
It is an offence under the Building Act 2004
- to carry out any work not in accordance with the building consent.
- to carry out Restricted Building Work by anyone other than a Licensed Building Practitioner licensed for that type of work.

The resolution of matters concerning building code compliance to be referred to the contract administrator for a direction and then if required to the BCA for consent.

Where any alteration is requested by the territorial authority or any other authority, do not undertake such alteration until the matter has been referred to the contract administrator for direction.

1.3 PROJECT PERSONNEL
Provide names and contact details of the contractor's key personnel and tradespersons who are involved with the project. Review the list once a month and reissue it if changes have been made.

Licensed Building Practitioner documentation

1.4 LICENSED BUILDING PRACTITIONERS
Provide LBP details. Provide names, LBP numbers, areas of practice and contact information. Provide this information to the BCA before commencing work on the Restricted Building Work in the form required by the BCA. Advise the BCA of any change to an LPB previously advised.

Include the following as applicable
- Site LBP
- Carpenter
- Foundations Concrete foundation walls and concrete slab-on-ground constructor
- Bricklaying and block laying Brick / masonry veneer
- Roofing Metal tile roofer *(if required, refer to drawings)*
- External plastering Proprietary Plaster Cladding Systems (PPCS) plasterer *(If required, refer to drawings)*

Also provide names and contact details of the following
- Registered drainlayer
- Registered plumber
- Registered electrician

1.5 PRODUCER STATEMENTS
When producer statements verifying construction are required, provide copies to both the Building Consent Authority and the Contract Administrator. Provide producer statements in the form required by the BCA.

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1.6 RECORD OF WORK
Where Restricted Building Work is carried out by a LBP, on completion provide a Record of Work. Provide copies to both the BCA and the Contract Administrator.

Compliance information

1.7 DOCUMENTATION REQUIRED FOR CODE COMPLIANCE
Information may be required either as a condition of the contract documents or as a condition of the building consent. It may include the following:
- Applicators approval certificate from the manufacturer / supplier
- Manufacturer's / supplier's warranty
- Installer / applicator's warranty
- Producer Statement - Construction from the applicator / installer
- Producer Statement - Construction review from an acceptable suitably qualified person

Refer to the general sections for the requirements for compliance information to be provided by the contractor.

Refer to the building consent for the requirements for compliance information to be provided by the contractor.

Obtain required documents from the relevant parties for delivery to the contract administrator after the final inspection has been carried out by the BCA.

1.8 NO SUBSTITUTIONS
Where specifically stated in a section, substitutions are not permitted to any of the specified systems, components and associated products listed in that section.

1.9 PROPOSED SUBSTITUTIONS
A substitution may be proposed where specified products are not reasonably available. A substitution may also be proposed by the contractor where the contractor considers a proposed substitution to be an alternative to the specified product. Except where a specified product is not available, the contract administrator is not bound to accept any substitutions. Where branded work sections are included in this specification, substitution of those products or systems will not be allowed.

1.10 NOTIFICATION OF SUBSTITUTIONS
Notify proposed substitution of specified products. Notification to include but not be limited to:
- Product identification
- Manufacturer's name, address, telephone number, website and email address
- Detailed comparison between the properties and characteristics of the specified product and the proposed substitution
- Statement of NZBC compliance including durability
- Details of manufacturer warranties

Plus an assessment of:
- Any changes required to the programme including any extension of time required
- Any consequential effects of the proposed substitution
- Any effect the substitution may have on Health & Safety requirements
- Allowance for time and cost for re-design and documentation (if applicable)
- Allowance for time and cost for obtaining an amendment to the Building Consent (if applicable)
- Any change in cost associated with the proposed substitution

and if requested:
- All current manufacturer's literature on the product
- Accreditations and appraisals available
- Reference standards
- Product limitations
- Samples
- List of existing installations in the vicinity of the project

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1.11 ACCEPTANCE OF SUBSTITUTIONS
The Contract administrator must advise of acceptance of substitutions in writing.

Variations to issued Building Consent

1.12 CONTRACTOR VARIATION TO BUILDING CONSENT
Where the contractor has sought acceptance of a substitution or a variation which is for the contractor's own convenience and the substitution or variation requires an amendment to the Building Consent, the contractor must apply for and obtain the required amendment.

The contractor must:
- Obtain approval for substitutions from the contract administrator.
- Prepare and provide to the BCA all documentation required for the variation.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans.

1.13 PRINCIPALS VARIATION TO BUILDING CONSENT
Where the principal is proposing a substitution or a variation which requires an amendment to the Building Consent, the contractor must provide to the principal information that the contractor has that is required for the amendment.

The principal will:
- Prepare and provide to the BCA all documentation required for the amendment.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans.

Manufacturer's documents

1.14 BRANDED WORK SECTIONS
Branded sections may be included in this specification relating to specific products and systems to be installed as part of the contract works. Where branded sections are included, substitutions to the branded products and systems will not be allowed.

1.15 MANUFACTURER'S AND SUPPLIER'S INSTALLATION REQUIREMENTS
Manufacturers and supplier's requirements, instructions, specifications or details means those issued by them for their particular material, product or component and are the latest edition.

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1240 ESTABLISHMENT

1. GENERAL

This general section relates to site establishment including:
- Notices and approvals
- Site preparation

Notices and approvals

1.1 STATUTORY OBLIGATIONS
Comply with all statutory obligations and regulations of regulatory bodies controlling the execution of the works.

1.2 BUILDING CONSENT AUTHORITY AND NETWORK UTILITY APPROVALS
Attend on Building Consent Authority officers, statutory and network utility inspectors, as necessary to obtain approvals (in addition to building consent approval) for and the satisfactory completion of, the works.

1.3 NOTIFY NETWORK UTILITY OPERATORS
Notify all network utility operators of proposed works before commencing site operations. Ascertain location of services or confirm that none exist in the vicinity of the works. Take all necessary precautions to avoid damage to existing services.

Inspections

Site preparation

1.4 SITE ACCESS
Refer to the Drawings

1.5 SITE AND SOIL SURVEYS
Carry out all investigations necessary and peruse all information available to determine ground conditions and likely ground performance both on the site and adjacent to it. Also refer to the territorial authority project information memorandum (PIM).

1.6 GROUND CONDITIONS
Refer to the soils investigation report included with this specification.

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1270 CONSTRUCTION

1. GENERAL

This GENERAL section relates to common requirements for construction issues including: -

- Quality assurance
- Noise and nuisance
- Set out
- Common execution requirements
- Common materials requirements
- Supply of spare materials
- Common requirements for samples and tests
- Final presentation and cleaning
- Commissioning

Quality control and assurance

1.1 QUALITY ASSURANCE

Carry out and record regular checks of material quality and accuracy, including:

- Concrete quality and finish.
- Dimensional accuracy of structural column locations (following completion of foundations).
- All perimeter columns and frames for plumb.
- Levels of all floors relative to the site datum.
- Framing timber moisture content.

Where any material, quality or dimension falls outside specified or required tolerances, obtain written direction from the contract administrator. Where building consent approval is affected, confirm remedial action with the Building Consent Authority.

Provide all materials, plant, attendances, supervision, inspections and programming to ensure the required quality standards are met by all project personnel.

Noise and nuisance

1.2 LIMIT CONSTRUCTION NOISE

Minimise the effects of noise generation by including in the planning of the work such factors as placing of plant, programming the sequence of operations and other management functions. Limit construction noise to comply with the requirements of NZS 6803, the requirements of the Resource Management Act sections 326, 327 and 328 and the Health and Safety in Employment Regulations clause 11.

1.3 ACCEPTABLE NOISE LEVELS

Refer to NZS 6803 Tables 2 and NZS 6803, tables 3 for the upper limits of construction work noise in residential and industrial areas over the various time periods, particularly 0730 to 1800 hours. Note also the allowed adjustments and exemptions in NZS 6803, 6. Do not exceed these limits.

1.4 PROVIDE INFORMATION TO NEIGHBOURS

Provide information to neighbours of any noise generation from the site liable to constitute a problem. Explain to them the means being used to minimise excessive noise and establish with them the timings most suitable for the noise generating work to be carried on.

Discuss with any complainant the measures being used to minimise noise. Where possible modify these measures to accommodate particular circumstances. Finally, determine the sound level at the location under discussion using methods and observation reporting as laid down in NZS 6803. If the noise level is above the upper limits of NZS 6803, tables 2 and NZS 6803, tables 3, cease the noise generating operation and remedy the problem.

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1.5 INCONVENIENCE TO OTHERS
When the works are to be carried out in or around occupied premises, ascertain the nature and times of occupation and use. Carry out the works in a manner to minimise inconvenience, nuisance and danger to occupants and users.

1.6 DIRT AND DROPPINGS
Remove dirt and droppings deposited on public or private thoroughfares from vehicles servicing the site to the satisfaction of the appropriate authorities and the contract administrator.

1.7 DAMAGE AND NUISANCE
Take all precautions to prevent damage and nuisance from water, fire, smoke, dust, rubbish and all other causes resulting from the construction works.

Set-out and tolerances

1.8 SURVEY INFORMATION
Locate and verify survey marks and datum points required to set out the works. Record and maintain their position. Re-establish and replace disturbed or obliterated marks.

1.9 SET-OUT AND DATUM
Set out the work to conform with the drawings. Establish a permanent site datum to confirm the proposed building ground floor level and its relationship to all other existing and new building levels.

1.10 CONFIRM HEIGHT IN RELATION TO BOUNDARY
When required, provide a certificate prepared by a licensed cadastral surveyor that the building has been constructed within the allowed height in relation to boundary. Provide the certificate to the local authority. Provide a copy of the certificate to the contract administrator

1.11 USE OF SET-OUT INSTRUMENTS
Permit without charge, the use of instruments already on site for checking, setting out and levels.

1.12 CHECK DIMENSIONS
Check all dimensions both on drawings and site, particularly the correlation between components and work in place. Take all dimensions on drawings to be between structural elements before linings or finishes, unless clearly stated otherwise.

1.13 TOLERANCES
All work to be level, plumb, and true to line and face. Unless otherwise specified in specific work sections of this specification, tolerances for structural work shall comply with the following:

Concrete construction:	To NZS 3109 Concrete construction Clause 3.9 Tolerances for reinforcement Table 5.1 Tolerance for precast components Table 5.2 Tolerance for in situ construction To NZS 3114 Concrete surface finishes
Masonry construction:	To NZS 4210 Masonry construction: Materials and workmanship Clause 2.6.5 Tolerances Table 2.2 Maximum tolerances
Structural steelwork:	To NZS 3404:1997 Steel structures standard Section 14.4 Tolerances (after fabrication) Section 15.3 Tolerances (erection)
Timber framing:	To NZS 3604 Timber-framed buildings Clause 2.2 Tolerances Table 2.1 Timber framing tolerances

Refer to work sections for tolerance requirements for finishes.

Execution

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1.14 EXAMINE PREVIOUS WORK
Before commencing any part of the work carefully examine the previous work on which it may depend. Report in writing to the contract administrator defects that may affect the quality of the proposed work and obtain instructions. Commencing work on any part means that previous work is accepted as being satisfactory for work of the required standard.

1.15 WORKER QUALIFICATIONS
All work to be level, plumb, and true to line and face. Employ only experienced workers familiar with the materials and techniques specified.

1.16 MINIMISE DELAYS DUE TO WEATHER
Use appropriate techniques and methods to prevent damage and minimise delays due to weather.

Materials

1.17 NEW PRODUCTS AND MATERIALS
Materials and products to be new unless stated otherwise, of the specified standard, and complying with all cited documents.

1.18 COMPATIBILITY OF MATERIALS AND FINISHES
Ensure all parts of a construction or finish are compatible and their individual use approved by the manufacturers and suppliers of other parts of the system. Source all parts of a system from a single manufacturer or supplier.

1.19 STORING PRODUCTS AND MATERIALS
Take delivery of and store products, materials and components in accordance with codes of practice and the product manufacturer's or supplier's stated requirements. Maintain the proper condition of any protective packaging, wrappings or supports during delivery, unloading and storage.

1.20 HANDLING PRODUCTS AND MATERIALS
Handle products, materials and components in accordance with codes of practice and the manufacturer's or supplier's stated guidelines. Avoid distortion and any contact with potentially damaging surfaces or conditions.

1.21 SUBSTRATE CONDITIONS
Ensure substrate conditions are within the manufacturer's or supplier's stated guidelines both before and during the installation of any material, product or system. Obtain written instructions on the necessary action to rectify unsatisfactory conditions.

1.22 INSTALLING PRODUCTS AND MATERIALS
Install in accordance with the manufacturer's or supplier's technical literature. Ensure that all installers are familiar with the required substrate conditions and the manufacturer's or supplier's specified preparation, fixing and finishing techniques.

1.23 COMPLY WITH STANDARDS
Comply with the relevant and/or cited Standard for any material or component. Obtain certificates of compliance when requested by the contract administrator.

1.24 CONDITION OF MATERIALS AND COMPONENTS
To be in perfect condition when incorporated into the work.

1.25 INCOMPATIBLE MATERIALS AND METALS
Separate incompatible materials and metals with separation layers, sleeves or gaskets of plastic film, bituminous felt or mastic or paint coatings, installed so that none are visible on exposed surfaces.

Samples and tests

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1.26 CONTROL STANDARD
Obtain the contract administrator's confirmation of material, component and work samples which then become the quality control standard. Remove from the site any rejected samples. Retain confirmed samples with care on site for comparison throughout the contract. Remove from the site when no longer required.

Spares

1.27 SPARES
Collect, protect and store safely all spare materials required under the contract. Give the contract administrator an inventory of all spares.

Final presentation and cleaning

1.28 REMOVE TEMPORARY PROTECTION
Remove all temporary markings, coverings, labels and protective wrappings unless instructed otherwise.

1.29 REPLACE DAMAGED MATERIALS
Replace all materials or component damaged during the works to the standard of and integral with the original.

1.30 COMPLETE ALL SERVICES
Ensure all services are complete and operational, with all temporary labelling removed, required labelling fixed and service instructions provided.

1.31 CLEANING BY CONTRACTOR
Clear the contract works of all construction materials, waste, dirt and debris. Clean the contract works including:
- Wipe all surfaces to remove construction dust
- Clean out service ducts and accessible concealed spaces
- Clean out all gutters and rainwater heads
- Wipe dust from both sides of glass. Take particular care when removing paint or cementitious materials to not damage the glass.
- Remove adhesive residue left by labels and other temporary protection/markings
- Clean out the interior of all cabinetry
- Wash down external concrete including driveways and concrete masonry. Take care when waterblasting to not cause damage to the surface or allow water to enter the building.
- Remove rubbish and building material from the area immediately adjacent to the contract works

1.32 CLEANING BY COMMERCIAL CLEANER
Use a commercial cleaning firm to clean the whole of the interior of the building, including all appliances, equipment, fittings, surfaces and finishes to leave it without any blemish. Cleaning to include:
- Clean and wash down all external surfaces to remove dirt, debris and marking.
- Clean all interior surfaces including cabinetwork, joinery, sanitary and hardware items.
- Vacuum or polish all floor finishes.
- Clean and polish all glass, both sides.

Commissioning

1.33 MOVING PARTS
Adjust, ease and lubricate all doors, windows, drawers, hardware, appliances, controls and all moving parts to give easy and efficient operation.

1.34 SECURITY AT COMPLETION
Remove any temporary lock cylinders and complete final keying prior to handing over keys to the principal on completion of the works. Leave the works secure with all accesses locked. Account for all keys/cards/codes and hand to the principal along with an itemised schedule, retaining a duplicate schedule signed by the principal as a receipt.

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2210 PREPARATION & GROUNDWORK

1. GENERAL

This section relates to the clearance, excavation and backfilling of the site area in preparation for:
- footings and floor slabs
- backfilling behind basement retaining walls

Documents

1.1 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZS 3604	Timber-framed buildings
NASH 3405	An alternative solution for steel framed buildings
WorkSafe NZ	Good Practice Guidelines - Excavation Safety

1.2 SITE SAFETY
Provide adequate support for all excavations. Cover holes and fence off open trenches and banks.

1.3 ARCHAEOLOGICAL DISCOVERY
If fossils, antiquities and other items of value are found refer to the general section 1220 PROJECT for actions to be taken with archaeological discovery.

2. PRODUCTS

2.1 EXCAVATED CLEAN FILL
Clean, free of contamination, mineral soil from other formations in the excavation which may be selected and approved as suitable for filling by having grading and moisture content properties that will allow recompaction to 95% of maximum density.

2.2 SAND FILL
Clean sand of such grading in particle size to achieve mechanical compaction to 90% maximum density.

2.3 HARD FILL
Scoria or crushed rock to GAP (General All Passing) 40 grading.

2.4 GRANULAR FILL
Approved screened crushed gravel or scoria, graded in size from 20mm to 7mm, clean. When tested with a standard sieve of 4.75 opening no material is to pass.

2.5 DRESSING COURSE
Scoria to GAP 20 grading, or "dirty footpath scoria", or equivalent "all in" graded crushed metal aggregate.

2.6 FREE-DRAINING AGGREGATE
Scoria or crushed gravel graded 50 to 14 clean.

3. EXECUTION

3.1 EXCAVATION GENERALLY
Carry out excavation, using plant suitable for the purpose, to the guidelines set by the WorkSafe NZ, Good Practice Guidelines - Excavation Safety.

3.2 BURNING OF MATERIALS
Burning of materials is not permitted on site.

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3.3 PROTECT EXISTING WORK
Protect from damage existing buildings, structures, roads, paving and services nominated on the drawings as being retained.

3.4 PROTECT EXISTING TREES, PLANTING, OR LANDSCAPE FEATURES
Protect from damage trees, shrubs, natural site features and existing landscaped areas nominated on the drawings as being retained. Ensure existing levels are undisturbed beneath the dripline of retained trees.

3.5 EROSION CONTROL
Ensure measures are in place to contain silt dislodged as a result of water infiltration and to prevent it being carried off site with stormwater.

3.6 SURFACE PREPARATION
Comply with NZS 3604, section 3.5, **Site preparation**. Remove all turf, vegetation, trees, topsoil, stumps, uncontrolled fill and rubbish from the area to be built on.

3.7 UNDERGROUND ELEMENTS AND SERVICES
Break out and remove old foundations, slabs, drainage pipes, manholes, tanks, cables and redundant services. Report for instructions when any unexpected voids, made-up ground or services are encountered. Seal off the ends of drains or remove to territorial authority approval.

3.8 STOCKPILE TOPSOIL
Stockpile excavated topsoil on site where directed. Keep separate from other excavated materials. Spread and level where directed before completion of the works.

3.9 SHORING AND UNDERPINNING (IF REQUIRED)
Carry out shoring and underpinning shown on the drawings and as necessary to prevent subsidence of adjoining public or private property and to ensure the safety of the public and site personnel. Maintain protection throughout the progress of the works, or until foundations and subgrade structures have been completed and the stability of adjoining public and private property secured.

3.10 GENERAL EXCAVATION
Trim ground to required profiles, batters, falls and levels. Remove loose material. Protect cut faces from collapse. Keep excavations free from water.

3.11 ROCK EXCAVATION
If rock is found at any level above the underside of the structural foundations, or above required base levels for site service trenches, immediately notify the owner. Obtain written instructions from the owner on the proposed approach to rock excavation, or consequent alterations to subgrade construction. Confirm any changes with the territorial authority.

3.12 FOUNDATION EXCAVATION
Take foundation excavations to depths shown. Keep trenches plumb and straight, bottoms level and free of soft spots, stepped as detailed and clean and free of water.

3.13 INADEQUATE BEARING
If bearing is not to NZS 3604, 3.1.2 **Foundations** and 3.1.3 **Determination of good ground**, then excavate further and backfill with material as follows. Confirm any changes with the territorial authority.
Below slabs on grade: Hardfill compacted in 150mm layers
Below footings: 10 MPa concrete
Service trenches: Hardfill compacted in 150mm layers

If excavation exceeds the required depths, backfill and compact to the correct level with material as listed.

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3.14 STANDARD OF COMPACTION
Place fill in layers of not more than 150mm and compact to achieve 95% of maximum dry density. For granular fill material, the fill shall be compacted to 80% of saturated dry density.

3.15 GRANULAR BASE FOR SLABS
To conform to NZS 3604, section 7.5.3, **Granular base**. Consolidate with a vibrating roller. Blind the surface with 20mm of coarse sand or sand/cement and roll ready to receive a damp-proof membrane.

3.16 GENERAL BACKFILLING
Obtain written confirmation from the owner before using any excavated material. Compact approved backfilling in 150mm layers with the last 200mm in clean topsoil, lightly compacted and neatly finished off.

3.18 SURPLUS MATERIAL
Remove surplus and excavated material from the site.

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3155 RAFT FLOOR SYSTEM

1. GENERAL

This section relates to a raft floor system, a specific Engineer designed reinforced concrete waffle raft floor slab-on-ground.

1.1 DOCUMENTS
Documents referred to in this section are:

NZBC B1/VM1	Structure
NZS 3104	Specification for concrete production
NZS 3109	Concrete construction
NZS 3114	Specification for concrete surface finishes
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
AS/NZS 4671	Steel reinforcing materials

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

Requirements

1.2 QUALIFICATIONS
Tradespeople to be competent, experienced and familiar with the raft floor system materials and techniques specified.

1.3 QUALITY RECORDS
Keep accurate records relating to strength and quality of materials used during construction. Include records of workmanship during construction and photographs of as-built details. Make the information available to the Building Consent Authority inspector on request.

Performance

1.4 INSPECTION NOTIFICATION REQUIREMENTS
Refer to Inspection Schedule

2. PRODUCTS

Materials

2.1 BLINDING
50mm maximum compacted GAP 7.

2.2 TIMBER FORMWORK
No. 2 framing and dressing or merchantable grade radiata pine boards to NZS 3631.

2.3 DAMP-PROOF MEMBRANE
0.25mm minimum polyethylene to NZS 3604: clause 7.5.4, Damp-proof membrane (DPM). Refer to SELECTIONS.

2.4 POLYSTYRENE PODS
Proprietary purpose made polystyrene pods.

2.5 REINFORCEMENT
Bars to AS/NZS 4671. Grade 500E deformed, other than for ties, stirrups and spirals, unless shown otherwise on the drawings.

2.6 INTERNAL CORNER REINFORCEMENT
Minimum 2 x D10 bars Grade 300E to AS/NZS 4671.

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2.7 MESH
Welded reinforcing mesh to AS/NZS 4671 as modified by NZS B1/VM1, generally, Class E, minimum to NZBC B1/AS1 - Grade 500E, 2.27kg/m2 (1.14kg/m2 in each direction). Minimum SE62 500E mesh or the equivalent.

2.8 TYING WIRE
Mild drawn steel wire not less than 1.2mm diameter.

2.9 CONCRETE - RAFT APPLICATIONS
Refer to drawings

Components

2.10 SPACERS
Proprietary spacers.

3. EXECUTION

Conditions

3.1 STORAGE
Take delivery of and accept all materials and accessories dry and undamaged. Store on timber fillets on hard ground protected from weather, contamination and damage in a secure area clear of any building operation.

Handle and store reinforcing steel and accessories without damage or contamination. Ensure reinforcement is clean and remains clean so that at the time of placing concrete it is free of all loose mill scale, loose rust and any other contamination that may reduce bonding capacity. Store steel fabric flat.

3.2 HANDLING
Avoid distribution and contact with damaging substances. Do not drag sheets across each other and other materials. Protect edges and surface finishes from damage.

Application - raft floor system

3.3 SITE CLEARANCE
Clear the slab area of any vegetation and topsoil down to the subgrade level.

3.4 BUILDING PLATFORM
Create a building platform to a level surface approximately 330mm below finished floor level. Cut and/or fill sloping sites. Confirm finished floor level.

3.5 POST-CUT INSPECTION
Inspect and confirm that the soil conditions are as anticipated by the geotechnical investigation and report and conform to the requirements of the raft system supplier manual.

3.6 TEMPORARY BUILDING PLATFORM DRAINAGE
Construct suitable drainage to keep excessive ground water off the building platform during and after construction as required.

3.7 HARDFILL
Place hardfill and ensure it is spread and compacted with mechanical compaction.

3.8 UNDERGROUND SERVICES
Ensure underfloor services are installed in the subsoil or hardfill in locations as shown on the drawings and according to the raft floor system manufacturer's requirements.

3.9 WATER PIPES / CABLES IN SLAB
Water pipes and electrical cables which are under or in concrete floor slab shall be run in a PVC conduit.

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3.10 BLINDING LAYER
Spread GAP 7 blinding layer to a minimum 500mm past the outside edge of the slab, compact to a level layer no greater than 50mm thick and no higher than 305mm below finished floor level.

3.11 FORMWORK
Construct formwork as required, well braced and tied to remain in position, straight and plumb during construction. Ensure formwork will provide for the topping depth, including rebates and the required concrete finish.

3.12 INSTALL DAMP-PROOF MEMBRANE
Apply DPM to the prepared basecourse extending to the outside of all edge beams or fold and staple up the inside of the formwork. Overlap all joints in the DPM sheets a minimum 150mm. Tape laps and penetrations with 50mm wide pressure sensitive plastic tape. Ensure DPM is not damaged during the construction process. Repair all damage to DPM before proceeding with following procedures.

3.13 PLACE POLYSTYRENE PODS
Place polystyrene pods in a regular waffle pattern using the spacers in the specified grid pattern to fit the floor plan. Cut pods on site with a saw or suitable hot wire as required. Cut holes for services and trim around piles as required on site.

3.14 INSTALL SPACERS
Install spacers and locations to the raft floor system manufacturer's requirements.

Form standard ribs between pods using 100mm spacers. Place the spacers at a minimum of one spacer along each edge of each pod or part pod. The ribs in both directions form a waffle pattern throughout the slab.

Form the edge beam using 300mm spacers. Place the spacers at 1200mm centres maximum along the perimeter of the slab at least and one spacer per pod or part pod.

Form ribs to support load bearing walls using 300mm spacers. Place the spacers at a minimum of one spacer along the edge of each pod or part pod.

3.15 PLACE REINFORCING STEEL: RIB STEEL
Place rib reinforcing steel in the bottom of the internal ribs and supported in the correct position by spacers. Lap all steel 720mm minimum, and hook all plain bars. At the junction with the edge beam, each rib steel bar shall sit on top of the edge beam bars and extend to the outermost bar. Allow for 75mm cover to the edge of the beam. Place 1 x H12 bar in each 100mm wide rib and 2 x H12 bars in each 300mm wide rib.

3.16 PLACE REINFORCING STEEL: EDGE BEAM STEEL
Place the two edge beam reinforcing bars in the bottom of the edge beam and supported in the correct position by the spacers. Tie one edge beam bar below the mesh at the perimeter of the area covered by the polystyrene pods. Lap all steel 720mm minimum, and hook all plain bars. At corners, the inner bottom bars and the top bars cross each other and extend to 75mm from the outside face of the edge beam. Tie these bars together where they cross. Tying of edge beam steel is only required at corners.

3.17 PLACE REINFORCING STEEL: RE-ENTRANT CORNER STEEL
Place two D10 bars, 1200mm in length across the corner. Tie to the top of the mesh at re-entrant corners at 200mm centres with 50mm side cover from the internal corner.

Install specified steel to raft floor system manufacturer's requirements. Ensure specified minimum cover requirements are maintained.

3.18 PLACE REINFORCING MESH AND CHAIRS
Place reinforcing mesh over the pods and support on the mesh chairs spaced at 1200mm centres minimum, with two mesh chairs minimum placed per pod and with one mesh chair minimum per part pod.

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3.19 MESH LAPS
Welded reinforcing mesh to be lapped and tied, such that the outermost wires overlap by the greater of:
- the spacing of the cross wires plus 50mm
- 150mm or
- manufacturer's requirements

Do not count bar extensions beyond the outermost cross wire.

3.20 FORM SLAB AND OPENING REBATES
Form rebates, as detailed on drawings.

Form a minimum 50mm rebate in slab for masonry veneer construction with a width dependent on the veneer width, cavity width and overhang. Waterproof the rebate with a bituminous sealer on both the vertical and horizontal faces.

3.21 TOPPING SLAB DEPTH
85mm minimum (plus additional cover as required for in-floor heating or ground exposed concrete finishes)

3.22 PRE-PLACEMENT INSPECTION
Arrange for excavations, formwork and reinforcement to be inspected and passed by the Building Consent Authority.

3.23 CONCRETE PLACEMENT AND COMPACTION
Ensure the rib and edge beam canals are clean, free of debris. Pour the floor in a single pour ensuring that the pods remain in position during placing. Pour concrete onto the top of each pod prior to filling the ribs around the pod to help prevent them from floating and lifting.

Compact concrete using a suitable poker vibrator for the ribs and ground beams and into all corners of the formwork. Screed as required. Confirm levels with a laser level.

3.24 CONCRETE FINISHING
Float and trowel to provide a U3 finish to NZS 3114: table 2, Classes of floor, exterior pavement and invert finishes.

3.25 CONCRETE CURING
Curing of the concrete slab must take place immediately after finishing the concrete to NZS 3109 by one of the following curing methods:
- ponding or continuous sprinkling of water
- placing a wet covering or plastic membrane over the slab
- the use of liquid membrane curing compounds

Finishing

3.26 STRIKE FORMWORK
Strike formwork at least 12 hours after the slab has been finished without damaging or overloading structure.

3.27 SURFACE DEFECTS
Make good surface defects immediately after forms are stripped. Make good hollows or bony areas with suitable patching mortar, finished to the same tolerances as the parent concrete. Fill any tie rod holes with 1:2 mortar.

Completion

3.28 LEAVE
Leave work to the standard required by following procedures.

3.29 CLEAN UP
Clean up surrounding areas following completion of the concrete placement.

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3.30 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

4.1 DAMP-PROOF MEMBRANE
Type: 0.25mm Polythene

4.2 POLYSTYRENE PODS
Brand: As Supplied
Size: 1100mm x 1100mm x 200mm (nominal)

4.3 CONCRETE SURFACE FINISH
Location: Refer plans
Finish class: U3 (interior)

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3421AX AXXIS STEEL FOR FRAMING

1. GENERAL

This section relates to the supply and erection of light steel framing using New Zealand Steel **AXXIS® Steel For Framing**, roll formed and fabricated as a framed structure, or as part of a flush-lined partitioning system;
- for load bearing structures
- and non-load bearing partitioning

1.1 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.
The following abbreviations apply specifically to this section:

NASH	National Association of Steel-framed Housing Inc. Web site www.nashnz.org.nz.

Documents

1.2 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

AS/NZS 1170.0	Structural design actions - General principles
AS/NZS 1170.2	Structural design actions - Wind actions
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
NZS 2295	Pliable, permeable building underlays
NZS 3604	Timber-framed buildings
AS/NZS 4600	Cold formed steel structures
NZ NASH Standard	Residential and low-rise steel framing Part 1: Design Criteria
NASH N-11	House Insulation Guide
NASH 3405	An alternative solution for steel framed buildings
ZOG	ZOG Steel Framing Specification and Site Manual

1.3 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents relating to this part of the work:
AXXIS® Steel For Framing A better way to build
Durability statement for Galvsteel™ (galvanised steel) and AXXIS® steel manufactured by New Zealand Steel Limited and used for structural building elements.
Steel frame Fabricators documents:

Manufacturer/supplier contact details

Company:	**AXXIS® Steel For Framing**
Web:	www.axxis.co.nz
Email:	info@nzsteel.co.nz
Telephone:	09 375 8999
Facsimile:	09 375 8213

Requirements

1.4 QUALIFICATIONS
Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

1.5 NO SUBSTITUTIONS
Substitutions are not permitted to the **AXXIS®Steel** material selection, the specified steel framing fabricators associated components and accessories, and associated products listed in this section.

1.6 CO-ORDINATION
Ensure details and fixings required are provided for in the steel fabricators framing system. Refer to all drawings and calculations.

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1.7 INSTALLATION
Install **AXXIS®** roll formed framing to any technical recommendations or instructions given by the steel frame fabricator.

1.8 SEPARATION
Ensure DPC between the bottom plate and concrete slab in residential construction. Ensure separation between any treated timber and **AXXIS®Steel** with DPC. Refer to the Durability statement.

1.9 DISSIMILAR METALS
Avoid contact with dissimilar metals (e.g. between copper and **AXXIS®Steel**). Refer to NZ NASH 3405 for information on the use of stainless steel fixings, and NASH Handbook, 6 **Connectors**. Ensure plumbers take care to isolate copper piping from steel framing by inserting specialised plumbing grommets into the pre punched surface holes in the studs.

1.10 THERMAL BREAKS AND CAVITY CONSTRUCTION
Install suitable thermal break and/or cavity thermal battens. Refer to NASH Handbook, 10.7 **Condensation and Thermal Break** and NASH N-10 **House Insulation Guide,** for information on the selection and installation methods for thermal break and/or cavity thermal battens.

1.11 PROVIDE INFORMATION
Provide a building consent approved producer statement (design) and supplementary drawings showing dimensions, bracing and assembly.

1.12 STEEL SECTION TOLERANCES
Web thickness: 0.50 to 1.00mm: ± 0.06mm
1.15 to 3.00mm: ± 0.07mm

Flange thickness: 0.50 to 1.00mm: ± 0.06 mm
1.15 to 3.00mm: ± 0.07 mm

1.13 STRAIGHTNESS
Hold within L/600. (Approximately 5mm in 3 metres).

1.14 LOAD-CARRYING MEMBERS
Using the specified steel frame fabricatorsdesign data, NASH 3405 and NZ NASH Standard Residential and low-rise steel framing Part 1: Design Criteria, select sections that will satisfy the transverse, dead and live load requirements.

Compliance information

1.15 DURABILITY
The work covered by this part of the specification has been designed and constructed to achieve a durability of 50 years. Refer to the following:
NASH Handbook, **8 Durability**.

Performance

1.16 LOADING CODE REQUIREMENT
To NZBC B1/VM1, AS/NZS 1170.0, AS/NZS 1170.1, AS/NZS 1170.2, AS/NZS 1170.3, NZS .1170.5, AS/NZS 4600.

1.17 SECTION TOLERANCES
To NASH Standard D1 Manufacturing and Assembly Tolerances.

Performance - Wind (design by contractor)

1.18 DESIGN PARAMETERS - NON SPECIFIC DESIGN
Design the installation to the wind zone parameters of NZS 3604, table 5.1.
Refer to general section 1220 PROJECT for details.

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Performance - Seismic (design by contractor)

1.19 SEISMIC - NON SPECIFIC DESIGN
Design the system and its anchorages/fixings to resist the earthquake loads of the earthquake zone in accordance with NZS 3604, 5.3 **Earthquake bracing demand**. Refer to general section 1220 PROJECT for details.

2. PRODUCTS

Materials

2.1 STEEL STRIP
NZ Steel AXXIS® coil,
Galvanized AS 1397: 275g/m² (Z 275)
Steel thickness range: 0.50 to 2.25mm (Galvanised)
Steel grade range: G550 for BMT < 1.00mm, G500 for BMT >1.0 < 1.5mm, G450 for BMT>1.5mm

2.2 STEEL SECTIONS
Cold roll-formed steel sections to AS/NZS 4600, NZ NASH Standard: Residential and low-rise steel framing, Part 1: Design Criteria. To consist of all members required to complete the framing and all to dimensions that satisfy AS/NZS 1170.0.

2.3 CAVITY BATTENS
Battens to suit application. Refer to SELECTIONS for options.

2.5 DAMP-PROOF COURSE
Heavy kraft strip laminate saturated and coated with bitumen. Refer to 4161 UNDERLAYS, FOIL AND DPC.

2.6 UNDERLAYS
Breather type, waterproof to NZS 2295. Refer to 4161 UNDERLAYS, FOIL AND DPC.

Components

2.7 SCREWS
Self-drilling class to suit member, connection method and location and to NASH Handbook, and the fabricators stated requirements.
Screw corrosion protection to NASH Handbook, **6 Connectors**.

3. EXECUTION

Conditions

3.1 CONCRETE SLAB
Screed the concrete surface by straight edge or vibrating screed immediately after compaction and to tolerances in NZS 3109: table 5.2, **Tolerances for in situ construction**.

3.2 HANDLE AND STORE
Handle and store channels and accessories to avoid damage. Keep dry in transit, store clear of the ground allowing full circulation.

3.3 PREFABRICATED FRAMES AND TRUSSES
Do not bring on to site until the subfloor is complete and members can be temporarily stacked on it and from there immediately erected and fixed.

3.4 SUBSTRATE
Ensure substrate is plumb, level and in true alignment. Do not start erection if the substrate will not allow work of the required standard. Complete any remedial work found necessary before starting light steel framing erection.

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3.5 COMMENCING THIS WORK
Commencing this work means the substrate is accepted as allowing work of the required standard.

Fabrication

3.6 FABRICATION GENERALLY
To NASH Standard and Nash Handbook,

Installation - steel framing

3.7 INSTALLATION GENERALLY
To Nash Handbook and Axxis requirements, and as per drawings

3.8 INSTALL WALL FRAMING
From one corner erect the first two panels, Tek screwing the corner studs together. Continue each panel to complete the longer external wall with another return panel and screw together. Check dimensions and fit and bolt or screw the first corner to the subfloor. Continue with the erection from out of the first corner, Tek screwing studs together and checking dimensions before bolt or screw fixing to the subfloor. Leave all this work plumb, square and true to line and face.

3.11 ERECT ROOF
Erect trusses and rafters screwing them to framing to leave them square and true to line and plane. Fit and screw fix purlins and ceiling battens lapped and cut to length.

3.13 INSTALL THERMAL BREAKS
Install thermal breaks to Nash Handbook, ZOG Specification, and to Axxis requirements.

Completion

3.14 LEAVE
Leave work to the standard required by following procedures.

3.15 REMOVE
Remove all debris, unused materials and elements from the site.

4. SELECTIONS

For further details on selections go to www.axxis.co.nz.
Substitutions are not permitted to the following, unless stated otherwise.

4.1 SYSTEM
Type: **AXXIS® Steel For Framing**
System: ZOG Steel Frame (Frame cad)

4.2 STEEL SECTION - EXTERIOR

Member	Dimensions	Centres
Bottom plates	89 x 39x 0.75 mm thick	
Top plates	89 x 39 x 0.75 mm thick	
Studs	89 x 39 x 0.75 mm thick	refer drawings
Nogs	89 x 39 x 0.75 mm thick	refer drawings

4.3 STEEL SECTION - INTERIOR

Member	Dimensions	Centres
Bottom plates	89 x 39 x 0.75 mm thick	
Top plates	89 x 39 x 0.75 mm thick	
Studs	89 x 39 x 0.75 mm thick	refer drawings
Nogs	89 x 39 x 0.75 mm thick	refer drawings

4.4 TRUSS

Member	Dimensions	Centres
Chords	89 x 39 x 0.75 mm thick	

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Web	89 x 39 x 0.75 mm thick	

4.5 CEILING BATTENS

Member	Dimensions	Centres
Type	30 x 0.75 mm thick	refer drawings

4.6 ROOF BATTENS

Member	Dimensions	Centres
Type	30 x 0.75 mm thick	refer drawings

4.7 EXTERIOR THERMAL BREAK - HOMERAB THERMAL BREAK

Studs and plates: HomeRab Thermal Break(10mm Black Pearl Polystyrene adhered to 4.5mm James Hardie HomeRab Rigid Air Barrier)

4.9 CAVITY BATTENS

Type: Refer Drawings

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4121CF CONCRETE PLUS FOSROC LIQUID TANKING

1. GENERAL

This section relates to the supply and application of **Concrete Plus Limited** liquid applied damp proof coating **Mulseal Plus**, over concrete and masonry substrates.
It includes:
- Waterproofing of Cladding Rebate to Floor Slab

Documents

1.1 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:
Health and Safety at Work Act 2015
Hazardous Substances Regulations 2001

1.2 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents relating to this part of the work:
Concrete Plus Construction Products Product Guide
Parchem Technical Data sheets
Parchem Material Safety Data sheets

Manufacturer/supplier contact details
Company: **Concrete Plus Limited**
Web: www.concreteplus.co.nz
Email: phil.manins@concreteplus.co.nz
Telephone: 0508 FOSROC (367762)

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:
10 years: For materials

- Provide this warranty on Concrete Plus Limited standard form.
- Commence the warranty from the date of practical completion of the contract works.

1.4 WARRANTY - INSTALLER/APPLICATOR
Provide an applicator warranty:
5 years: For workmanship

- Provide this warranty on the applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 QUALIFICATIONS
Applicators to be experienced in the application and approved by Concrete Plus Limited. If requested provide evidence of qualification / experience prior to commencing work.

1.6 NO SUBSTITUTIONS
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.7 HEALTH AND SAFETY
Follow the requirements of the appropriate Concrete Plus Limited Material Safety Data sheets and safety advice on package labels.

Compliance information

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1.8 INFORMATION REQUIRED FOR CODE COMPLIANCE
Provide the following compliance documentation: -
- Applicators approval certificate from Concrete Plus Limited
- Concrete Plus Limited warranty
- Applicator's warranty
- Producer Statement - Construction from the applicator.
- Other information required by the BCA in the Building Consent Approval documents.

Quality control and assurance

1.9 QUALITY ASSURANCE
The approved applicator to provide a Quality Assurance plan before commencing work. This is to include a list of the personnel to work on the project, proposed preparation of the substrate and method of application to specific details such as construction joints, and internal and external corners.

A Quality Assurance check list is to be completed each day, identifying the specific area of project to be coated that day, the type and amount of coating applied and the batch numbers of the product used that day. The dry film thickness (DFT) of the applied membrane, the weather conditions and the names of the applicators.

After application of the coating, the membrane dry film thickness (DFT) to be checked every 5m². Record the thickness on the QA record sheets. The hole created by the checking to be repaired by filling recommended by Concrete Plus Limited.

2. PRODUCTS

Materials

2.1 DAMP PROOFING COATING
Mulseal Plus**,** a liquid single component damp proof membrane formulated on a blend of natural rubber latex and bitumen emulsions and other chemicals to ease application and impart longevity.

3. EXECUTION

Conditions - general

3.1 DELIVERY, STORAGE AND HANDLING
Take delivery of materials and goods and store on site and protect from damage. Store under cover in a cool dry place, within a temperature range of 5°C to 25°C and under conditions complying with the Hazardous Substances Regulations. Keep containers sealed.
Protect finished surfaces, edges and corners from damage.
Move/handle goods in accordance with manufacturer's requirements.
Reject and replace goods that are damaged or will not provide the required finish.

3.2 CHECK SUBSTRATE
Check that the substrate will allow work of the required standard. Any remedial work identified to be completed before any work is commenced.

3.3 CURING OF NEW CONCRETE
Allow concrete and masonry to dry to Concrete Plus Limited requirements before applying waterproofing membrane. Minimum curing of new concrete to be 28 days, sand/cement screeds 7 days.

3.4 PRE-COATING/FINISHING REQUIREMENTS
Check work previously carried out and confirm it is of the required standard for specified finish. Carry out such additional preparatory work as required to bring the substrate to suitable condition.

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3.5 WEATHER CONDITIONS
Apply waterproofing membrane only in fair weather with temperature between 5°C to 30°C and relative humidity levels of less than 90%. Ensure that curing conditions are maintained until the coating is cured. Ensure substrate is dry enough to avoid blowing and delaying of the curing.

3.6 HANDLING, SOLVENT BASED PRODUCTS - CLEANING
Handle and apply to Concrete Plus Limited recommended safety precautions and to the requirements of the Health and Safety at Work Act 2015.

3.7 LIMITATIONS OF USE
Do not use Emer-Proof Ecoflex and Mulseal Plus in conditions of continuous water immersion or as a membrane on internal walls subject to back pressure. Do not expose products to UV on a permanent basis, cover them as soon as practicable.

Conditions -surface preparation

3.8 ENSURE SUBSTRATE
Ensure all surfaces are free from voids, spalled areas, loose particles, and sharp protrusions. Ensure no projections of sharp materials exist that will cause damage to tanking. Check that masonry joints are struck off flush.

Ensure form oils or release agents, curing compounds, wax residues, algae, moss, grime, animal fats or grease are completely removed.

Application - surface preparation

3.9 PREPARE SUBSTRATE
Remove any projections, wire-brush and remove debris, leaving the surface dust-free, oil-free and clean, with nothing that could diminish the adhesion of primers/coating. Fill tie holes flush and smooth with Concrete Plus Limited recommended filler. Grind off steps or sharp protrusions caused by formwork joints. Rough concrete should be "faired up" before application.

3.10 CLEAN SURFACES
Clean surfaces with a broom or compressed air to remove all dust, loose particles and material that could affect bonding.

3.11 CRACKS AND VOIDS
Repair cracks and voids to Concrete Plus Limited requirements.

3.12 RADIUS - EMER-PROOF ECOFLEX / MULSEAL PLUS
Radius internal corners 40mm to Concrete Plus Limited requirements. Allow to cure.

Application - Mulseal Plus

3.13 PRIMING - POROUS / DUSTY SURFACES
Apply Mulseal Plus as a primer with one coat of product diluted 1:1 with water when substrate is porous and dusty; refer to Concrete Plus Limited requirements. After priming at least one coat of full strength Mulseal Plus should be applied.

3.14 APPLY MULSEAL PLUS
Apply Mulseal Plus using a brush, broom or squeegee. Use a squeegee or soft broom for horizontal surfaces, a turks head brush for vertical surfaces. Lay product on to the surface in one direction. It must not be brushed out. For application by roller or spray systems consult with Concrete Plus Limited for particular requirements.

3.15 RECOATING
Apply top coat to achieve a dry film thickness of approximately 1mm thickness. Coverage will depend on the porosity and condition of the substrate. Allow between 12 and 36 hours between coats for drying.

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3.16 WASH BROOMS
Wash brooms and brushes regularly when using them to apply the coating. Refer to Concrete Plus Limited for detailed requirements.

3.17 APPLY FINISHING TO COATING - UV PROTECTION
Apply paint finish to Mulseal Plus, when coating is subject to UV exposure, in accordance with Concrete Plus Limited requirements. Do not use paints containing organic solvents. In situations of direct sunlight sand-blind the freshly applied topcoat, allow this to dry thoroughly, and then paint over with a suitable bitumen compatible emulsion paint.

Application - protection

3.18 ROUTINE CLEANING
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

3.19 DEFECTIVE OR DAMAGED WORK
Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable.

3.20 LEAVE
Leave this work in a sound, coherent, without voids and impermeable smooth condition, completely waterproof, free of any defect and with protection sheets firmly in place.

4. SELECTIONS
For further details on selections go to www.concreteplus.co.nz
Substitutions are not permitted to the following, unless stated otherwise.

Materials - Mulseal Plus

4.1 MULSEAL PLUS DAMP PROOF COATING
Location: Rebate for cladding to Concrete Floor Slab
Substrate: Concrete

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4161 3M ALL WEATHER FLASHING TAPE 8067

1. GENERAL

This section relates to the application of:
- Flexible Flashing Tape

1.1 RELATED WORK

Refer to 4161P Paul Industries underlays, foil and DPC for Building Wrap

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
NZS/AS 1530.2	Methods for fire tests on building materials, components and structures - Test for flammability of materials
NZS 2295	Pliable, permeable building underlays
AS/NZS 2904	Damp-proof courses and flashings
NZS 3604	Timber-framed buildings
AS/NZS 4200.1	Pliable building membranes and underlays
AS/NZS 4347.0	Damp-proof courses and flashings - Methods of test - General introduction, list of methods and test specimen requirements

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this part of the work:

Manufacturer/supplier contact details

Company:	3M New Zealand Limited
Web:	www.solutions.3mnz.co.nz/
E-mail:	
Telephone:	(09) 477-4040

Requirements

1.5 INSTALLATION SKILL LEVELS

Installers to be familiar with the Drawings and Specifications

2. PRODUCTS

Accessories

2.1 WINDOW DOOR SEALING SYSTEM

3M All Weather Flashing Tape 8067 in accordance with the drawings

2.2 HEAD FLASHING UPSTANDS

3M All Weather Flashing Tape 8067 in accordance with the drawings

2.3 PIPES AND SERVICE PENETRATIONS

3M All Weather Flashing Tape 8067 in accordance with the drawings

2.4 HOMERAB THERMAL BREAK RIGID AIR BARRIER

3M All Weather Flashing Tape 8067 in accordance with the drawings

3. EXECUTION

Conditions

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3.1 GENERAL REQUIREMENTS
Note: Care should be taken not to expose 3M All Weather Flashing Tape for to the weather or ultra violet light for more than 90 days.

3.2 STORAGE
Handling and storage of all materials supplied by 3M New Zealand Limited, whether on or off site, is under control of the installer. 3M All Weather Flashing Tape 8067 must be protected from damage and weather. Rolls must be stored under cover, in clean, dry conditions away from direct exposure to sunlight.

3.3 INSPECTION
Before starting work, check that the framing will allow work of the required standard. Carry out remedial work identified before laying flashing tape.

3.4 INSTALLATION
Installation of the 3M All Weather Flashing Tape 8067 must be installed in accordance with the drawings.

Completion

3.5 CLEAN UP
Clean up as the work proceeds.

3.6 LEAVE
Leave work to the standard required by following procedures.

3.7 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

Accessories

4.1 WINDOW/DOOR SEALING SYSTEM
Brand / type: 3M All Weather Flashing tape 8067

4.2 HEAD FLASHING UPSTANDS
Brand / type: 3M All Weather Flashing tape 8067

4.3 PIPES AND SERVICE PENETRATIONS
Brand / type: 3M All Weather Flashing tape 8067

4.4 RIGID AIR BARRIER - HOMERAB THERMAL BREAK SHEET JOINS
Brand / type: 3M All Weather Flashing tape 8067

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4161P PAUL INDUSTRIES UNDERLAYS, FOIL AND DPC

1. GENERAL

This section relates to the application of **Paul Industries** products:
It includes;
- DPC
- roofing underlays

1.1 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following definitions apply specifically to this section:

Wall underlay	the same meaning as defined in NZBC E2/AS1, covering kraft based and synthetic wall underlays, sometimes called, wall wraps, building wraps or building papers.

Documents

1.2 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
NZS 2295	Pliable, permeable building underlays
AS/NZS 2904	Damp-proof courses and flashings
NZS 3604	Timber-framed buildings
AS/NZS 4200.1	Pliable building membranes and underlays - Materials
AS/NZS 4347.0	Damp-proof courses and flashings - Methods of test - General introduction, list of methods and test specimen requirements
AS/NZS 4389	Roof safety mesh
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire

1.3 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents relating to this part of the work:
Paul IndustriesSpec Sheets
BRANZ Appraisal 615 - Fast Wrap Building Wrap
BRANZ Appraisal 714 - Fast Wrap FlameSpec HW Roof Underlay
BRANZ Appraisal 715 - Fast Wrap FlameSpec SS Roof Underlay

Manufacturer/supplier contact details

Company:	**Paul Industries**
Web:	www.paulindustries.co.nz
Email:	info@paulindustries.co.nz
Telephone:	0800 330 320 / 07 578 8209
Facsimile:	07 928 5244

Requirements

1.4 QUALIFICATIONS
Installers to be experienced, competent trades people familiar with the manufacturer's materials and techniques specified and the NZMRM CoP NZ metal roof and wall cladding Code of Practice.

1.5 NO SUBSTITUTIONS
Substitutions are not permitted to any of the **Paul Industries** specified systems, components and associated products listed in this section.

2. PRODUCTS

Materials

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DPC

2.1 BITUMINOUS IMPREGNATED DPC
Pauloid Bituminous Damp Proof Course (DPC), heavy kraft impregnated with high grade bitumen and coated with higher heat resistant bitumen to AS/NZS 2904 and to the appropriate test methods set out in AS/NZS 4347.

Roofing Underlay

2.3 POLYOLEFIN ROOF UNDERLAY
Fast Wrap FlameSpec Roof Underlay, a synthetic fire retardant roof underlay made from a micro-porous water resistant film laminated to two layers of non woven spun bonded polyolefin. Refer to SELECTIONS for options.

Accessories

2.4 STUD STRAPS
19mm wide polyethylene straps, for cavity construction with framing centres greater than 450mm.

2.5 FIXINGS
Staples, clouts, screws or propriety wrap/underlay fixings, or other temporary fixings to attach the wall wrap/underlay to the framing.

3. EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS
To NZBC E2/AS1 Table 23 Properties of Roof Underlays and Wall Underlays; and to Paul Industries technical literature.
NOTE: Care should be taken not to expose the underlay to continuous wet and windy conditions.

3.2 STORAGE
Store building underlays and accessory materials, under conditions that ensure no deterioration or damage. Store rolls in an upright position on a smooth floor and protected from sunlight, UV radiation and moisture.

3.3 INSPECTION
Before starting work, check that the framing will allow work of the required standard. Carry out remedial work identified before laying underlay.

Application - DPC

3.4 BITUMINOUS DPC TO STEEL FRAMES
Lay **Pauloid Bituminous DPC** under all Steel framed walls on concrete, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

3.5 DPC TO MASONRY AND BRICK VENEER
Lay **Pauloid Bituminous DPC** along base of cavity and fix top edge to studs with galvanized clouts. Turn DPC out over concrete rebate under bottom course of veneer.

3.6 DPC BETWEEN DISSIMILAR MATERIALS
Lay **Pauloid Bituminous DPC** between dissimilar materials where required.

Completion

3.9 CLEAN UP
Clean up as the work proceeds.

3.10 LEAVE
Leave work to the standard required by following procedures.

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3.11 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS
For further details on selections go to www.paulindustries.co.nz.
Substitutions are not permitted to the following, unless stated otherwise.

DPC

4.1 PAULOID BITUMINOUS DPC
Location: Bottom Plates
Brand/type: **Pauloid Bituminous DPC**

Roofing Underlay

4.4 FIRE RETARDANT SYNTHETIC ROOF UNDERLAY
Location: All Roof areas
Type: Fast Wrap FlameSpec SS Roof Underlay, self supporting

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4161T THERMAKRAFT UNDERLAYS, FOILS & DPC

1. GENERAL

This section relates to the application of **Thermakraft Ltd**, DPC, DPM, wall underlays, roofing underlays and accessories.

1.1 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

NZMRM	New Zealand Metal Roofing Manufacturers Inc.

The following definitions apply specifically to this section:

Wall underlay	the same meaning as defined in NZBC E2/AS1, covering kraft based and synthetic wall underlays, sometimes called, wall wraps, building wraps or building papers.

Documents

1.2 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC C/AS1-AS7	Protection from fire
NZBC E2/AS1	External moisture
AS 1530.2	Methods for fire tests on building materials, components and structures - Test for flammability of materials
NZS 2295	Pliable, permeable building underlays
AS/NZS 2904	Damp-proof courses and flashings
NZS 3604	Timber-framed buildings
NZS 4214	Methods of determining the total thermal resistance of parts of buildings
AS/NZS 4389	Roof safety mesh
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
NZMRM CoP	NZ metal roof and wall cladding Code of Practice

1.3 MANUFACTURER/SUPPLIER DOCUMENTS
Thermakraft documents relating to work in this section are:
Thermakraft product manual and technical data sheets.
BRANZ Appraisal 329 - Supercourse 500™ Damp-Proof Course and Concealed Flashing

Manufacturer/supplier contact details

Company:	**Thermakraft Ltd**
Web:	www.thermakraft.co.nz
Email:	info@thermakraft.co.nz
Telephone:	0800 806 595

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER
Warrant this work under normal environmental and use conditions against failure of materials and execution. Thermakraft Ltd warrant performance of products if design and installation complies with relevant technical literature, NZBC, and recognised industry Codes of Practice. Copy of Thermakraft™ Product Warranty available on request.

Requirements

1.5 NO SUBSTITUTIONS
Substitutions are not permitted to any specified materials, or associated products, components or accessories.

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1.6 INSTALLATION SKILL LEVELS
Installers to be experienced in the installation of Thermakraft™ products and familiar with Thermakraft™ technical literature and the related documents listed in this design i.e. NZMRM CoP NZ metal roof and wall cladding Code of Practice.

2. PRODUCTS

Materials

DPC

2.1 EMBOSSED POLYETHYLENE
Supercourse 500™ hi-impact polyethylene film to AS/NZS 2904 and embossed on both sides. Thickness 500 microns minimum, manufactured for use as a damp-proof course and concealed flashings around doors and windows and to BRANZ Appraisal 329. Refer to SELECTIONS for type of jointing tape.

3. EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS
Design application and installation of **Thermakraft** Building products to NZBC E2/AS1, BRANZ Appraisals, **Thermakraft** Technical Literature and Industry Codes of Practice.

3.2 STORAGE
Store building underlays and accessory materials, under conditions that ensure no deterioration or damage. Store rolls in an upright position on a smooth floor and protected from sunlight, UV radiation and moisture.

3.3 INSPECTION
Before starting work, check that the building construction phase will allow work of the required standard. Carry out remedial work identified before laying underlay.

Application DPC

3.4 DPC TO LOSP/CCA TREATED TIMBER
Lay Supercourse 500™ DPC under LOSP or CCA treated bottom plate of all timber framed walls on concrete, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

3.5 DPC TO STEEL
Lay Supercourse 500™ DPC under the bottom plate of all steel framed walls on concrete, in a single layer with 50mm overlaps at joints to provide a waterproof barrier. Refer to SELECTIONS for type.

Completion

3.6 CLEAN UP
Clean up as the work proceeds.

3.7 LEAVE
Leave work to the standard required by following procedures.

3.8 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

For further details on selections go to www.thermakraft.co.nz.
Substitutions are not permitted to the following, unless stated otherwise.

Damp Proof Course

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4.1 THERMAKRAFT - SUPERCOURSE 500™ DPC
Location: Refer Drawings
Type: Supercourse 500™ DPC

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4171HRTB JAMES HARDIE HOMERAB® THERMAL

1. GENERAL

This section relates to the supply and fixing of James Hardie rigid air barrier products;
- HomeRAB® Thermal rigid air barrier

Documents

1.1 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC C/AS2-AS6	Protection from fire
NZBC E2/AS1	External moisture
AS/NZS 1170.2	Structural design actions - Wind actions
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings

1.2 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer/supplier contact details

Company:	**James Hardie New Zealand**
Web:	www.jameshardie.co.nz
Email:	info@jameshardie.co.nz
Telephone:	Ask James Hardie™ on 0800 808 868.

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:

15 years:	For HomeRAB® Thermal (refer to James Hardie™ product warranty)
15 years:	For accessories supplied by James Hardie (refer to James Hardie™ product warranty)
From:	Date of purchase

- Provide this warranty on the manufacturer's standard form.

Requirements

1.4 NO SUBSTITUTIONS
Substitutions are not permitted to any specified system, or associated components and products.

Performance

1.5 PERFORMANCE, WIND
The design wind pressures are to NZS 3604, up to and including Very High Wind Zone. This is within the scope of the manufacturer's literature and details.

2. PRODUCTS

Materials

2.1 HOMERAB THERMAL RIGID AIR BARRIER
James Hardie HomeRAB® Pre-Cladding, 4.5mm thick, manufactured from treated cellulose fibre, Portland cement, sand and water, cured by high pressure autoclaving manufactured to AS/NZS 2908.2 and, face and edge sealed, adhered to 10mm superior "Black Pearl" thermal break sheet. Suitable for residential buildings within the scope of NZS 3604 and up to EH wind zone.

Components

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2.2 FASTENER TYPE
Fasteners to minimum durability requirements of the NZBC. Refer to NZS 3604, section 4 Durability, for requirements for fixing's material to be used in relation to the exposure conditions.

Refer to NZBC E2/AS1, Table 20, Material selection, and NZBC E2/AS1, Table 21, Compatibility of materials in contact, for selection of suitable fixing materials and their compatibility with other materials.

Zone	Fixings Material
Zone D, Zone E	Class 4
Zone B, Zone C	Class 4

2.3 SCREWS
HomeRAB® Thermal Rigid Air Barrier
- Refer to Drawings

Accessories

2.4 SEALING TAPE - VERTICAL JOINTS/CORNER JOINTS WITHOUT BATTENS OVER
3M™ All Weather Flashing Tape 8067 (75 mm wide).

2.5 FLASHING TAPE / WINDOW FLASHING TAPE
3M™ All Weather Flashing Tape 8067.

3. EXECUTION

Conditions

3.1 STORAGE
Take delivery of products dry and undamaged on pallets, and keep on pallet. Protect edges and corners from damage and covered to keep dry until fixed.

3.2 HANDLING
Avoid distortion and contact with potentially damaging surfaces. Do not drag sheets across each other, or across other materials. Protect edges, corner and surface finish from damage.

3.3 PRE-INSTALLATION REQUIREMENTS
Check work previously carried out and confirm it is of the required standard for this part of the work.

3.4 FRAMING
Provided in accordance to SED (specific engineering design) requirements. Stud spacing and nog spacing must not exceed 600mm or 1,200mm respectively.

Application - generally

3.5 PENETRATIONS AND FLASHINGS
Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:
- Openings formed in accordance with the Drawings.
- Materials lapped in a way that water tracks down to the exterior face of the Rigid Air Barrier.
- Underlay / tapes to openings finished and dressed off ready for the installation of window and door frames and other penetrations.

Install Rigid Air Barriers

3.6 SHEET LAYOUT
Refer to the drawings.

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3.7 VERTICAL JOINTS
The Vertical joints can be formed over the stud or off the stud minimising the need to cut panels. The sheet edge must not overhang more than 400mm where off stud jointing method is followed. The vertical joints must be sealed off using using a 75mm minimum wide sealing tape.

3.8 HORIZONTAL JOINTS
A horizontal joint in HomRAB Thermal rigid air barrier is formed using the 75mm wide joint flashing tape by lapping under the sheet above and over the sheet below. The sheet must always be supported by a nog for the horizontal joint. Refer to the drawings.

3.9 EXTERNAL AND INTERNAL CORNERS
Butt the sheet edges at external/internal corners over frame. Seal the corners using a 75mm minimum wide sealing tape. Refer to the drawings.

3.10 PENETRATIONS
Form in accordance with the drawings

3.11 OPENINGS
Form in accordance with the drawings.

3.12 FLASHINGS AND JUNCTIONS
Form in accordance with the drawings.

3.13 AT SOFFITS
Form in accordance with the drawings.

3.14 BASE CLEARANCES
Form in accordance with the James Hardie® Rigid Air Barriers installation manual. Lining is required to extend below the bottom plate / floor joist by 15mm minimum to form a drip edge and must finish a minimum 100mm clear of finished ground. Where base of sheets are cut to suit site requirements seal the bottom edge with primer.

Completion

3.15 REPLACE
Replace all damaged or marked elements.

3.16 LEAVE
Leave work to the standard required for following procedures.

3.17 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS
For further details on selections go to www.jameshardie.co.nz
Substitutions are not permitted to the following, unless stated otherwise.

4.1 JAMES HARDIE HOMERAB® THERMAL - RIGID AIR BARRIER
Brand/type: James Hardie HomeRAB® Thermal Rigid Air Barrier
Flashing tape: 3M™ All weather Flashing Tape 8067
Screws: 10g x 30mm self-embedding waferhead screw - refer drawings

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4238HP CSR HEBEL® POWERPANEL50 EXTERNAL WALL SYSTEM

1. GENERAL

This section relates to the **Hebel® PowerPanel50 - External Wall System**.
Comprising 50mm thick lightweight steel-reinforced Autoclaved Aerated Concrete (AAC) panels mounted vertically on cavity battens, screw fixed to the external load bearing wall.
It includes;
- Steel tophat cavity battens
- Hebel® AAC panel

1.1 RELATED WORK
Refer to 4282DA DULUX ACRATEX TEXTURE COATING SYSTEMS for coating system.

1.2 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

AAC	Autoclaved Aerated Concrete

Documents

1.3 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS/NZS 2904	Damp-proof courses and Flashings
AS 3566	Self-drilling screws for the building and construction industries
NZS 3604	Timber-framed buildings
CodeMark CMA CM40064 (Rev 1)	CSR Hebel PowerPanel50 - 50mm External Wall System
NASH Standard	Residential and low-rise steel framing Part 1: Design Criteria

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

1.4 MANUFACTURERS DOCUMENTS
Manufacturer and Supplier's documents related to this section are:
Hebel® PowerPanel50 External Wall System, New Zealand Design and Installation Guide HELIT003 December 2013.

Manufacturer/supplier contact details

Company:	CSR Hebel
Web:	www.hebel.co.nz
Email:	info@hebel.co.nz
Telephone:	0800 4 HEBEL (0800 443 235)

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:

20 years	Product Warranty on Hebel® AAC Products
15 years	Product Warranty on Hebel® Accessories, as supplied by CSR Hebel

- Provide this warranty on the standard Hebel® Product Warranty format.
- Commence the warranty from the date of purchase.

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Requirements

1.6 QUALIFICATIONS
Work to be carried out by tradespeople experienced, competent and familiar with the materials and techniques specified.
Licensed Building Practitioners (LBP's) shall carry out the work where the work being undertaken is considered to be Restricted Building Work.

1.7 NO SUBSTITUTIONS
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.8 INFORMATION FOR OPERATION AND MAINTENANCE
Provide the following general operation and maintenance information as electronic PDF format documents:

Provide this information prior to practical completion.

Compliance information

1.9 INFORMATION REQUIRED FOR CODE COMPLIANCE
Provide the following compliance documentation:
- Producer Statement Construction

1.10 OTHER INFORMATION REQUIRED FOR PRACTICAL COMPLETION
Provide the following documentation:
- Hebel® Product warranty
- Installers warranty

Performance - Wind (design by contractor)

1.11 DESIGN PARAMETERS WIND - DESIGN BY CONTRACTOR
Install to the manufacturer's requirements and as appropriate for the project wind design stated in the general section 1220 PROJECT.

1.12 PROTECTION FROM FIRE
To CodeMark CMA CM40064 (Rev 1). Hebel® PowerPanel50 is considered to meet the performance requirements of NZBC C1-C6 for use as an external wall cladding within risk group SH, to NZBC C/AS1.
To Hebel® PowerPanel50 External Wall System, New Zealand Design and Installation Guide, 2.2 Fire Resistance Performance, a fire rated wall having a 2 way FRR of 30/30/30 can be achieved with Hebel PowerPanel50 on the exterior face of the framed wall and the appropriate fire rated plasterboard lining to the interior face of the framed wall (inside the rooms).

1.13 PERFORMANCE, INSTALLATION AND FINISH
The Hebel® PowerPanel installer to accept responsibility for the panel installation, and the Plaster Coating System applicator must accept responsibility for the weather-tight performance of the exterior finish application.

1.14 CONTROL JOINTS
To Hebel® PowerPanel50 External Wall System, New Zealand Design and Installation Guide, and as shown on drawings.

Quality control and assurance

1.15 INSPECTIONS
Allow to inspect the whole of the work at each stage. Determine a programme for inspections including notification when each part and stage of the work is ready for inspection prior to the work commencing.

2. PRODUCTS

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Materials

2.1 HEBEL® POWERPANEL50 AAC PANELS
50mm thick steel reinforced Autoclaved Aerated Concrete panels.
Size 2400mm long x 600mm wide. Panel in-service density is approximately 560kg/m³ (at 10% moisture content).

2.2 STEEL TOPHAT BATTENS
34mm deep steel tophat battens to AS 1397, supplied in 4.8m lengths.

2.3 PANEL SCREWS
14 - 10 x 65mm Hex Head Type 17 Class 4 screws to AS 3566.

2.4 BATTEN SCREWS - STEEL FRAME
10 - 16 x 16mm Hex Head Tek Class 4 screws to AS 3566.

2.5 HEBEL® MORTAR
Supplied in 20kg bags, used as a thick bed mortar base, to provide a level base for PowerPanel installation.

2.6 HEBEL® ADHESIVE
Supplied in 20kg bags, used for gluing the PowerPanel panels together at vertical and horizontal joints.

2.7 HEBEL® PATCH
Supplied in 10kg bags, used for repairing minor damage or chips to the PowerPanel panels.

2.8 HEBEL® ANTI-CORROSION PROTECTION PAINT
Paint used to coat exposed reinforcing of cut panels.

2.9 DAMP-PROOF COURSE
DPC to AS/NZS 2904 for flashings and bond break at concrete footings.

2.10 TANKING
A liquid applied damp-proof membrane applied to the base of panels.

2.11 SEALANTS
Paintable external grade MS sealant set against PEF backing rods where necessary.

3. EXECUTION

Conditions

3.1 DELIVERY
Take delivery of products undamaged. All materials to be in original unopened packaging with labels intact where appropriate.

3.2 STORAGE
Store on site, clear of ground. Stack panels carefully, and protect from mechanical damage. Protect Battens from physical damage.

3.3 SUBSTRATE
Do not commence work until the framing is of the standard required for the specified finish; plumb, level and in true alignment. Timber framing to comply to NZS 3604. Steel framing to Nash Standard Residential and low-rise steel framing Part 1: Design Criteria.

Wall underlay to comply with NZBC E2/AS1 Table 23.

3.4 CONFIRM LAYOUT
Before commencing work confirm the layout of expansion joints and other visual detailing of the finished work.

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3.5 PRE-INSTALLATION REQUIREMENTS
Make sure the concrete rebate on which the panels stand is flat and true, and clear of stones and concrete lumps that could catch on the bottom of the panel and prevent slippage.

3.6 STANDARDS AND TOLERANCES
Refer to the general section 1270 CONSTRUCTION for general requirements.

Installation

3.7 INSTALLATION GENERALLY
Install the Hebel® PowerPanel50 External Wall System installation strictly in accordance with the Hebel® PowerPanel50 External Wall System, New Zealand Design and Installation Guide.

3.8 FLASHING AND DETAILING
To Hebel® PowerPanel50 External Wall System, New Zealand Design and Installation Guide. Fit all penetration and panel base flashings, including cavity closures.

3.9 CONTROL JOINT AND BATTEN POSITIONS
Determine all control joint and batten positions and mark on the structure.

3.10 INSTALL TOPHAT BATTENS
Install Tophat battens in accordance with the Hebel® PowerPanel50 External Wall System, New Zealand Design and Installation Guide.

3.11 INSTALL AAC PANELS
Install AAC panels and apply Hebel® adhesive to each vertical joint. Screw fix through the face of the panel into the top hat batten, all in accordance with the Hebel® PowerPanel50 External Wall System, New Zealand Design and Installation Guide, and to project requirements.

Completion

3.12 ROUTINE CLEANING
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused materials and elements from the site.

3.13 FINAL INSPECTION
A final inspection by the Hebel® PowerPanel contractor of the entire finished cladding to take place immediately after completion of the wall cladding work and any defects or subsequent damage made good immediately.

4. SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

Materials

4.1 HEBEL® POWERPANEL50 EXTERNAL WALL SYSTEM

Panel width:	600mm
Panel length:	2400mm
Panel screws:	14 - 10 x 65mm Hex Head Type 17.
Batten screws - Timber frame:	12 - 11 x 35mm Hex Head Type 17 screws
Batten screws - Steel frame:	10 - 16 x 16mm Hex Head Tek screws
Adhesive:	Hebel® Adhesive
Steel top hat batten size:	34mm

4.2 DAMP-PROOFING

DPC:	Thermakraft Supercourse 500
Tanking membrane:	Mulseal Plus

4.3 SEALANT JOINTS
Location: Control joints, windows and penetrations.

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Sealant Type/Brand MS Sealant
Backing rod: PEF

4.4 STOFLEXYL WATERPROOFING PLASTER
Location: Refer Drawings.
Supplier Stoanz Ltd
Product: Stoflyxl Waterproofing

4.5 STOPOREN PLASTER SYSTEM - STANDARD SPEC SS500
Location: Refer Drawings.
Supplier Stoanz Ltd
Substrate: CSR Hebel Powerpanel
Primer Coat: S Protect WS 205 silane sealer
Base Mesh Coat: Stoporen 4mm-5mm mesh basecoat plaster
Sealer: Stoplex W Sealer
Aggregate Render: Stolit K - finished in one coat of StoColor Maxicryl fascade paint
Sponge Render: Stolit MP - sealed with one coat of S-Protect stay clean sealer
Color: As selected by client

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4239JH JAMES HARDIE SOFFITS

1. GENERAL

This section relates to the supply and fixing of James Hardie products to the underside of exterior soffits, verges and eaves. It includes:

- James Hardie HardieSoffit™ Lining

Documents

1.1 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
AS/NZS 1170.2	Structural design actions - Wind actions
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings
NASH Standard	Residential and low-rise steel framing Part 1: Design Criteria

1.2 MANUFACTURER/SUPPLIER DOCUMENTS
James Hardie® documents relating to this part of the work:
James Hardie® Eaves and Soffits Installation Manual
James Hardie® Fire and Acoustic Design Manual.

Manufacturer/supplier contact details

Company:	James Hardie® New Zealand
Web:	www.jameshardie.co.nz
Email:	info@jameshardie.co.nz
Telephone:	0800 808 868

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:

15 years:	For James Hardie® Hardieflex, Hardiesoffit (refer to James Hardie® product warranty)
15 year:	For accessories supplied by James Hardie® (refer to James Hardie® product warranty)
From:	Date of purchase

- Provide this warranty on the manufacturer's standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.4 QUALIFICATIONS
Workers / Installers / applicators to be experienced, competent trades people familiar with the materials and techniques specified.

1.5 NO SUBSTITUTIONS
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.6 INFORMATION FOR OPERATION AND MAINTENANCE
Provide relevant James Hardie maintenance requirements at completion of the work.

Performance

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1.7 PERFORMANCE - UP TO AND INCLUDING VERY HIGH WIND ZONE
The design wind speeds/zones are to NZS 3604, up to and including Very High Wind Zone. James Hardie® Eaves and Soffits Installation Manual requirements are suitable for these conditions.

2. PRODUCTS

Materials

2.2 HARDIESOFFIT™ LINING
James Hardie® HardieSoffit™ Lining, 4.5mm thick cellulose fibre reinforced cement sheet. Manufactured to AS/NZS 2908.2 from Portland cement, ground sand, cellulose fibre and water.

Components

2.3 FASTENER TYPE
Fasteners to minimum durability requirements of the NZBC. Refer to NZBC E2/AS1, Table 20, Material selection for fixing material, and NZBC E2/AS1, Table 21, Compatibility of materials in contact, for selection of suitable fixing materials and their compatibility with other materials.

Exposure	Fixing	Fixing Material	Zone
Sheltered	Screw	Stainless steel	B, C, D, E

Check against SED (specific engineering design) requirements for microclimate conditions. Refer to SELECTIONS for fastener type.

Components - HardieSoffit™ Lining

2.10 SOFFIT JOINTERS AND MOULDS
Extruded uPVC jointer, capping and scotia mould.

2.11 ADHESIVE
Refer to SELECTIONS.

2.12 INSEAL TAPE
Inseal® 3259, 1.5mm thick x 50mm wide black compressible medium density closed cell foam tape.

2.13 SCREW
8-10g x 30mm self embedding steel wingtek screw class 3 or 4

Components - General

2.14 FLEXIBLE JOINT SEALANT
Refer to SELECTIONS.

3. EXECUTION

Conditions

3.1 STORAGE
Take delivery of products dry and undamaged. Store on-site, lay flat on a smooth level surface clear of the ground. Protect materials, finished surfaces, edges and corners from damage, water and moisture.

3.2 HANDLING
Move/handle goods in accordance with James Hardie® requirements. Avoid distortion and contact with potentially damaging surfaces. Do not drag sheets across each other, or across other materials. Protect edges, corner and surface finish from damage. Reject and replace goods that are damaged or will not provide the required finish. Install materials in a dry state.

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3.3 SUBSTRATE - STEEL FRAMING
Do not commence work until the framing is of the standard required for the specified finish; plumb, level and in true alignment. Steel framing to Nash Standard Residential and low-rise steel framing Part 1: Design Criteria.

3.4 COMMENCE WORK
Do not commence work until the roof has been installed.

Application - general

3.5 SHEET LAYOUT
All sheet edges must be fully supported by framing or rebates in fascia and barge boards.

3.6 CUTTING SOFFIT CLADDING
Cut sheets dry using score and snap method, hand guillotine method or fibreshear heavy duty method. If these methods are not feasible, use an alternative manufacturer approved method.

3.7 CIRCULAR HOLE FORMING
Mark the centre of the hole on the sheet, pre-drill a pilot hole. Use the pilot hole as a guide for a hole saw fitted to a heavy duty electric drill.

3.8 IRREGULAR HOLE FORMING
Drill a series of small holes around the perimeter of the proposed hole, tap out the waste piece from the sheet face.

3.10 INSTALL HARDIESOFFIT™ LINING
Install in accordance with James Hardie® installation manual requirements. Refer to SELECTIONS for fixing and jointing methods.

3.11 BUTT JOINT
Paint sheet edges prior to installation.

3.12 CONTROL JOINT
Install control joint to James Hardie® installation manual requirements.

3.13 FASTENER - SIZE AND LAYOUT
Fix sheets to framing using fasteners as nominated in SELECTIONS. Fix to James Hardie® installation manual requirements.

3.14 INSTALL FASTFIX FASTENERS
Drill a 6mm diameter hole through the sheet and framing, insert Fastfix Fastener.

3.15 ADHESIVE
Application and use of adhesive to manufacturer's instructions and to suit the fastener layout requirements.

3.16 SEALANTS
Application and use of sealants to manufacturer's instructions. Check with sealant manufacturer prior to coating over sealants.

3.17 PAINTING
Refer to painting section/s for protective coating system.

Completion

3.18 COMPLETE
Ensure the work is complete with all components, accessories, trim, sealant and finishing properly installed so the soffit cladding system is completely weathertight.

3.19 REPLACE
Replace all damaged or marked elements.

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3.20 CLEAN
Clean surfaces.

3.21 LEAVE
Leave work to the standard required for following procedures.

3.22 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS
For further details on selections go to www.jameshardie.co.nz
Substitutions are not permitted to the following, unless stated otherwise.

Materials

4.2 HARDIESOFFIT™ LINING

Location:	Refer Drawings
Brand/type:	James Hardie HardieSoffit™ Lining
Thickness:	4.5mm
Width:	Refer Drawings
Fixing Method:	Screw
Fixing type:	8-10g x 30mm self embedding steel wingtek screw class 3 or 4
Joint detail:	Hardiejointer

Painting

4.3 PAINTING
Refer to painting section/s for details.

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4263 CONCRETE MASONRY VENEER CLADDING

1. GENERAL

This section relates to laying concrete masonry as a veneer cladding.

Documents

1.1 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
NZS 1170.5	Structural design actions, - Earthquake actions - New Zealand
AS/NZS 2699.1	Built-in components for masonry - Wall ties
NZS 3103	Sands for mortars and plasters
NZS 3109	Concrete construction
NZS 4210	Masonry construction: materials and workmanship
AS/NZS 4455.1	Masonry units, pavers, flags, and segmental retaining wall units - Masonry units
BRANZ	Good Practice Guide: Masonry Veneer

Requirements

1.2 SELECTED MASONRY
Refer to the drawings for areas of masonry, which require select quality blocks to both sides, self-insulating masonry or for weatherproof construction.

1.3 QUALIFICATIONS
Carry out all masonry work with people competent and experienced in this type of work and familiar with the materials and the techniques specified.
All work to be installed or supervised by a Registered Mason or licensed building practitioner (LBP): Licensed for Bricklaying and Blocklaying 1: Brick/Masonry Veneer.. RBW must be supervised by an LBP.

1.4 NO SUBSTITUTIONS
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

Performance

1.5 DESIGN PARAMETERS - NON SPECIFIC DESIGN
Design the installation to the seismic parameters of NZS 4210 Masonry construction: materials and workmanship.
Refer to SELECTIONS for details.

2. PRODUCTS

Materials

2.1 MASONRY
To AS/NZS 4455.1 with true and unblemished surfaces and arrises and from a single manufacturer.

2.3 METAL TIES
Metal ties of the required grade to suit the weight of the veneer wall, manufactured to AS/NZS 2699.1 and NZS 4210, 2.1.9 Wall ties.

Accessories

2.4 SAND FOR MORTAR
Sand to comply with NZS 3103. Chloride levels not exceeding 0.04% by dry weight of sand.

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2.5 MORTAR
To NZS 4210, 2.2 Mortar. Do not rework if not used within 1.5 hours of adding cement. A plasticiser may be used instead of lime.

2.6 WATER
Clean, fresh and free from excess alkali, salt, silt and organic materials.

3. EXECUTION

Conditions

3.1 VENEER WORK
To NZBC E2/AS1, 9.2, **Masonry veneer**; NZS 4210, section 2.9, veneer and cavity wall construction and BRANZ Good practice guide: Masonry veneer.

3.2 DETAILING
Where not otherwise detailed on the drawings or covered in the documents listed, carry out veneer construction to the details required by BRANZ Good practice guide: Masonry veneer and NZBC E2/AS1, 9.2, **Masonry veneer.**

3.3 STORAGE
Store masonry units clear of the ground, under cover and well ventilated until placed in the work.

3.4 TOLERANCES
Construct within the tolerances set out in NZS 4210, 2.6.5 Tolerances and 2.7 Laying the units, unless specified otherwise on the drawings or in this specification. Lay masonry with jointing of consistent thickness throughout.

Lay masonry to an even, plane surface with no deviation exceeding 3mm in 3 metres on any surface in view in the finished work.

3.5 CHECK BASE
Check that the base concrete on which masonry is being built is true to line and level, to ensure that work can be taken up true and plumb with 10mm thick bed and perpendicular joints. If more than 20mm thickness of mortar bed is needed to correct inaccuracies obtain written direction on remedial action.

3.6 CONSTRUCTION JOINTS
Ensure the structural integration of all masonry with adjacent concrete work by providing well roughened, retarded construction joints at all junctions.

All construction joints between grout and concrete and between grout and grout similar to Type B as described in NZS 3109, clause 5.6.3, prepared using an approved retarder, except that the roughness at fine grout surfaces may be ±1.5mm above and below the average level. Use a "double strength" retarder if necessary to suit the high cement content of the grout.

Vertical joints between masonry and concrete to achieve full structural integration across the joints. Allow to construct concrete work first with prepared vertical construction joints at block junctions the same as for horizontal construction joints. Lay masonry so that all courses have open ends abutting the existing concrete work.

3.7 MOISTURE CONTENT
Ensure that blocks are air-dry prior to laying. If necessary to reduce excess absorption of water from the mortar, some dampening of the surface is permissible but no surface water may be present at the time of placing mortar.

3.8 PROTECTION
Keep fair face block walls clean of mortar droppings, grout splashes, or stains of any kind as the work proceeds and before any droppings set.

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3.9 WEATHER PRECAUTIONS
When extreme temperatures prevail, either below 4°C or above 27°C, make adjustments to construction as listed in NZS 4210: 2.18 Cold weather construction, and 2.19 Hot weather construction. Do not use expansive grout for filling in temperatures below 5°C.

Application

3.10 SELECTION
For fair face walls select blocks for consistent colour, texture and lack of imperfections.

3.11 BONDING PATTERN
Unless specifically shown or described otherwise, lay masonry in running bond with full masonry bonding at intersections.

3.12 CUTTING
Use a masonry saw to provide clean, accurate cuts.

3.13 FLUSH JOINTS
Finish joints which are not visible in the completed work, or in walls to be plastered, by striking off flush with the trowel.

3.14 TOOLED JOINTS
Finish joints on exposed masonry by tooling to produce a neat joint profile.

3.15 CAVITY WIDTH
To NZS 4210, 2.9 **Veneer and cavity wall construction**.

3.16 WALL TIES GENERALLY
Wall ties at unsupported edges, all openings and at bottom of veneer walls to NZS 4210: 2.9 Veneer and cavity wall construction and NZBC E2/AS1, 9.2.7, **Wall ties** Tables 18A, 18B and 18C.

3.17 BUILD IN WALL TIES - STUDS
Build in wall ties for support walls to NZS 4210, 2.9 Veneer and cavity wall construction and NZBC E2/AS1, 9.2.7; **Wall ties** Tables 18A, 18B and 18C. Fix to stud with screws or other non impact fasteners and to concrete or concrete masonry with one double-thread fastener.

3.19 CONTROL JOINTS
Provide vertically each side of an opening or window width of more than 1.8 metres and at not more than 6 metre spacing, all to NZS 4210: 2.10 Method of controlling wall movements.

3.20 WEEPHOLES
Provide where exposed to the weather above foundations, bond beams and slabs a 50mm x 10mm weep-hole in every second vertical joint.

3.21 CAVITY VENTILATION
Ventilate cavity with top and bottom openings to NZBC E2/AS1, 9.2.6 **Cavities**. Seal cavity off from floor and roof spaces.

3.22 CLEAN OUT
Clean out by removing mortar droppings from ties, any mortar protruding into cavities and all mortar droppings and other loose material in the cavities.

Completion

3.23 ROUTINE CLEANING
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

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3.24 DEFECTIVE OR DAMAGED WORK
Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures.

3.25 PROTECTION
Provide temporary protection of the finished work.

4. SELECTIONS
Substitutions are not permitted to the following, unless stated otherwise.

Performance - seismic

4.1 DESIGN PARAMETERS - NON SPECIFIC DESIGN
Building seismic zone: (refer to Drawings)

Performance - Corrosion protection

4.2 CORROSION PROTECTION METAL TIES - EXPOSURE ZONES B & C
Minimum corrosion protection to NZBC E2/AS1, tables 18C and 18D, for exposure Zone B and Zone C to NZS 3604 (& NZS 4210).

Metal ties: 470g/m2 galvanizing on steel

4.3 CORROSION PROTECTION METAL TIES - EXPOSURE ZONES D & E
Corrosion protection to NZBC E2/AS1, tables 18C and 18D, for exposure Zone D (NZS 3604 & NZS 4210) & Zone E (NZBC E2/AS1).

Metal ties: Stainless steel (304, 316 or 316L)

Materials

4.4 CONCRETE MASONRY VENEER
Brand: Refer to Product Schedule page in plans
Laying pattern: Stretcher bond
Pointing: As selected by client

4.5 MORTAR
Mix: 1: 0 - 0.25: 3 - cement: hydrated lime: sand
Strength: 12.5 MPa
Bond strength: 200 kPa

Components

4.7 METAL TIES
Brand/Material: Refer to Drawings

4.8 SYNTHETIC DAMP-PROOF COURSE
Brand/type: Refer to Drawings

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4320 TILE ROOFING

1. GENERAL

This section relates to the supply and installation of tile roof, complete with all roof underlays and accessories to create a watertight roof.

1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B2/AS1	Durability
NZBC E2/AS1	External Moisture
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
NZS 2295	Pliable, permeable building underlays
NZS 3602	Timber and wood-base products for use in building
NZS 3604	Timber-framed buildings
NZS 4206	Concrete interlocking roofing tiles
NZS 4217	Pressed metal tile roofs
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire

1.2 QUALIFICATIONS

Carry out roofing work using experienced, competent roofers familiar with the materials and techniques specified.

1.3 FIXINGS, WIND

Design and use the fixings appropriate to the manufacturer's requirements and as appropriate for the project wind design stated in the drawings

1.4 CO-ORDINATE

Co-ordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof.

1.5 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed roofing system, including all penetrations through the roof and junctions with walls and parapets.

1.6 WARRANTY - MANUFACTURER/SUPPLIER METAL TILES

Provide a material manufacturer/supplier warranty:

25 years:	For tile materials
5 years:	For coating

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

2. PRODUCTS

2.1 TILE BATTENS

ZOG metal roof battens installed as per ZOG specification documents

2.2 UNDERLAY

Refer to Section 4161P

2.3 METAL ROOFING TILES

Pressed steel sheet galvanized, or aluminium/zinc coated to AS 1397. Finish as specified. Accessories, capping, flashings, and fixings to match and to the roofing manufacturer's requirements.

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2.4 FLASHINGS GENERALLY
To E2/AS1, 4.0 **Flashings**. Formable grade 0.55mm BMT for galvanized, aluminium/zinc-coated and pre-painted steel.

2.5 FIXINGS METAL TILES
50x2.8mm hot-dip galvanised painted flat-head annular grooved nails, plus neoprene washers when top fixing, to NZBC E2/AS, 8.3.7, **Fixings**, and to tile manufacturer's requirements.

3. EXECUTION

3.1 STORAGE
Stack roofing and accessories on clean, level areas of the site and protect from damage and from weather until ready to fix in place. Avoid overloading roof structure when roofing materials are placed on the roof area prior to installation.

3.2 SET-OUT
Set out the planned layout before fixing commences, to ensure true lines and the correct relationship to module, grid and roof features.

3.3 LAY ROOF UNDERLAY
Lay and fix to NZBC E2/AS1: 8.1.5, **Roof Underlays** and the roofing manufacturer's requirements.

3.4 LAY ROOFING, GENERALLY
To NZBC E2/AS1: 8.0 **Roof claddings**. Take care to avoid damaging pre-finished roofing both during and after fixing. Wear only soft-soled shoes on the finished surface.

3.5 INSTALL TILE BATTENS
Tile Battens. Install the tile battens to the roofing manufacturer's requirements and ZOG Specification Documents with all joints fully supported and staggered.

3.6 CUT METAL TILES
Cut with tools specified by the roofing manufacturer. Fold ends and seal cut edges of tiles and accessories without damaging their integrity or finish, all to the roofing manufacturer's requirements.

3.7 INSTALL METAL TILES
Lap metal tiles and fix complete with matching accessories, flashed to roof features and penetrations; all to the roofing manufacturer's requirements and NZS 4217 and to NZBC E2/AS1: 8.3 **Pressed metal tiles**.

3.8 FIXINGS
Refer to the roofing manufacturer's literature for fixing details and to NZBC E2/AS1.

3.9 INSTALL COVERS AND FLASHINGS
Cut, fit and fix all elements true to line and plane, to NZBC E2/AS1: **4.0 Flashings**, NZBC E2/AS1: **5.0 Roof/wall junctions**, and to the roofing manufacturer's details.

3.10 PENETRATIONS
To NZBC E2/AS1. Flash and overflash all penetrations through the roof.

3.11 PENETRATIONS AND JUNCTIONS
Check that adjoining walls and parapets are prepared ready for the installation of the roofing. Confirm that openings have been prepared ready for the installation of skylights and other penetrations through the roof. Required work includes the following:
- underlay turned up at wall and parapet lines
- underlay finished and dressed off to all openings, ready for the installation of skylights and other penetrations
- roofing installation neatly finished to all sides of openings and to all wall and parapet junctions
- installation of flashings (those required to be installed prior to installation of penetrating elements and/or wall linings).

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3.12 USE OF SEALANTS
Select and use sealants only as recommended by the roofing manufacturer.

3.13 COMPLETE
Ensure the work is complete with all flashings, undercloaks, valleys, ridges and hips properly installed so the finished roof is completely weathertight.

3.14 REMOVE FILINGS
Remove metal filings from roofing surfaces at least daily.

3.15 CLEAR
Clear trade rubbish and unused materials from the roof and surrounds regularly during the work and at completion. Sweep down the completed roof and flush out spoutings, gutters and rainwater pipes, ensuring that metal filings, metal scraps and loose fixings are removed.

3.16 REPLACE
Replace damaged or marked elements. Remove unused materials from the site.

4. SELECTIONS

Materials

4.1 ROOFING UNDERLAYS
Underlay: Fastwrap FlameSpec SS

4.2 METAL ROOFING TILES
Brand/type: Refer to Product Schedule page in plans,

4.3 METAL COVERS, FLASHINGS AND TRIMS

Location	Profile		Colour
Refer Drawings	Angle Trims to suit profile		Colour match to roof tile

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4521GH NALCO RESIDENTIAL ALUMINIUM WINDOWS AND DOORS

1. GENERAL

This section relates to the fabrication, supply and installation of **National Aluminium Ltd** (**NALCO**) residential aluminium windows and doors, manufactured by **Bradnam's Windows & Doors NZ** to Golden Homes
It includes:
- WeatherTight™ residential/light commercial aluminium windows and doors
- Hardware and furniture
- Flashings and sealants

1.1 ABBREVIATIONS AND TERMS

SLS	Serviceability limit state
ULS	Ultimate limit state
WANZ	Windows Association of Zealand
PQAS	Powder Coating Quality Assurance System

Documents

1.2 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture
NZBC E2/VM1	External moisture
NZBC F4/AS1	Safety from falling
NZBC H1/VM1	Energy efficiency
NZBC H1/AS1	Energy efficiency
AS/NZS 1580.108.1	Methods of test for paints and related materials - Determination of dry film thickness on metallic substrates - Non destructive methods
AS/NZS 1170.2	Structural design actions - Wind loads
AS/NZS 1734	Aluminium and aluminium alloys - Flat sheet, coiled sheet and plate
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
AAMA 2604.05	Performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels
NZS 3604	Timber-framed buildings
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications
BS 3900	Methods of tests for paints, Part C5: Determination of film thickness
NZS 4211	Specification for performance of windows
NZS 4223.3	Glazing in buildings - Human impact safety requirements
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
WANZ Installation Guide	The WANZ Guide to Window Installation as described in E2/AS1 Amendment 6
WANZ PQAS	Powder Coating Quality Assurance System
WANZ SFA 3503-03	Anodic Oxide coatings on wrought aluminium for external architectural application (2005)
BRANZ BU 337	Protecting Window Glass from Surface Damage

US Federal Specification

TT-S-001543A	Sealing compound, silicone rubber base (for caulking, sealing and glazing in buildings and other structures)
TT-S-00230C	Sealing compound, elastomeric type, single component (for caulking, sealing and glazing in buildings and other structures)

1.3 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents relating to this part of the work.

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National Aluminium Ltd product literature
Nulook Windows & Doors Specifier's Guide
Bradnam's Windows & Doors NZ Specifier's Guide

Manufacturer/supplier contact details:
Company: **NALCO**
Web: www.nalco.co.nz
www.bradnams.co.nz
Email: janet.grosse@nalco.co.nz
Telephone: 09 272 1702

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/fabricator warranty:
5 years: For fabrication

1.5 WARRANTY - INSTALLER/APPLICATOR
Provide an installer warranty:
2 years: For installation

- Provide this warranty in the installer standard form.

Requirements

1.6 NO SUBSTITUTIONS
Substitutions are not permitted to any specified **NALCO** aluminium system, or associated components and products.

1.7 QUALIFICATIONS
Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

1.8 COMPLIANCE
Windows and doors to be manufactured and installed to NZBC E2/AS1 and Golden Homes Installation Procedure.

1.9 SHOP DRAWINGS
Shop drawings to show the general arrangement of the aluminium joinery including, but not be limited to:
Construction details (minimum scale 1:5) showing the interface between joinery elements and the building structure including: -
- Jointing details and method of fixing between individual elements and between this installation and adjacent work
- Interaction between claddings and linings
- Flashing details
- Sealants and air seals
- Non standard fixing details including bracketing

And where required the following: -
- Design calculations
- Producer Statement in the form PS1 Producer Statement Design
- Rebate sizes
- Dimensions of all typical elements and of any special sizes and shapes
- Provision for the exclusion and/or drainage of moisture
- Provision for adjustment of fixings to ensure true alignment of windows and doors
- Sealant types and full size sections of all sealants and backing rods
- Provision for thermal movement
- Provision for seismic movement and movement under wind loads
- Sequence of installation
- Glazing specification and details

Where requested provide the following additional information

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- Information of Professional Indemnity Insurance held by the person providing the calculations and shop drawings

Complete shop drawing review before commencing fabrication.

1.10 CERTIFICATION
Provide evidence of a certificate by a laboratory accredited by International Accreditation of New Zealand that the windows and doors offered comply with the requirements of NZS 4211.

Performance

1.11 PERFORMANCE - WINDOWS AND DOORS
To NZS 4211, including:
- deflection, opening sashes, air infiltration, water penetration, ultimate strength, torsional strength of sashes, marking.

Refer to SELECTIONS.

1.12 STRUCTURAL/WEATHER-TIGHTNESS
The structural and weather-tight performance of the completed joinery, the glazing and infill panels is the responsibility of the window fabricator.

Performance - Wind (design by contractor)

1.13 DESIGN PARAMETERS - NON SPECIFIC DESIGN
Design the installation to the wind zone parameters of NZS 3604, table 5.4.
Refer to SELECTIONS for wind zone.

Finishes

1.14 CERTIFY COATINGS - POWDER COATING
Certify on request, compliance with this specification and support with control and sampling records. Test for film thickness to BS 3900, part C5, method No. 4, using method (b) or to AS/NZ 1580.108.1 for certifying thickness and method (a) where any dispute arises as to the thickness provided.
The coating should be applied by an applicator who can certify that the coating has been applied in accordance with the specification.

2. PRODUCTS

2.1 WINDOWS
Refer to SELECTIONS for type and finish.

2.2 DOORS
Refer to SELECTIONS for type and finish.

Materials

2.4 ALUMINIUM EXTRUSIONS
Alloy designation to comply with AS/NZS 1866. Branded and extruded for anodising or powder coating.

2.5 ALUMINIUM SHEET AND STRIP
Complying with AS/NZS 1734 of suitable thickness. Rolled for anodising or powder coating.
Alloy designation: 5251 - H16 or 5005 - H16

2.6 STAINLESS STEEL SHEET AND STRIP
Type: 316 austenitic steel
Finish grade: 2B (satin lustre)

2.7 GLASS
Refer to the glazing section for glass types and installation.

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Reveals

2.8 REVEALS - TIMBER PAINTED
Timber reveals for paint finish with all sides primed grooved for wall linings or flush finished for architraves.

2.9 REVEALS - ALUMINIUM
Aluminium reveals fitted to frame via thermal break where non thermally broken aluminium frames are specified. Where thermally broken frames are specified the addition of a thermal break is not required.

Flashings

2.10 FLASHINGS GENERALLY
To NZBC E2/AS1, 9.1.10 **Windows and Doors**. Material, grade and colour of head flashings to match the window frames. Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

Components for installation - cavity systems

2.12 STANDARD CAVITY CLOSER
A device constructed from either aluminium or PVC to close the cavity above the window or door unit, between the cladding and head flashing, to provide ventilation in accordance with NZBC E2/AS1 to the spaces above the window or door.

2.13 SILL SUPPORT BAR
Extruded aluminium support bar with built in drainage and ventilation to NZBC E2/VM1, NZBC B2/AS1 and BRANZ Evaluation Method EM6, to provide continuous support to the window unit. Size to suit cladding type.

Components

2.14 GLAZING GASKETS
Thermoplastic rubber. Do not stretch glazing gaskets during installation. Measure and cut gaskets 5-10% over length before installation.

2.15 HARDWARE AND FURNITURE
Hinges, stays, catches, fasteners, latches, locks and furniture as offered by the window and door manufacturer. Refer to SELECTIONS for type and finish. Key alike all lockable window hardware able to be keyed alike.

2.16 SAFETY STAYS
Stainless steel non releasable restrictors to limit window opening to NZBC F4/AS1, Table 2, Acceptable opening sizes for barriers.

2.17 FIXING BRACKETS
Designed by manufacturer to specific design.

2.18 WEATHERING/INSTALLATION SEALANT
Building sealant used in accordance with manufacturer's instructions for weather sealing aluminium frames to the cladding, complying with US Federal Specification TT S 0011534A, or a one-part polyurethane moisture curing, elastic joint sealant of medium modulus (± 25% movement) to US Federal Specification TT S 00230C.

Finishes

2.19 INTERPON D1000 POWDER COATING
Single coat polyester based powder coating to AS 3715, AIMF Qualicoat Class 1.5, AAMA 2603 and WANZ Specification for powder coatings on architectural aluminium products. Refer to SELECTIONS for finish and colour.

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2.20 INTERPON D1010 PREMIUM POWDER COATING
High durability polyester powder coatings for architectural aluminium extrusions, components and products to exceed AS3715, AAMA 2603 and WANZ on architectural aluminium products. Refer to SELECTIONS for finish and colour.

2.21 INTERPON D2015 ULTRIVA™ POWDER COATING
Advanced durability polyester powder coatings for architectural aluminium providing levels of weathering resistance exceeding AAMA 2604 for powder coatings on architectural aluminium extrusions, components and products. Refer to SELECTIONS for finish and colour.

3. EXECUTION

Conditions - generally

3.1 DO NOT DELIVER
Do not deliver to site any elements which cannot be unloaded immediately into suitable conditions of storage.

3.2 UNLOAD WINDOW JOINERY
Unload, handle and store elements in accordance with the window manufacturer's requirements.

3.3 AVOID DISTORTION
Avoid distortion of elements during transit, storage and handling.

3.4 PREVENT DAMAGE
Store windows and doors on site in a clean and dry environment in such a manner as to prevent damage to prefinished surfaces. Stack the units in a vertical position resting on their sills, with layers interleaved between to prevent rubbing. Keep paper and cardboard wrappings dry.

3.5 PROPRIETARY ELEMENTS
Fix in accordance with the window manufacturer's requirements and Golden Homes Installation Procedure.

3.6 PROTECTIVE COVERINGS
Retain protective coverings and coatings to BRANZ BU 337 and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades. Remove protection on completion.

3.7 ADDITIONAL PROTECTION
Supply and fix additional protection as necessary to prevent marking of surfaces which will be visible on completed work.

Conditions - fixings and fastenings

3.8 SUPPLY OF FIXINGS
Use only fixings and fastenings recommended by the manufacturer of the component being fixed and to comply with the ULS wind pressure stated in SELECTIONS. Ensure fixings and fastenings exposed to the weather are of aluminium, or Type 316 stainless steel or if not exposed to the weather may they be hot-dip galvanized steel with a coating weight of 610 g/m² complying with AS/NZS 4680.

3.9 INSTALLATION FIXING
Fix to Golden Homes Joinery and Interior Door Installation Procedure Sections 1.3 & 2.1, Installation Procedure and Installation of Full Height Joinery. Fix Windows through window liner, and for sills additionally through support bar, into the framing at 50mm from the corners and maximum 250mm centres thereafter using 8g x 25mm Tek Screws. For Full height joinery fixed to sill shall be 8g screws with Ram plugs into concrete 50mm from corners and maximum 250mm centres thereafte. For Doors, additional fixings to the head are required either side of mullions.

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Install packers to head and jambs as per Golden Homes Installation Procedure

Assembly

3.10 FABRICATION
Fabricate frames as detailed on shop drawings. Install glazing, hinges, stays and running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.

3.11 HARDWARE GENERALLY
Factory fit all required and scheduled hardware. Account for all keys and deliver separately to the site manager.

3.12 SAFETY STAYS
Factory fit safety stays to all windows scheduled for safety stays and to all windows where safety stays are required to comply with NZBC F4/AS1 4.0, Opening windows.

Installation - windows and doors

3.13 SUPPLY OF FIXINGS
Use only fixings and fastenings recommended by the manufacturer of the component being fixed and to comply with the ULS wind pressure stated in SELECTIONS.

3.14 EXPOSED FIXINGS AND FASTENINGS
Ensure fixings and fastenings exposed to the weather are of aluminium, or Type 304 stainless steel.

3.15 PROTECTED FIXINGS AND FASTENINGS
Fixings and fastenings not exposed to the weather may be hot-dip galvanized steel with a coating weight of 610 g/m² complying with AS/NZS 4680.

3.16 CORROSION PROTECTION
Before fixing, apply suitable barriers of bituminous coatings, stops or underlay between dissimilar metals in contact, or between aluminium in contact with concrete.

3.17 CONFIRM PREPARATION OF EXTERIOR WALL OPENINGS
Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames. Do not proceed with the window and door installation until required preparatory work has been completed.

Required preparatory work includes the following:
- wall cladding Rigid Air Barrier openings finished and dressed off ready for the installation of window and door frames to be in accordance with the drawings.
- claddings neatly finished off to all sides of openings
- installation of flashings (those which are required to be installed prior to frames).
- application of waterproof sealer to all door and window sills in concrete floor or concrete sill situations. To door sills only, apply a suitable membrane over the sealer
- all in accordance with the shop drawings, where applicable.

3.18 INSTALLATION
Fix to comply with the reviewed shop drawings and installation details including flashings and bedding compounds, pointing sealants and weathering sealants.

3.19 INSTALLATION CAVITY CONSTRUCTION
Install as per Golden Homes Joinery and Interior Door Installation Procedure details and drawings including cavity closers, sill support bars and support angles.

3.20 INSTALL FLASHINGS
Install flashings to heads, jambs and sills of frames as supplied and required by the window manufacturer and as detailed on the drawings. Finish head flashings to match window finish.

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Place all flashings so that the head flashing weathers the jamb flashings, which in turn weathers over the upstand of the sill flashing. Ensure that sill flashings drain to the outside air.

Except where window/door frames are recessed, ensure that head flashings over-sail unit by 20mm minimum plus any jamb scriber width at each end.

3.21 COMPLETE AIR SEAL
Form an air-tight seal by means of proprietary sealants used with continuous packer or support bar, applied between the window / door liner and structural framing, to provide a continuous air tight seal to the perimeter of the window or door in accordance with the drawings.

3.22 FIX HARDWARE
Fix all sash and door hardware and furniture as scheduled.

Application - jointing and sealing

3.25 SEAL FRAMES ON SITE
Seal frames to each other and to adjoining structure and finishes, all as required by the window and sealant manufacturer and to make the installation weathertight.

In Very High and Extra High wind zones, seal between underside of head flashing and top edge of window head flange in accordance with NZBC E2/AS1 9.1.10.4 **Head flashings** Fig 71 (c). Do not seal the junction between the sill member and the cladding or sill flashing which must remain open.

3.26 PREPARE JOINTS
Ensure joints are dry. Remove loose material, dust and grease. Prepare joints in accordance with the sealant manufacturer's requirements, using required solvents and primers where necessary. Mask adjoining surfaces which would be difficult to clean if smeared with sealant.

3.27 BACK UP
When using back-up materials do not reduce depth of joint for sealant to less than the minimum required by the manufacturer of the sealant. Insert polyethylene rod or tape back-up behind joints being pointed with sealant.

3.28 SEALANT FINISH
Tool sealant to form a smooth fillet with a profile and dimensions required by the sealant manufacturer. Remove excess sealant from adjoining surfaces, using the cleaning materials nominated by the sealant manufacturer and leave clean.

Cleaning

3.29 REMOVE TRADE DEBRIS
Remove trade debris by appropriate means on a floor by floor basis as each floor is completed and again before any work is covered up by others. Arrange for general removal.

3.30 TRADE CLEAN
Trade clean window frames, operable windows and doors, glass and other related surfaces inside and out at the time of installation to remove marks, dust and dirt, to enable a visual inspection of all surfaces.

Completion

3.31 PROTECTIVE COVERINGS
Retain protective coverings and coatings and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades. Remove protection on completion.

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3.32 REPLACE
Replace damaged, cracked or marked elements.

3.33 PROTECTION
Protect finishes against damage from adjacent and following work.

3.34 IN-SITU TOUCH-UP TO POWDER COATED ALUMINIUM
In situ touch-up of polyester or fluoropolymer coated aluminium is only permitted to minor surface scratching. Otherwise replace all damaged material.

3.35 SAFETY
Indicate the presence of transparent glasses for the remainder of the contract period, with whiting, tape or signs compatible with the glass type. Indicators other than whiting must not be applied to the glass surface. Masking tape must not be used for this purpose.

3.36 MANIFESTATIONS
To NZS 4223.3, 2.2 Manifestation (making glass visible).

4. SELECTIONS

For further details on selections go to www.nalco.co.nz
Substitutions are not permitted to the following, unless stated otherwise.

4.1 NOMINATED FABRICATOR
The nominated fabricators for this section of work are;
Brand: Bradnams Windows and Doors NZ

4.2 SUPPLY AND INSTALLATION
Supply and installation of the specified **NALCO** aluminium joinery system by one of the following options.
Supply only: By fabricator
Supply and installation: By fabricator
Installation only: By main contractor

Performance

4.3 THERMAL PERFORMANCE
R-value: Refer Drawings Insulation Calculation page (as determined from NZBC H1/VM1 or H1/AS1)

4.4 AIR INFILTRATION
For NZS 4211, table 3 **Air infiltration**.
Non-air conditioned zones: Refer Drawinmgs
Air conditioned zones: Refer Drawings

Performance - Wind (design by contractor)

4.5 DESIGN PARAMETERS – NON SPECIFIC DESIGN
Building wind zone Refer Drawings (to NZS 3604, table 5.4)

Finishes

4.6 POWDER COAT FINISH
Manufacturer: Interpon Powder Coatings
Brand/type: One of - D1000, D1010 Premium, D2015 Ultriva
Thickness: As per Golden Homes Standard Selections
Finish: As per Golden Homes Standard Selections
Colour: as selected by client

Glazing

4.7 GLASS
Type/thickness: Refer to supplied schedule by Bradnams.

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Hardware

4.8 WINDOW HARDWARE
Window fastener: Refer to supplied schedule by Bradnams.

4.9 DOOR HARDWARE
Locks & handles: Refer to supplied schedule by Bradnams.

4.10 HARDWARE FINISH
Finish: Powder coat
Colour: Refer to supplied schedule by Bradnams.

Flashings and Sealant

4.11 FLASHINGS
Material/type: Powder Coat Aluminium
Pattern: Formed to suit details provided

4.12 WEATHERING SEALANT
Type: 1-part polyurethane moisture curing, elastic joint sealant
Colour: To Suit

Reveals

Window and door system - WeatherTight™

4.13 WINDOWS & DOORS
Suite: **WeatherTight™**
Glazing system: Refer Window Schedule Provided by Bradnams

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4610 GLAZING RESIDENTIAL

1. GENERAL

This section relates to the supply and fixing of glass products for external and internal joinery in residential type buildings and includes:
- windows and doors
- mirrors and mirror frames

1.1 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

PVB	Polyvinyl Butyral
CIP	Cast in place

Documents

1.2 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC F4/AS1	Safety from falling
NZBC F9/AS1	Means of restricting access to residential pools
NZBC H1/AS1	Energy Efficiency
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 3604	Timber-framed buildings
NZS 4211	Specification for performance of windows
NZS 4218	Thermal insulation - Housing and Small Buildings
NZS 4223.1	Glazing in buildings - Glass selection and glazing
NZS 4223.Supp1	Glazing in buildings - Supplement 1 to NZS 4223.1:2008 and NZS 4223.4:2008
NZS 4223.2	Glazing in buildings - Insulating glass units
NZS 4223.3	Glazing in buildings - Human impact safety requirements
NZS 4223.4	Glazing in buildings - Wind, dead, snow and live action
AS/NZS 2208	Safety glazing materials in buildings
AS/NZS 4666	Insulating glass units
BRANZ BU 337	Protecting window glass from damage

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER
Warrant glass under normal environmental and use conditions against failure of materials.

10 years:	for insulating glass units
10 years:	for laminated glass
10 years:	for toughened glass

Performance

1.4 ENERGY EFFICIENCY
Provide glazing to meet the energy requirements of NZS 4218 and NZBC H1/AS1 for housing small buildings.
Refer to SELECTIONS and schedules for location and type of glazing.

2. PRODUCTS

Materials

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2.1 CLEAR FLOAT GLASS
Clear ordinary annealed transparent float glass for general window glazing. Thickness to NZS 4223.1 and NZS 4223. Supp 1.

2.2 TEXTURED, PATTERNED OR OBSCURE GLASS
Translucent, annealed, rolled glass with a decorative pattern on one surface.

2.3 LAMINATED GLASS
Grade A Safety Glass to AS/NZS 2208 with PVB or CIP resin interlayer.

2.4 TOUGHENED GLASS
Grade A Safety Glass to AS/NZS 2208.

2.5 TINTED FLOAT GLASS
Body tinted float glass.

2.6 REFLECTIVE AND COATED FLOAT GLASS
Either coated float glass incorporating both solar and thermal insulation properties; or coated float glass with only the thermal insulation properties.

2.7 INSULATING GLASS UNITS (IGU'S)
To AS/NZS 4666, NZS 4223.2 and the IGU Manufacturers Association (IGUMA) requirements.
Marking to NZS 4223.2 as modified by NZBC B2/AS1, 3.5.

Materials, mirrors

2.8 MIRROR GLASS
Clear annealed mirror float glass, including silver, activation, passivation and two protective coats.

2.9 SAFETY MIRROR GLASS
4mm, 5mm and 6mm annealed float glass mirror vinyl back safety glazing material to AS/NZS 2208.

Materials, screens

2.10 GLASS SCREENS SHOWER
Proprietary shower screens, formed to shape before toughening, complete with matching hardware.

Components, aluminium and uPVC glazing

2.11 GLAZING TAPE AND GASKETS
Single/double sided pressure sensitive self-adhesive low/medium/high density foam tapes/butyl tapes selected to suit the glazing detail to window manufacturers' requirements.

2.12 SETTING BLOCKS
Santoprene/Neoprene, 80-90 Shore A hardness, set at quarter points or to detail, to support the weight of glass panes.

Components, wall mounted glass (mirrors and splashbacks)

2.13 GLASS ADHESIVE
Adhesive mirror-mastic and double-sided adhesive tape.

2.14 GLASS MOUNTING CHANNELS
Refer to SELECTIONS/drawings for type and finish.

3. EXECUTION

Conditions

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3.1 GENERAL REQUIREMENTS
To NZS 4223.1, NZS 4223.3, NZS 4223.4. All external glazing to be wind and watertight on completion.

3.2 DELIVERY
Keep glass dry and clean during delivery and bring on to site when ready to glaze directly into place. Comply also with the storage requirements set out in BRANZ BU 337.

3.3 GLASS CONDITION
All glass to have undamaged edges and surfaces.

3.4 GLASS THICKNESS
If not specifically stated in the glazing schedule determine the minimum thickness of glass for each sheet as required by NZS 4223.1, NZS 4223.3, NZS 4223.4 and NZS 4223. Supp 1. For windows tested to NZS 4211, ensure glass meets the requirements of the window testing.
Determine the final glass thickness based on whether wind loading or human impact considerations govern.

3.5 REBATE DIMENSIONS
Provide rebates for glazing to the widths and depths necessary for each situation including minimum glass edge cover to NZS 4223.1, Section 4 Glazing.

3.6 JOINTING, PUTTY AND SEALING MATERIAL COMPATIBILITY
Ensure jointing, putty and sealing materials are compatible with glass substrates. Confirm compatibility with laminated glass, IGUs and coatings.

Conditions - human impact safety requirements

3.7 SAFETY GLAZING, GENERAL REQUIREMENTS
Glazing of doors, side panels, low level and window seat glazing, bathrooms, stairwell landings and similar locations, to NZS 4223.3 for thickness and maximum areas of safety glass.

3.8 SAFETY GLAZING MATERIAL
Use only safety glazing materials defined in NZS 4223.3, that also comply with the relevant requirements of AS/NZS 2208. Ensure material is permanently marked and if cut by the distributor or installer mark each piece to NZS 4223.3, 2.8 Identification.

3.9 CONTAINMENT
Edge cover to comply with NZS 4223.1, Section 4 Glazing, table 5. Otherwise to NZS 4223.3, 2.3 Edge cover.

Assembly

3.10 WORKING OF GLASS
All working of glass as required in NZS 4223.1.

3.11 INSTALL SAFETY GLASS
To NZS 4223.3.

Application aluminium

3.12 INSTALL GLASS TO ALUMINIUM FRAMES
Install glass to NZS4223.1.
- Bead glaze to Section 4 Glazing.
- Channel glaze to Section 4 Glazing, and Section 5 for Framed, Unframed, Partly Framed Glass Assemblies.

Application - wall mounted glass (mirrors and splashbacks)

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3.13 WALL MOUNTED GLASS, CHANNEL MOUNTED
For mirrors and splashbacks,fix with proprietary mounting channels, to the channel manufacturer's requirements.

3.14 WALL MOUNTED GLASS, ADHESIVE FIXED
For mirrors and splashbacks, fix with adhesive mirror-mastic and double-sided adhesive tape. Adhesive area 0.2 m2 per 1 m2 of glass to NZS 4223.3.

Application miscellaneous

3.15 INSTALL GLASS SHOWER & BATH SCREENS
Install shower and bath screens and doors to manufacturer's requirements.

Finishing

3.16 SAFETY
Indicate the presence of transparent glass for the remainder of the construction period, with whiting, tape or signs compatible with the glass type.

Completion

3.17 TRADE CLEAN
Clean off or remove safety indicators at completion of the building.

3.18 REPLACE
Replace damaged, cracked or marked glass.

3.19 LEAVE
Leave work to the standard required by following procedures.

3.20 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

Performance - wind

4.1 WIND ZONE - NON-SPECIFIC DESIGN
Building wind zone: Refer plans (as determined from NZS 3604, NZS 4223.4)

Glass by type

4.2 GLASS - WINDOW AND DOOR JOINERY
Location: Refer plans
Brand/type: Bradnams. - refer to manufacturers schedule.

Mirrors

4.3 MIRRORS
Location: Bathrooms in general
Dimensions: to suit location
Thickness: 4-6 mm
Fixing method: Adhesive

Splashbacks

4.4 SPLASHBACKS
Location: Kitchen (if included in Golden Homes Selections)
Dimensions: to suit location
Thickness: 4-6 mm
Fixing method: Adhesive

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4.5 GLASS SHOWER SCREENS AND DOORS

Location: Refer Drawings

Brand/type: As per Golden Homes Standard selections

Glass: Safety glass complying to AS/NZS 2208

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4710 INSULATION

1. GENERAL

This section relates to materials installed, laid, hung or fitted as thermal and/or acoustic insulation.

1.1 RELATED WORK
Refer to 4161 UNDERLAYS, FOIL AND DPC for wall underlays and roofing underlays and foils.
Refer to roofing sections for roofing underlays.

1.2 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

BIB	Building Insulation Blanket
EPS	Expanded polystyrene sheets

Documents

1.3 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC H1/AS1	Energy efficiency
AS/NZS 3000	Electrical installations
NZS 4218	Thermal insulation - Housing and small buildings
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings
AS/NZS 4534	Zinc and zinc/aluminium-alloy coatings on steel wire
AS/NZS 60598.2.2:2001	Luminaires- Particular Requirements - Recessed luminaires
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance

Health and Safety at Work Act 2015

Requirements

1.4 QUALIFICATIONS
Work to be carried out by trades people experienced, competent and familiar with the specified insulation materials and techniques specified.

2. PRODUCTS

Materials

2.1 GLASS FIBRE THERMAL INSULATING PADS
Glass fibres bonded with a thermosetting resin to form a rectangular insulating pad.
NOTE: When insulation abutting or covering recessed downlights is intended to be in contact with IC, CA 80, CA 135 luminaries the insulation must withstand a 30s Needle Flame test to AS/NZS 60695.11.5.

Components

2.2 NAILS
Galvanized steel clouts, 25mm gauge.

2.3 STAPLES
Stainless steel gauge and length to suit application and to manufacturer's requirements.

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2.4 STRAPPING TAPES
Proprietary plastic strapping tape, stapled over framing to retain insulation in unlined wall, ceiling and underfloor locations.

2.5 ADHESIVE TAPE
Adhesive tapes to compliment the underlay. Pressure sensitive aluminium foil tapes for joining foil insulation and vapour barriers.

3. EXECUTION

3.1 DELIVERY
Keep insulation dry in transit. Take delivery of insulation dry and undamaged and store in a location that protects them from the weather and damage. Reject all damaged materials.

3.2 STORAGE
Accept materials undamaged and dry and store in a location that protects them from the weather and damage. Avoid distortion, stretching, puncturing and damage to edges of sheet materials. Do not use damaged sheets.

3.3 HANDLING
Wear protective clothing as necessary and when handling, avoid delamination or distortion of the rectangular form. Maintain full thickness unless compression is an installation system requirement.

3.4 HAZARD & RISK MANAGEMENT
To Health and Safety at Work Act 2015 and take all safety precautions necessary to reduce potential hazards and risks.

3.5 INSPECTION
Before starting installation of blankets and pads, check that the location and framing are free from moisture, that the cavities are not interconnected and that mesh, wall underlay and vapour barriers are in place.

Application - general

3.6 INSTALL INSULATION - GENERAL
Lay, install, fit and fix to NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope, and to manufacturer's requirements. Install in housing to NZS 4218 and NZS 4246. Install in large buildings to NZS 4243.1 and NZS 4220. Allow insulation to re-loft/relax prior to installation. Do not cover vents. Allow a clear gap around metal flues as recommended by the fireplace manufacturer. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

3.7 RECESSED LIGHT FITTINGS - CLEARANCE
Residential applications;
- Ensure new recessed downlights are one of the new classes classified in AS/NZS 60598.2.2; CA 80, CA 135, IC and IC - F
- Classification type CA 80, CA 135, to AS/NZS 60598.2.2; insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to AS/NZS 60598.2.2; insulation can abut and cover over the top of the downlight
- Provide larger clearances where required by the light manufacturer.
- In a retrofit situation where recessed downlights are unclassified or unknown, ensure 100mm clearance from the insulation to AS/NZS 3000, figure 4.9.

3.8 CLEARANCE TO ROOFING UNDERLAY
Ensure a minimum 25mm clearance is maintained between the insulation and any non-rigid roofing underlay.

3.9 FIT GLASS FIBRE THERMAL INSULATING PADS
Friction fit insulating pads in place to completely fill the whole of the cavities. Carefully scribe cut insulating pads slightly oversize to maintain friction fit to each other, to smaller

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spaces and around penetrations. Leave no gaps between, and maintain full thickness of the insulating pads over the whole of the installation. Do not cover vents and cut around metal flues to the safety requirements of the fireplace manufacturer.

Completion

3.10 CLEAN UP
Clean up as the work proceeds, so no spare offcuts or any other matter or item remain behind claddings or linings.

3.11 CHECK WALL WRAPS AND ROOF UNDERLAYS
Ensure these are dry, clean, undamaged and free of debris before being covered.

3.12 LEAVE
Leave work to the standard required by following procedures.

3.13 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS
Substitutions are not permitted to the following, unless stated otherwise.

4.1 GLASS FIBRE INSULATION
Location: Refer Drawings
Brand: Pink Batts
R Value: Refer Drawings

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5113G GIB® PLASTERBOARD LININGS

1. GENERAL

This section relates to the supply, fixing and jointing of GIB® plasterboard linings and accessories to timber and steel framed walls and ceilings to form:
- standard systems
- bracing systems
- fire rated wall systems (if required, refer to drawings)

1.1 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

AWCINZ	Association of Wall and Ceiling Industries New Zealand

Documents

1.2 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC C/AS2-AS6	Protection from fire
NZBC E2/AS1	External moisture
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 3604	Timber-framed buildings
AS/NZS 4600	Cold-formed steel structures
ISO 5660.1	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method)
ISO 5660.2	Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 2: Smoke production rate (dynamic measurement)
BRANZ Technical Paper P21	BRANZ Technical Paper P21: A wall bracing test and evaluation procedure (2010)
NASH	Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria

1.3 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents relating to this part of the work:
- GIB® Site Guide (Dec 2014)
- GIB® Ezybrace® Systems (2016)
- GIBFix® Framing System (2016)
- GIB-Cove®
- GIB® Goldline™ Platinum Tape-on Trims (Jan 2006)

BRANZ Appraisal 294 (2011) - GIB Ezybrace® Systems
BRANZ Appraisal 928 (2016) - GIB Ezybrace® Systems 2016

GreenTag Certification WWLCG001-001-A-2015 - GreenTag™ GreenRate/Level C for:
- GIB® Standard (10mm & 13mm)

Copies of the above literature are available at

Company:	Winstone Wallboards
Web:	www.gib.co.nz
Telephone:	0800 100 442

Requirements

1.4 NO SUBSTITUTIONS
Substitutions are not permitted to any specified GIB® systems, GIB® system components, GIB® plasterboard, associated GIB® products or GIB® accessories.

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1.5 INSTALLER WORK SKILLS AND QUALIFICATIONS
GIB® plasterboard fixers and plasterers to be experienced competent workers, familiar with GIB® plasterboard lining systems installation and finishing techniques. Submit evidence of experience on request. For example:
- National Certificate of Interior Systems; or
- Certified Business member of AWCINZ.

Performance

1.6 INSPECTIONS AND ACCEPTANCE
Allow for inspection of the finished plasterboard surface:
- before applying sealer and
- before applying finish coatings or decorative papers,
so that after assessment of the type and/or angle of illumination and its effect on the completed decorative treatment, group approval and acceptance of the surface can be given.

2. PRODUCTS

Materials

2.1 GIB® PLASTERBOARD
Gypsum plaster core encased in a face and backing paper formed for standard and water resistance use to AS/NZS 2588. Refer to SELECTIONS for location, type, thickness and finish.
GIB® Standard plasterboard

2.2 GIB® COVING
GIB-Cove® plasterboard coving. Refer to SELECTIONS for profile and size.

Components

2.3 CEILING BATTENS
ZOG® Combo Batten (refer to Axxis Steel Frame Section)

2.4 SCREWS
GIB® Grabber® drywall screws.

2.5 TAPE ON TRIMS AND EDGES
GIB® Goldline® tape-on trims

2.6 CONTROL JOINTS
GIB® Goldline® tape-on trims

Accessories

2.7 ADHESIVE
Timber frame and/or steel frame:
GIBFix® All-Bond solvent based wallboard adhesive

2.8 JOINTING COMPOUND

Bedding compound:	GIB Tradeset®, GIB Lite Blue®, GIB MaxSet®, GIB ProMix® All Purpose, GIB Plus 4®
Finishing compound:	GIB ProMix® All Purpose, GIB® Trade Finish®, GIB® Trade Finish® Lite, GIB ProMix® Lite, GIB® U-Mix, GIB Plus 4®, GIB Trade Finish® Multi
Cove:	GIB-Cove® Bond

2.9 JOINTING TAPE
GIB® paper jointing tape.

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2.10 GAP FILLER
GIB® Gap Filler ultra low VOC multi-purpose acrylic flexible filler

3. EXECUTION

Conditions

3.1 STORAGE
Store GIB® plasterboard sheets and accessories in dry conditions stored indoors out of direct sunlight in neat flat stacks on either an impervious plastic sheet or clear of the floor with no sagging and avoiding damage to ends, edges and surfaces. Reject damaged material. Refer to GIB® Site Guide (Dec 2014).

3.2 LEVELS OF PLASTERBOARD FINISH
Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in AS/NZS 2589.

3.3 CONFIRM LEVELS OF PLASTERBOARD FINISH ACCEPTANCE
Before commencing work, agree in writing upon the surface finish assessment procedure towards ensuring that the quality of finish expectations are reasonable and are subsequently obtained and acceptable.

Do not apply decorative treatment until it is agreed by the contractor, subcontractors and decorator that the specified plasterboard Level of Finish has been achieved.

"Levels of plasterboard finish" is a tool for specifying the required quality of finish when installing and flush stopping GIB® plasterboard **prior** to the application of a range of decorative finishes under various lighting conditions. Refer to **AS/NZS** 2589.

3.4 SUBSTRATE
Do not commence work until the substrate is plumb, level and to the standard required by the sheet manufacturer's requirements. Refer to GIB® Site Guide (Dec 2014).

3.5 METAL FRAMING
Metal framing, to which gypsum lining is fixed, shall comply with AS 1397, AS/NZS 4600, or NASH Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria, as applicable. Where adhesion of gypsum linings is required, surfaces shall be free of oil, grease, dust and other foreign materials. Refer to the metal framing manufacturers specifications where high density gypsum linings (>800 kg/m³) such as GIB Braceline® and GIB Noiseline® are specified for fixing to light gauge steel framing.

3.6 PROTECTION
Protect surfaces; cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage. Refer to GIB® Site Guide (Dec 2014).

Application

3.7 INSTALL CEILING BATTENS
Install to ZOG® Ceiling Batten Systems.

3.8 LINING WALLS AND CEILINGS GENERALLY
Form to GIB® Site Guide (Dec 2014). Ensure bulk insulation thickness shall not exceed that of the wall framing.

3.9 BOARD ORIENTATION
Minimise joints by careful sheet layout using the largest sheet sizes possible, and generally fixing horizontally. Where part sheets are required for various stud heights they should be positioned so the cut sheet is as low as possible to keep joints below eye level.

3.10 FORM CONTROL JOINTS
Form control joints to GIB® Site Guide (Dec 2014) requirements.

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3.11 INSTALL COVES
Install to GIB-Cove® literature using GIB-Cove® Bond.

3.12 INSTALL TAPE-ON TRIMS
Install to GIB® Goldline™ Tape-on trims literature and/or GIB® Ultraflex high impact corner mould literature.

Finishing

3.13 FINISHING GENERALLY
To GIB® Site Guide (Dec 2014) and AS/NZS 2589.

Completion

3.14 REPLACE
Replace damaged sheets or elements.

3.15 CLEAN DOWN
Clean down completed surfaces to remove irregularities and finally sand down with fine paper to the sheet manufacturer's requirements, to leave completely smooth and clean.

3.16 REMOVE
Remove debris, unused materials and elements from the site.

3.17 LEAVE
Leave work to the standard required by following procedures.

4. SELECTIONS

Plasterboard

4.1 STANDARD SYSTEMS WALLS - REFER TO PRODUCT SCHEDULE PAGE FOR PLASTERBOARD TYPE

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Walls	GIB® Standard plasterboard	10mm	4
Braced Walls (refer plans)	GIB® Standard plasterboard	10mm	4

4.2 STANDARD SYSTEMS CEILINGS - REFER TO PRODUCT SCHEDULE PAGE FOR PLASTERBOARD TYPE

Location	Plasterboard type / Lining requirements	Thickness	Finish Level
Ceilings	GIB® Standard plasterboard	10mm	4

Accessories

4.4 CORNICE - REFER TO PRODUCT SCHEDULE PAGE FOR CORNICE TYPE (IF REQUIRED)
Size/brand/type: 50mm GIB-Cove® Alto or 55mm GIB-Cove® Classic

4.5 CEILING BATTENS
Brand/type: ZOG® Combo Ceiling Batten

4.6 TAPE ON EDGE OR CORNER TRIMS
Brand/type: GIB® Goldline® tape-on trims

4.7 EDGE PROFILES
Brand/type: GIB® Goldline® tape-on trimsGIB® Slimline Capping (Rondo Casing Bead) to garage door architrave

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6211 WALL TILING

1. GENERAL

This section relates to the supply and installation of ceramic wall tiles.
It includes:
- cement render walls
- concrete masonry walls
- timber substrate walls

1.1 RELATED WORK
Refer to 6221 FLOOR TILING for floor tiling.

Documents

1.2 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

AS 3740	Waterproofing of wet areas within residential buildings
AS 3958.1	Ceramic tiles - Guide to the installation of ceramic tiles
AS ISO 13007.1	Ceramic tiles - Grouts and adhesives: Terms, definitions and specifications for adhesives
AS ISO 13007.3	Ceramic tiles - Grouts and adhesives: Terms, definitions and specifications for grouts
BRANZ	Good practice guide - Tiling

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:

2 years:	For materials

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

1.4 WARRANTY - INSTALLER/APPLICATOR
Provide an installer/applicator warranty:

2 years:	For execution

- Provide this warranty on the installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Requirements

1.5 QUALIFICATIONS
Tilers to be experienced, competent trades people familiar with the materials and techniques specified.

1.6 NO SUBSTITUTIONS
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.7 ADHESIVES COMPATIBILITY
Adhesives selected for use on proprietary substrates or waterproof membranes to have documented compatibility approval from the respective manufacturers.

2. PRODUCTS

Materials

2.1 WALL TILES
Refer to SELECTIONS for product selection.

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Accessories

2.2 LIQUID WATERPROOFING MEMBRANE
To AS 3740.

2.3 SAND AND CEMENT GROUT
1 part Portland cement to 2-3 parts fine sand mixed to a paste consistency with a minimum of clean water.

2.4 GROUT
Cement based, compressible and to suit particular location/use. To AS ISO 13007.3.

2.5 TILE ADHESIVE
To AS ISO 13007.1.

2.6 MOVEMENT JOINT SEALANT
To BRANZ Good practice guide: Tiling, section 5.0.
- Neutral cured sealant for areas where waterproof membranes are used or where used against aluminium.
- Acid cured sealant except for areas where waterproof membranes are used or where used against aluminium.

Note: Check compatibility of membrane and sealant, use bond breaking tape to separate them if required.

3. EXECUTION

3.1 DELIVERY, STORAGE AND HANDLING
Take delivery of materials and goods and store on site and protect from damage.
Protect finished surfaces, edges and corners from damage.
Move/handle goods in accordance with manufacturer's requirements.
Reject and replace goods that are damaged or will not provide the required finish.

3.2 CHECK TILES
Check tiles to ensure that they are as specified, from the same batch, of a consistent colour and pattern and sufficient to complete the work. Reject tiles that vary widely in colour or pattern. Reject tiles that are damaged.

3.3 CONFIRM LAYOUT
Before commencing work confirm the proposed layout of tiles and expansion joints and other visual considerations of the finished work.

3.4 SETTING OUT
Before commencing the setting out confirm the number and location of cut tiles. Minimise in number with no cut tiles less than half size and only at the perimeter of the work.

Conditions

3.5 SERVICES AND ACCESSORIES
Ensure that all services and accessories are in place and located to suit the tile layout, and that the substrate, background and adjoining surfaces (with the preparation called for in this section) are of the quality necessary to allow tiling of the required standard.

3.6 SUBSTRATE TEMPERATURE
Do not carry out tiling where the substrate temperature is below 5°C or above 40°C.

3.7 LIGHTING
Light the tile work as closely and clearly as possible to that of the finished lighting, to ensure that differences in plane surface are highlighted during installation.

Application - preparing new surfaces

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3.8 NEW SHEET LININGS
Remove contaminants that may affect bonding or adhesion. Surface to finish clean and dry with a texture to give a complete key to the tile manufacturer's requirements and with a maximum variation in the background plane of 4mm in 2 metres.

Application - waterproof membranes

3.9 INSTALL WATERPROOFING MEMBRANE
Install waterproofing membrane between the tile adhesive and the substrate. Reinforce all junctions of the waterproofing membrane to BRANZ Good practice guide - Tiling; 7.0 Waterproofing interior wet areas. Unless otherwise specified or shown on the drawings, install waterproof membranes as follows: -

Bath
- To 150mm minimum around the sides and along walls horizontally 150mm minimum.

Splashback to a vanity
- To 300mm minimum up wall behind the vanity.
- To the floor level at least twice the width of the vanity and 500mm min beyond it at each end.

3.10 LIQUID WATERPROOFING MEMBRANE
Apply the selected liquid waterproof membrane system to the membrane manufacturer's requirements and in accordance with AS 3740 and to BRANZ Good practice guide - Tiling, 7.0 Waterproofing interior wet areas.

Application - tile installation

3.11 TILE FIXING GENERALLY
To AS 3958.1. Apply adhesive, prepare and fix tiles by the method required by the adhesive manufacturer and tap them firmly into place.

3.12 FITTING TILES
Ensure cut edges are smooth and installed without jagged or flaked edges. Do not install single tiles in more than one piece. Maintain the heights of wall tile work in full courses to the nearest dimension. Within allowed tolerances, ensure corners of tiles are flush and level with corners of adjacent tiles. Keep joint lines, including mitres, straight and of an even width. Fully bed trim units, moulded or shaped pieces and other accessories with an appropriate bedding material. Fix accessories level, plumb and true to the designated projection at detailed locations and heights.

3.13 MOVEMENT JOINTS
Provide movement joints with a minimum width of 4mm, carried through tile and bedding and where substantial movement is anticipated, through the rigid sheet to the structure. Install joints over expansion joints, at junctions between different backgrounds, abutting other materials, at storey heights horizontally and 3 to 4 metres vertically, at internal corners and at junctions with floors and columns. Ensure joints are clean, formed, filled and with sealant inserted to the sealant manufacturer's requirements.

3.14 TILE FINISH AND JOINTS
Ensure finished surfaces are flat and true to a tolerance of ± 4mm in 2 metres from the required plane. Clean surplus bedding material from joint spaces and tile surface. Ensure joint widths are consistent throughout the installation with 1.5mm width for dust-pressed tiles and 6mm for extruded tiles, measured at the tile face. Ensure joint alignment is consistent throughout the installation and to a tolerance of ± 4mm in 2 metres from the detailed joint alignment.

3.15 THIN BED FIXING
Apply adhesive to a maximum 3mm bed thickness with a minimum of voids.

Notched trowel method

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- For internal dry applications, spread adhesive to a uniform thickness and "rib" it with a notched trowel to the adhesive manufacturer's requirements. Press tiles and beat into place to obtain adequate coverage by adhesive on the back of each tile.

Floating method
- Apply adhesive to a uniform thickness. Apply tiles with a twisting or sliding action and tap back firmly into the floated bedding.

Buttering
- With a trowel butter adhesive evenly over the whole of the back of the tile, slightly thicker than the final required adhesive thickness. Press and tap firmly into position leaving no voids. Do not use "spot-fixing".

Occasionally remove a tile as fixing proceeds to check the maintenance of adequate contact with the adhesive.

3.16 THICK BED FIXING
Apply thick-bed cement based adhesive to an average 6mm bed thickness as a floated bed and to the tile manufacturer's requirements. Prepare and fix tiles by the method required by the tile manufacturer and beat and tap them firmly into place.

Grouting

3.17 APPLY GROUTING
Remove spacers. Apply grouting mix to as large an area as can be worked before setting commences. Work with a grouting tool back and forth until joints are completely filled with no adhesive showing. Avoid damage to the surface of tiles, using masking tape where necessary. Finish to the depth of the cushion and flush with surface to cushion edge and square edge tiles. Remove surplus grout with a damp cloth and tool the joints to finish the grout uniform in colour, smooth and without voids, pinholes or low spots.

3.18 APPLY PROPRIETARY GROUTING
Remove spacers. Prepare joints, mix and apply grout and finish off to the tile manufacturer's requirements, uniform in colour, smooth and without voids, pinholes or low spots.

Cleaning

3.19 CLEAN TILES
Upon completion of setting and grouting, thoroughly sponge and wash the tiles to leave them completely clean and without blemish. Finally polish glazed tiles with a clean dry cloth.

Completion

3.20 ROUTINE CLEANING
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

3.21 DEFECTIVE OR DAMAGED WORK
Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Adjust operation of equipment and moving parts not working correctly. Leave work to the standard required for following procedures.

3.22 PROTECTION
Provide the following temporary protection of the finished work:

4. SELECTIONS
Substitutions are not permitted to the following, unless stated otherwise.

Samples

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Materials

4.1 CERAMIC OR STONE TILES
Tiles As per Golden Homes Standard Selections to suit application

4.2 TILE ADHESIVE
Manufacturer / Type As supplied by tiler in accordance with AS ISO 13007.1 & AS ISO 13007.3

4.3 GROUT
Manufacturer / Type As supplied by tiler in accordance with AS ISO 13007.1 & AS ISO 13007.3

Components

4.4 WATERPROOF MEMBRANE
Location Refer Drawings
Type: Refer to Product Schedule page of drawings.

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6221 FLOOR TILING

1. GENERAL

This section relates to the supply and installation of ceramic floor tiles.
It includes:
- concrete substrates
- timber substrate floors
- timber floor overlays

1.1 RELATED WORK
Refer to 6211 WALL TILING for wall tiling.

Documents

1.2 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC D1/AS1	Access routes
NZBC E3/AS1	Internal moisture
AS 3740	Waterproofing of wet areas within residential buildings
AS 3958.1	Ceramic tiles - Guide to the installation of ceramic tiles
AS 4586	Slip resistance classification of new pedestrian surface materials
NZS 4121	Design for access and mobility - Buildings and associated facilities
AS ISO 13007.1	Ceramic tiles - Grouts and adhesives: Terms, definitions and specifications for adhesives
AS ISO 13007.3	Ceramic tiles - Grouts and adhesives: Terms, definitions and specifications for grouts
BRANZ	Good practice guide: Tiling

Warranties

1.3 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:
2 years: For materials

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

1.4 WARRANTY - INSTALLER/APPLICATOR
Provide an installer/applicator warranty:
2 years: For execution

- Provide this warranty on the installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Requirements

1.5 QUALIFICATIONS
Tilers to be experienced, competent trades people familiar with the materials and techniques specified.

1.6 NO SUBSTITUTIONS
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.7 DEFLECTION CRITERIA FOR SUSPENDED FLOORS
Check that the floor is rigid enough for the tiling. Deflection of suspended floors should not exceed 1/360th of the span under dead load and live load.

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1.8 ADHESIVES COMPATIBILITY
Adhesives selected for use on proprietary substrates or waterproof membranes to have documented compatibility approval from the respective manufacturers.

1.9 PROVIDE SPARE TILES
Provide spare tiles. Refer to SELECTIONS for type and quantity.

Performance

1.10 SLIP RESISTANCE – SURFACES EXEMPT FROM TESTING
Slip resistance for walking surfaces comply with NZBC D1/AS1, Table 2.

2. PRODUCTS

Materials

2.1 FLOOR TILES
Refer to SELECTIONS for product selection.

2.2 REINFORCING MESH
Galvanized 500mm x 500mm x 2.5mm steel mesh for screeds and bedding as necessary.

2.3 SEPARATING LAYER
Single layer heavy gauge polyethylene film.

2.4 BUILDING UNDERLAY
Breather type bitumen saturated kraft paper.

2.5 ANTI FRACTURE/UNCOUPLING MEMBRANE
Proprietary anti-fracture/uncoupling membrane.

Components

2.6 EXPANSION JOINT, METAL AND RUBBER
Clear anodised aluminium/brass with metal anchor to set into in-situ concrete, cement screed/bed and complete with rubber infill.

2.7 EXPANSION JOINT, METAL AND COMPOUND
Aluminium/brass angles with high density foam rubber insert and jointing compound.

2.8 EXPANSION JOINT, PLASTIC
Rigid stabilised PVC sides with flexible central section.

Accessories

2.9 SCREED
Mix of 3:1 Portland cement, coarse washed sand gauged with liquid polymer additive to the tile manufacturer's stated requirements.

2.10 CEMENT MORTAR
Sand and cement bedding coat with liquid polymer additive, to the tile manufacturer's stated requirements.

2.11 SHEET WATERPROOFING MEMBRANE
Proprietary sheet waterproofing system.

2.12 LIQUID WATERPROOFING MEMBRANE
To AS 3740.

2.13 TILE ADHESIVE
To AS ISO 13007.1.

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2.14 SAND AND CEMENT GROUT
1 part Portland cement to 2-3 parts fine, washed sand, mixed to a paste consistency with a minimum of clean, potable water.

2.15 PROPRIETARY GROUT
Cement based, compressible and to suit particular location/use. To AS ISO 13007.3.

2.16 MOVEMENT JOINT SEALANT
To BRANZ Good practice guide: Tiling, section 5.0.
- Neutral cured sealant for areas where waterproof membranes are used or where used against aluminium.
- Acid cured sealant except for areas where waterproof membranes are used or where used against aluminium.

Note: Check compatibility of membrane and sealant, use bond breaking tape to separate them if required.

3. EXECUTION

3.1 DELIVERY, STORAGE AND HANDLING
Take delivery of materials and goods and store on site and protect from damage.
Protect finished surfaces, edges and corners from damage.
Move/handle goods in accordance with manufacturer's requirements.
Reject and replace goods that are damaged or will not provide the required finish

3.2 CHECK TILES
Check tiles to ensure that they are as specified, from the same batch, of a consistent colour and pattern and sufficient to complete the work. Reject tiles that vary widely in colour or pattern. Reject tiles that are damaged.

3.3 CONFIRM LAYOUT
Before commencing work confirm the proposed layout of tiles and expansion joints and other visual considerations of the finished work.

3.4 SETTING OUT
Before commencing the setting out confirm the number and location of cut tiles. Minimise in number with no cut tiles less than half size and only at the perimeter of the work.

3.5 GENERALLY
Prepare surface and complete tiling work in accordance with AS 3958.1, as modified by BRANZ Good practice guide: Tiling.

Conditions

3.6 SERVICES AND ACCESSORIES
Ensure that all services and accessories are in place and located to suit the tile layout, and that the substrate, background and adjoining surfaces (with the preparation called for in this section) are of the quality necessary to allow tiling of the required standard.

3.7 DO NOT START
Do not start laying tiles until concrete floors are cured, moisture content of floors is such that shrinkage is complete, thermal movement has been accommodated and the levels and surface finish will achieve tile laying of the required standard.

3.8 SUBSTRATE TEMPERATURE
Do not carry out tiling where the substrate temperature is below 5°C or above 40°C.

3.9 MOISTURE CONTENT
Ensure the floor is dry and if in doubt check for moisture content by hygrometer. Do not proceed with tiling work until readings for the whole area show 75% relative humidity or less.

3.10 SCREEDS
Form screeds with a deviation from plane of not more than 5mm over 3 metres.

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3.11 FALLS
Form screeds in areas where water is used in significant amounts with a deviation from plane of not more than 5mm over 3 metres. Unless otherwise specified form screeds with the following falls:
Unless stated otherwise provide minimum fall gradients to BRANZ Good Practice Guide - Tiling, clause 6.5 Falls in floors.

Application - preparing new surfaces

3.12 CONCRETE FLOORS
Completely remove surface contaminants such as paints, oils, release and curing compounds. Remove projections, unevenness and loose material to leave a clean dust and dirt free surface.

Movement joints

3.13 MOVEMENT JOINTS
Provide movement joints with a minimum width of 4mm, carried through tile and bedding and where substantial movement is anticipated, through the rigid sheet to the structure. Install joints over expansion joints, at junctions between different backgrounds, abutting other materials, at internal corners and at junctions with floors and columns. Ensure joints are clean, formed, filled and with sealant inserted to the sealant manufacturer's requirements.

3.14 METAL EXPANSION JOINT
Accurately locate and fix joints in situ, with the bedding, or on top of the bedding, to finish flush with the installed tile and to the tile manufacturer's requirements. Fit and fix rubber/rubber compound inserts to finish flush. Fit expansion joints at regular intervals over the floor area at intervals not exceeding 4 metres, at changes in floor plane and where the floor plane is interrupted.

Waterproofing

3.15 INSTALL WATERPROOFING MEMBRANE - INTERIOR WET AREAS
Install waterproofing membrane to manufacturers requirements and to BRANZ Good tiling practice, 7.0 Waterproofing interior wet areas. Reinforce all junctions of the waterproofing membrane to BRANZ Good practice guide: Tiling; 7.0 Waterproofing interior wet areas. Unless otherwise specified or shown on the drawings, install waterproof membranes as follows:

Bath
- To 150mm minimum around the sides and along walls horizontally 150mm minimum.

Splashback to a vanity
- To 300mm minimum up wall behind the vanity.
- To the floor level at least twice the width of the vanity and 500mm min beyond it at each end.

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Application - tile installation

3.16 BONDED CEMENT MORTAR
Apply proprietary cement slurry bond coat over the whole of the floor to the tile manufacturer's requirements. Thoroughly mix and place the 40mm thick mortar bed over the bond coat and firmly tamp, screed and compact to the required level. Apply proprietary cement slurry bond coat to the wet mortar bed and set tiles while still tacky, firmly beating into the bedding and aligning the 3mm tile joints at the same time.

3.17 MODIFIED CEMENT BASED ADHESIVE
Apply and float thick or thin bed of modified cement based adhesive to bed thickness to the adhesive manufacturer's requirements. Rib surface with a notched trowel, press tiles and place with required grout joints and to obtain adequate coverage by adhesive on the back of each tile to AS 3958.1.

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3.18 MODIFIED CEMENT BASED ADHESIVE AND WATERPROOF MEMBRANE
Apply appropriate waterproof membrane to manufacturer's requirements. Apply and float thick or thin bed of modified cement based adhesive to bed thickness to the adhesive manufacturer's requirements. Rib surface with a notched trowel, press tiles and place with required grout joints and to obtain adequate coverage by adhesive on the back of each tile to AS 3958.1.

3.19 PLASTER SCREED AND SEPARATING LAYER
Lay polyethylene sheet/building underlay to a smooth surface, joints lapped 100mm minimum. Place galvanized steel mesh over with spacers to centralise it in the mortar bed. Thoroughly mix and place the proprietary screed mix to the manufacturer's requirements and compact to the required level. Ensure drying times are observed before installation of tiles by thin/thick set method.

Grouting

3.20 APPLY GROUTING
Remove spacers. Apply grouting mix to as large an area as can be worked before setting commences. Work with a grouting tool back and forth until joints are completely filled with no adhesive showing. Avoid damage to the surface of tiles, using masking tape where necessary. Finish to depth of cushion and flush with surface to cushion edge and square-edge tiles. Remove surplus grout with a damp sponge and tool the joints to finish the grout uniform in colour, smooth and without voids, pinholes or low spots.

3.21 APPLY PROPRIETARY GROUTING
Remove spacers. Prepare joints, mix and apply grout and finish off to the grout manufacturer's requirements, to finish the grout uniform in colour, smooth and without voids, pinholes or low spots.

Cleaning

3.22 CLEAN TILES
Upon completion of setting and grouting, thoroughly sponge and wash the tiles to leave them completely clean and without blemish. Finally polish glazed tiles with a clean dry cloth.

Completion

3.23 ROUTINE CLEANING
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

3.24 DEFECTIVE OR DAMAGED WORK
Repair damaged or marked tiles. Replace damaged or marked tiles where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures. Ensure tiles are not disturbed by foot traffic for at least 24 hours after laying and after grouting.

3.25 PROTECTION
Provide the following temporary protection of the finished work:
Provide protection to tiles by laying sheet material such as insulating board for the period between completion of laying and completion of the contract works.

4. SELECTIONS
Substitutions are not permitted to the following, unless stated otherwise.

Materials

4.1 CERAMIC AND STONE TILES
Tiles As per Golden Homes Standard Selections

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4.2 SCREED
Location: Refer to drawings
Manufacture: As supplied by tiler in accordance with AS 3958

4.3 WET AREA TILE ADHESIVE
Location: Refer to drawings
Manufacturer: As supplied by tiler in accordance with AS ISO 13007.1 and AS ISO 13007.3

4.4 TILE ADHESIVE
Location: Refer to drawings
Manufacturer: As supplied by tiler in accordance with AS ISO 13007.1 and AS ISO 13007.3

4.5 PROPRIETARY GROUT
Location: Refer to drawings
Manufacturer: As supplied by tiler in accordance with AS ISO 13007.1 and AS ISO 13007.3
Colour: To Suit Selected Tile

4.6 LIQUID WATERPROOFING MEMBRANE
Location: Refer Drawings
Type: Refer to Product Schedule page of drawings

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6411 VINYL SURFACING

1. GENERAL

This section relates to the supply and installation of vinyl surfacing including skirtings, nosings, trims and edges.
It includes:
- PVC sheet
- PVC tiles

Documents

1.1 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC C/AS2-AS7	Protection from fire
NZBC D1/AS1	Access routes
AS 4586	Slip resistance classification of new pedestrian surface materials
NZS/AS 1884	Floor coverings - Resilient sheet and tiles - Installation practices
BRANZ BU 330	Thin flooring materials - 2 Preparation and laying

Warranties

1.2 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:
1 year: For materials

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

1.3 WARRANTY - INSTALLER/APPLICATOR
Provide an installer/applicator warranty:
1 year: For execution

- Provide this warranty on the installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Requirements

1.4 QUALIFICATIONS
Vinyl layers to be experienced, competent trades people familiar with the materials and techniques specified.

1.5 NO SUBSTITUTIONS
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

2. PRODUCTS

Materials

2.1 VINYL SHEET
High vinyl content homogeneous monolayer flexible PVC sheet flooring.

2.2 COVINGS

Commercial applications:	Pencil cove with butterfly mitres to all external and internal corners. Fillet cove for safety flooring.
Domestic applications:	Pencil or fillet cove method.

2.3 VINYL SHEET WALL COVERING
High vinyl content homogenous flexible PVC sheet wall covering.

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2.4 WALL AND FLOOR VINYL JOINING STRIP
White PVC floor to wall finishing strip.

2.5 TRIMS AND EDGING
PVC as supplied by the sheet manufacturer to complete the work.

Accessories

2.6 ADHESIVE
Standard acrylic adhesive to suit the material and substrate and to the vinyl manufacturer's requirements.

2.7 PRIMER AND SEALER
To the adhesive manufacturer's requirements for the particular substrate.

3. EXECUTION

Conditions

3.1 GENERALLY
To manufacturer's requirements and NZS/AS 1884.

3.2 STORAGE
Maintain rolls of sheet, packages of tiles and accessories undamaged and dry. Store rolls upright with other material on level surfaces in non-traffic, non-work areas that are enclosed, clean and dry.

3.3 HANDLING
Avoid distortion, stretching, marking and damage to edges while shifting, unrolling and handling sheet, tiles and accessories. Inspect for any faulty material. Do not use faulty or damaged material.

3.4 BEFORE COMMENCING WORK
Ensure that the building is enclosed, wet work complete, doors hung and lockable, finishes and trim complete, and good lighting available, before starting work.

3.5 INSPECT
Inspect the substrate to ensure it is of the standard required for work in this section.

3.6 LAYING
Carry out the whole of the work to NZS/AS 1884, BRANZ BU 330 and to the flooring manufacturer's requirements.

3.7 LAYOUT
Before beginning the installation confirm the proposed layout of material, location of seams and other visual considerations of the finished work.

Preparing substrate

3.8 PREPARATION NEW CONCRETE
Clear substrate of debris, clean off surface contamination and carry out surface repairs using a proprietary levelling compound. Carefully feather out at perimeters of repaired areas. Grind level, then vacuum to remove all dust. Check moisture content to NZS/AS 1884, Appendix A and do not commence laying vinyl until readings for the whole area show 75% relative humidity or less..

Vinyl floor laying

3.10 PREPARATION
Check that each colour supplied is from the same batch. Follow the vinyl manufacturer's requirements for conditioning of rolls and the working temperatures and conditions before, during and after laying. Protect work from solar heat gain and switch off under-floor heating during and for 48 hours either side, of the work period.

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3.11 ADHESIVE APPLICATION
Apply approved adhesive as required by the vinyl manufacturer and without trowel marks after setting. Follow requirements for open time, taking note of substrate porosity, ambient temperature and relative humidity. Remove excess adhesive as the work proceeds using required techniques.

3.12 LAYING VINYL SHEET
Roll out, cut, leave to condition and install sheet vinyl to the vinyl manufacturer's requirements. Ensure there are no air bubbles or twisting, that the seams are kept clear of adhesive, and immediately the sheet is adhered roll with a 68 kg roller.

3.13 THERMO-WELDING VINYL SHEET
Machine groove and thermo-weld all seams in specified areas, heating the sheet and weld rod to a sufficient temperature to melt and fuse them together into a single mass. Trim the weld to leave a smooth, flush surface with the sheet.

3.14 CROSS JOINS
Plan and allow cuts to avoid cross joins. Obtain written approval of the owner before proceeding if cross joins are unavoidable. Cross joins are not acceptable in wet areas.

3.15 COVE VINYL
Pencil cove flooring to the specified height and finish off as detailed.

3.16 MITRES
Perform butterfly method to internal and external mitres. Thermo-weld mitres.

Cleaning

3.18 CLEAN VINYL
Leave vinyl flooring surfaces free of adhesive, dirt and debris.Clean and finish vinyl to manufacturer's requirements.

Completion

3.19 ROUTINE CLEANING
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

3.20 DEFECTIVE OR DAMAGED WORK
Repair damaged or marked vinyl flooring. Replace damaged or marked vinyl where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures.

4. SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

Materials

4.1 VINYL SHEET

Vinyl	As per Golden Homes Standard Selections Specification

Components

4.2 FLOOR LEVELLING COMPOUND

Location:	Any lower variations in floor level
Brand/type:	in accordance with BRANZ BU 360

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6511 CARPETING

1. GENERAL

This section relates to the supply and installation of carpet laid conventionally (stretched), direct stuck or double bonded (double direct stuck).
It includes:
- carpet underlay
- woven sheet carpet

Documents

1.1 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:
NZBC C/AS2-AS7 Protection from fire
AS/NZS 2455.1 Textile floor coverings - Installation practice - General

Warranties

1.2 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:
1 year: For materials

- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

1.3 WARRANTY - INSTALLER/APPLICATOR
Provide an installer/applicator warranty:
1 year: For execution

- Provide this warranty on the installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Requirements

1.4 QUALIFICATIONS
Carpet layers to be experienced, competent trades people familiar with the materials and the techniques specified, and with AS/NZS 2455.1.

1.5 MOISTURE CONTENT OF CONCRETE SLAB
Concrete slab is be cured and dried to a relative humidity of not exceeding 75% or until the moisture content does not exceed 5.5%, in accordance with AS/NZS 2455.1, refer to section 6192 FLOORING SUBSTRATE PREPARATION.

1.6 ACCEPTABLE PRODUCT/MATERIAL SUPPLIERS
Where a product or material supplier is named in SELECTIONS, the product/material must be provided by the named supplier. Where more than one named supplier, any one of the named suppliers will be acceptable.

1.7 NO SUBSTITUTIONS
Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

1.8 RESERVE MATERIAL
Supply reserve carpet, all suitably packaged for delivery and storage. Refer to SELECTIONS.

2. PRODUCTS

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Materials

2.1 UNDERLAY
To AS/NZS 2455.1 Soft underlay and underlays manufacturer's requirements.
Refer to SELECTIONS for product selection.

2.2 CARPET
To AS/NZS 2455.1 Textile floor coverings.
Refer to SELECTIONS for product selection.

Components

2.3 BINDER BARS
Anodised aluminium section with fluted face.

2.4 DIVIDER STRIPS
Hardwood strips 20mm x 15mm or as specified. Refer to SELECTIONS for type and size.

2.5 EDGE GRIPPER
To AS/NZS 2270.
Timber/plywood with steel grippers to carpet manufacturer's requirements, constructed of sufficient pins and nails so as to withstand a minimum stretching force of 6580N over a 1220 mm length.

Accessories

2.6 TAPE
To carpet manufacturer's requirements.

3. EXECUTION

Conditions

3.1 DELIVERY
Take delivery of materials and goods and store on site and protect from damage.
Accept rolls of carpet and accessories undamaged and dry.

3.2 HANDLE AND STORE
Handle carpet on flat dollies using carpet cradles, with probes on fork- lifts and without sharp bending or folding. Store carpet in flat bins with a maximum height of three rows.
Keep dry. Protect from damage.

3.3 INSPECTION
Before starting work inspect the substrate to ensure that it will allow work of the required standard, and that all fittings and fixtures around which the carpet is to be scribed are in place.

3.4 PROTECTION
Protect adjoining work surfaces and finishes during the carpet installation.

3.5 TAPE
Tape for binding and seaming using type and width required by the carpet manufacturer to suit the specified carpet and the standard of performance required.

3.6 LAYOUT
Plan the general layout so that:
- seams run lengthways
- traffic runs along the seam
- light from windows is not across the seam
- pile faces away from the light source.

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3.7 TEMPERATURE
Acclimatise carpet to a room temperature above 15°C through the whole of the installation.

3.8 FLOOR PREPARATION
Refer to 6192 FLOORING SUBSTRATE PREPARATION. Prepare floor and check conditions required for laying to AS/NZS 2455.1, section 2.

Application - substrate preparation

3.9 PREPARING NEW CONCRETE FLOOR
To be level, smooth, clean, cured and dry. Remove loose material and dust. Refer to 6192 FLOORING SUBSTRATE PREPARATION.

3.10 PREPARING NEW WOOD PRODUCT FLOOR
To be level, sanded smooth and dry with loose material and dust removed. Check for moisture content and do not commence laying until readings for the whole area show a moisture content of:
8 - 12% for air conditioned buildings
10 - 14% for intermittently heated buildings
12 - 16% for unheated buildings
Refer to 6192 FLOORING SUBSTRATE PREPARATION.

Application - carpet laying

3.11 INSTALLATION, UNDERLAY
Installation to underlay manufacturer's requirements. Lay at right angles to the carpet direction.

3.12 INSTALLATION, CONVENTIONAL SYSTEM
Tape carpet joints, fix grippers to floor and install underlay and carpet to AS/NZS 2455.1, section 3. Stretch carpet tight in both width and length evenly without bowing, square with walls.

3.13 FIXING TRIMS
Fix binder bars, carpet to carpet bars, and trims to all junctions with other materials and to carpet edges, to the carpet manufacturer's requirements. Ensure that junctions with other materials are neatly formed, with bars and trim securely fastened to the substrate, 20mm from each end and at a maximum of 100mm centres.

Completion

3.14 ROUTINE CLEANING
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

3.15 DEFECTIVE OR DAMAGED WORK
Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures.

4. SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

4.1 CARPET & UNDERLAY SELECTIONS

As per Golden Homes Standard Selections	Specification (if applicable)	

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6700R RESENE PAINTING GENERAL

1. GENERAL

This section relates to the general matters related to **Resene** painting work.

1.1 RELATED WORK
Refer to 6721R RESENE PAINTING INTERIOR
Refer to 6711R RESENE PAINTING EXTERIOR

1.2 ABBREVIATIONS AND DEFINITIONS
Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

MPNZA	Master Painters New Zealand Association Inc.
SIPDS	Surface Information & Preparation Data Sheets

Documents

1.3 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

Health and Safety at Work Act 2015	
AS/NZS ISO 9001	Quality management systems - Requirements
MPNZA	Health and Safety Programme

1.4 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents related to this section are:

Resene	Surface Information & Preparation Data Sheets (SIPDS) (hard copy or at www.resene.co.nz)
Resene	Product Data Sheets (hard copy or at www.resene.co.nz)
Resene	Putting your safety first

Copies of the above literature are available from Resene
Telephone: 0800 RESENE (0800 737 363)

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER
Warrant this work under normal conditions of use against failure referring to the Resene Promise of Quality in the Resene One-Line specifications and product data manual.

Requirements
This painting specification is written based on information available at the time of writing.

1.6 NO SUBSTITUTIONS
Substitutions are not permitted to any specified Resene coating system, or associated components and products. Do not combine paints from different manufacturers in a paint system.

If in the applicator's own expertise and judgement an amendment to this specification is required, or where a substrate preparation, or required painting system is not covered in this specification, this shall be brought to the attention of the contract administrator and any amendment agreed before work proceeds any further.

1.7 QUALIFICATIONS
Painters to be experienced competent workers, familiar with the materials and the techniques specified and with the Resene coating systems and be members of the Master Painters New Zealand Association Inc.

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The applicator is to have the necessary skill, experience and equipment to undertake the work. The applicator remains responsible for ensuring proper completion of the work.

Painters to be selected from the Resene Eco.Decorator programme. The Resene Eco.Decorator programme is designed to recognise a nationwide network of environmentally responsible, quality focussed painting contractors.
Refer to www.resene.co.nz/ecodecorator.htm for a list of Eco.Decorators in your area.

1.8 HEALTH AND SAFETY
Refer to and comply with the requirements of the Health and Safety at Work Act 2015 including the obligation to:

- Eliminate hazards and if hazards cannot be eliminated or isolated, then minimise the hazards in this work by using the proper equipment and techniques as required by the MPNZA Health and Safety Programme.
- Supply protective clothing and equipment.
- Inform the contractor as well as the employees and others on site of those hazards and put in place procedures for dealing with emergencies.

1.9 SAFETY DATA SHEETS
Obtain from Resene (phone 0800 RESENE, or www.resene.co.nz) the safety data sheet for each product used and comply with the required safety procedures. Keep sheets on site.

Performance

1.10 RESENE INSPECTION
Permit representatives of Resene to inspect the work in progress and to take samples of their products from site if requested. Resene will take care when inspecting the work, but does not accept any responsibility for the proper completion of the work before or after such inspection.

1.11 INSPECTION OF THE WORK
Inspection of the whole of the work at each of the stages set out in SELECTIONS may be made. Agree on a programme that will facilitate such inspection, including notification when each part and stage of the work is ready for inspection.

2. PRODUCTS

Materials

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

Use only Resene products (which are guaranteed for consistency and performance under AS/NZS ISO 9001 and APAS) prepared, mixed and applied as directed in the Resene One-Line Specifications and Product Data Manual. This specification has been written using where practical and available both low/no VOC and Environmental Choice approved products.

2.2 DARK COLOURS
Darker colours in areas of high sun exposure place significant stress on the coating and substrate. Resene 'CoolColour' technology reduces heat absorption of a wide range of colours. Contact your local Resene Representative or visit www.resene.co.nz for more information or visit www.resene.co.nz/coolcolour. View a list of Resene colours that can be made using Resene CoolColour technology at www.resene.co.nz/colourlibrary.

2.3 THINNERS/ADDITIVES
Use only if and when expressly directed by Resene for their particular product in a particular application. Always wear gloves when handling any solvents including turpentine as harmful chemicals may be absorbed into the body through the skin.

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Accessories

2.4 ACCESSORIES
Contact your local Resene ColorShop for a full range of accessories and usage advice.

3. EXECUTION

Conditions

3.1 EXECUTION
To conform to required trade practice, which shall be deemed to include those methods, practices and techniques contained in the Master Painters New Zealand Association Inc. Specification manual.

3.2 TREATED SURFACES
Where surfaces have been treated with preservatives or fire retardants, check with the treatment manufacturer that coating materials are compatible with the treatment and do not inhibit its performance. If they are not compatible, obtain instructions before proceeding.

3.3 ANCILLARY SURFACES
The descriptions of areas in schedules and elsewhere are of necessity simplified. Coat ancillary exposed surfaces to match similar or adjacent materials or areas, except where a fair-faced natural finish is required or items are completely prefinished. In cases of doubt obtain written instructions before proceeding.

3.4 HARDWARE
Do not paint hinges or hardware that cannot be removed. Before commencing work carefully remove hardware, fixtures and fittings, set aside where they cannot be damaged or misplaced and replace on completion. Refer to SELECTIONS for hardware, fixtures and fittings for removal.

3.5 PROTECTION
Supply, lay and fix drop sheets, coverings and masking necessary to protect adjoining, fixtures, fittings and spaces from paint drops, spots, spray and damage.

Application - preparatory work

3.6 SURFACE PREPARATION
Refer to the Resene Surface Information & Preparation Data Sheets (SIPDS) and product data manual for surface preparation sheets (or obtain them by phoning 0800 RESENE, or at www.resene.co.nz) listed in the materials systems schedule clauses. Carry out the preparatory work required by them for each of the substrates.

3.7 SHARP EDGES, CRACKS AND HOLES
Remove and/or repair sharp edges, cracks and holes if present, as outlined in the preamble of the Resene One-Line specifications and product data manual.

Elastomeric sealants, if used, should not be painted. The paint film will not match the flexibility of the sealant and may severely limit its effectiveness.

3.8 REMEDIAL WORK
If any substrate or surface, that even with the preparation work called for in this section, cannot be brought up to a standard that will allow painting or clear finishing of the required standard then do not proceed until remedial work is carried out.

3.9 GAP FILLING
Make good cracks, holes, indented and damaged surfaces. Use suitable gap fillers to match the surface being prepared. Any special priming requirements of the fillers must be satisfied. Allow to dry or set before sanding back level with the surface. Prime or seal timber before using putty.

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Exterior and wet areas: Use only Portland cement base or water-insoluble organic base gap fillers.

3.10 OFF-SITE WORK

Carry out this work under cover in a suitable environment with suitable lighting. Store items, both before and after coating, in a clean, dry area protected from the weather and mechanical damage, properly stacked and spaced to allow air circulation and to prevent sticking. Specific instructions for transport to site to avoid damage to the factory applied paint system may be required particularly for metallic top coat paints.

3.11 PRIMING JOINERY

Pre-treat any cut surfaces of preservative treated timber before priming. Ensure L.O.S.P. treated joinery has dried sufficiently to lose solvent odour. Pre-treat bare timber with Resene TimberLock (see Data Sheet D48) to improve the durability of subsequent coats.

Liberally coat end grain, allow to soak in and then recoat.

3.12 CONCEALED JOINERY SURFACES

Where off-site coatings are specified they must be applied to surfaces including those concealed when incorporated into the building.

3.13 CONCEALED METAL SURFACES

Apply primer to suit the coating system to surfaces which will be concealed when incorporated into the building.

3.14 EXTERNAL DOORS

Prime or seal and paint bottom edges before hanging.

Application - generally

3.15 PAINTING GENERALLY

Comply with the Resene SIPDS Surface Information & Preparation Data Sheets or Resene One-Line specifications and product data manual data sheets and the additional requirements of this work section.
Ensure large wall areas that require more than one container of paint per coat, have enough paint boxed (mixed) together to complete the final coat. This will not apply if a single factory batch of paint, rather than shop tinted paint, is applied.

3.16 MIXING

Although generally supplied ready to use, all paints must be thoroughly mixed to lift any settled pigment and ensure the paint is homogeneous.

3.17 ENVIRONMENT

Defer painting of exterior surfaces until weather conditions are favourable - warm dry days without frost or heavy dews. Avoid painting in direct sunlight any surfaces that absorb heat excessively. As far as possible apply paint in the temperature range 15°C to 25°C. If temperatures fall outside the range of 10°C and 35°C do not paint unless paints with the necessary temperature tolerance have been specified. Resene Hot Weather Additive can be added to most Resene waterborne top coats to extend open time when application is undertaken at elevated temperatures or conditions that will cause rapid loss of water from the applied wet film. Do not apply solvent borne paint if moisture is present on the surface.

3.18 SEQUENCE OF OPERATIONS

Painting work to generally follow the following sequences:
- Back painting and pre-installation painting, then post-installation exposed-face painting
- Complete surface preparation before commencing painting.
- Apply primers, sealers, stains, undercoats, paints and clear coatings in the sequences laid down by Resene.
- Allow the full drying time between coats laid down by Resene.
- Do not expose primers, undercoats and intermediate coats beyond Resene's recommendations before applying the next coat.
- Finish broad areas before painting trim.

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- Ensure batch numbers of tins are matched for whole areas.
- Internally, paint ceilings before walls and walls before joinery, trim and other items.

3.19 APPLICATION
Select brush, roller, or pad and apply coatings to the requirements of Resene to obtain a smooth, even coating of the specified thickness, uniform gloss and colour.

3.20 LIGHTLY SAND
Lightly sand primers, sealers, undercoats and intermediate coats to remove dust pick-up, protruding fibres and coarse particles. A more thorough sanding to provide a mechanical key for the new paint system may be required depending upon the condition or age of the existing paint system..

3.21 DEFECTIVE WORK
Correct defective work immediately and recoat as required, following precisely the Resene system being applied. The same applies to transportation damage to site of factory painted items.

3.22 EACH COAT
Each coat of paint and the completed paint system to have the following qualities and properties:
- Uniform finish, colour, texture, sheen and hiding power and the proper number of coats applied.
- No blemishes such as runs, sags, crinkling, fat edges, entrained paint skins, hairs, dust, bare or starved patches, cracks, significant brush marks, ladder marks and blistering.
- Proper covering of corners, crannies, thin edges, cracks, end grain and other difficult places of application.

Completion

3.23 CLEAN
Clean adjoining surfaces, glass and fittings of any paint contamination. Clean off glass indicators at the completion of the building works. Clean glass inside and out to a shining finish. Use the Resene Washwise on site 'paint equipment clean-up water' reclamation system to minimise the environmental impact of cleaning paint application tools.

3.24 LEAVE
Leave the whole of this work uniform in gloss and colour, of correct thickness, free from painting defects, clean and unmarked and to the standard required by following procedures.

3.25 REMOVE
Remove drop sheets, coverings and masking to leave surrounding surfaces and areas clean, tidy and undamaged. Remove debris, unused materials and elements from the site.

3.26 REPLACE
Replace hardware without damage to it or the adjoining surface and leave hardware properly fitted and in working order.

3.27 DISPOSAL OF PAINTS AND THINNERS
Note: The use and disposal of paint and thinners represents a significant environmental hazard.
Ensure all paint and thinners are disposed of in the following manner:
- When requested hand over part used paint containers to client for maintenance touch ups.
- Recycle leftover paint at a Resene ColorShop as part of the Resene "Paintwise programme". Contact your local Resene ColorShop for details or view information online at www.resene.co.nz/paintwise.htm.
- Donate left over paint to local community groups.
- Solvent based paints, paint thinners, turpentine, mineral spirits and solvents require special disposal procedures. Do not pour down sewer or stormwater drains, sinks or

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into the ground. If they cannot be recycled they must be disposed of in a refuse dump licensed to take toxic waste.

4. SELECTIONS

4.1 SELECTIONS

Refer to 6711R RESENE PAINTING EXTERIOR and 6721R RESENE PAINTING INTERIOR for selections.

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6711R RESENE PAINTING EXTERIOR

1. GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing exterior substrates using **Resene** architectural and decorative coating systems.

1.1 RELATED WORK
Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.
Refer to 6721R RESENE PAINTING INTERIOR for interior paint systems.

2. PRODUCTS

Materials

2.1 PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES
Refer to 6700R RESENE PAINTING GENERAL for product clauses.

3. EXECUTION

Conditions

3.1 EXECUTION
Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

4. SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

Resene exterior paint systems

4.1 EXTERIOR CEMENTITIOUS SURFACES
FIBRE CEMENT - SOFFITS

Description:	**Exterior cementitious surfaces, waterborne semi-gloss**
Surface prep:	Refer to **SIPDS No.3** Concrete and Cementitious and **Spec Sheet 3:4/1**
1st coat:	**Resene** Concrete Primer D405, waterborne primer
2nd coat:	**Resene** Sonyx 101 D30, waterborne semi-gloss
3rd coat:	**Resene** Sonyx 101 D30, waterborne semi-gloss

FIBRE CEMENT - WEATHERBOARDS (refer to drawings)

Description:	**Exterior cementitious surfaces, waterborne Semi-gloss**
Surface prep:	Refer to **SIPDS No.3** Concrete and Cementitious and **Spec Sheet 3:4A/1**
1st coat:	**Resene** Concrete Primer D405, waterborne primer;
2nd coat:	**Resene** Sonyx 101 D30, waterborne semi-gloss
3rd coat	**Resene** Sonyx 101 D30, waterborne semi-gloss

TIMBER - TIMBER SCRIBERS AND SOFFIT MOULDS (refer to drawings)

Description:	**Exterior timbers, waterborne semi-gloss**
Surface prep:	Refer to **SIPDS No. 2** Timber and **Spec Sheet 2:1/1**
1st coat:	**Resene** Quick Dry D45, waterborne primer/undercoat; or
2nd coat:	**Resene** Sonyx 101 D30, waterborne semi-gloss
3rd coat:	**Resene** Sonyx 101 D30, waterborne semi-gloss

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6721R RESENE PAINTING INTERIOR

1. GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing interior substrates using **Resene** architectural and decorative coating systems.

1.1 RELATED WORK
Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.
Refer to 6711R RESENE PAINTING EXTERIOR for exterior paint systems.

2. PRODUCTS

Materials

2.1 PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES
Refer to 6700R RESENE PAINTING GENERAL for product clauses.

3. EXECUTION

Conditions

3.1 EXECUTION
Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

4. SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

Resene interior paint systems

4.1 INTERIOR TIMBER DOORS, TRIMS AND ARCHITRAVES

Description:	**Interior timber, waterborne semi-gloss**
Surface prep:	Refer to **SIPDS No.2** Timber and **Spec Sheet 2:9/1**
1st coat:	**Resene** Quick Dry D45, primer/undercoat
2nd coat:	**Resene** Lustacryl D310, waterborne semi-gloss enamel
3rd coat:	**Resene** Lustacryl D310, waterborne semi-gloss enamel

4.2 INTERIOR PLASTERBOARD

INTERIOR PLASTERBOARD WALLS - DRY AREA

Description:	**Interior paperfaced plaster, waterborne low sheen**
Surface prep:	Refer to **SIPDS No.1** Interior Wallboard and **Spec Sheet 1:1/1**
1st coat Primer/Sealer:	**Resene** Broadwall waterborne wallboard sealer D403
2nd coat:	**Resene** SpaceCote Flat D314, option 2 - **Resene** SpaceCote Low Sheen D311
3rd coat:	**Resene** SpaceCote Flat D314, option 2 - **Resene** SpaceCote Low Sheen D311

Note : Resene Spacecote Flat D314 can be substituted for Resene Spacecote Low Sheen D311

INTERIOR PLASTERBOARD WALLS - WET AREA (SpaceCote option)

Description:	**Interior paperfaced plaster, waterborne low sheen enamel**
Surface prep:	Refer to **SIPDS No.1** Interior Wallboard and **Spec Sheet 1:1/1**
1st coat (if reqd):	**Resene** Sureseal D42, pigmented sealer
2nd coat:	**Resene** SpaceCote Flat D314, option 2 - **Resene** SpaceCote Low Sheen D311K

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3rd coat: **Resene** SpaceCote Flat D314, option 2 - **Resene** SpaceCote Low Sheen D311K

Note : Resene Spacecote Low Sheen D311 can be substituted for Resene Spacecote Flat D314

INTERIOR PLASTERBOARD CEILINGS - DRY AREA

Description: **Interior paperfaced plaster, waterborne low sheen**
Surface prep: Refer to**SIPDS No.1**Interior Wallboard and**Spec Sheet 1:1/1**
1st coat Primer/Sealer: **Resene**Broadwall waterborne wallboard sealer D403
2nd coat: **Resene**SpaceCote Flat D314,option 2 -**Resene**SpaceCote Low Sheen D311
3rd coat: **Resene**SpaceCote Flat D314,option 2 -**Resene**SpaceCote Low Sheen D311

INTERIOR PLASTERBOARD CEILINGS - WET AREA

Description: **Interior paperfaced plaster, waterborne flat ENAMEL**
System: **Resene** One-Line Spec. No. 15i 1.5 Level 4
Surface prep: Refer to **SIPDS No.1** Interior Wallboard and **Spec Sheet 1:1/1**
1st coat (if reqd): **Resene** Sureseal D42 pigmented sealer
2nd coat: **Resene** SpaceCote Flat D314, option 2 - **Resene** SpaceCote Low Sheen D311K
3rd coat: **Resene** SpaceCote Flat D314, option 2 - **Resene** SpaceCote Low Sheen D311K

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7120 HOT & COLD WATER SYSTEM

1. GENERAL

This section relates to piped potable water supply systems from the network utility supply authority water main to designated points and appliances, the installation of hot water heating appliances, distributing piped hot water to other appliances, and the installation of valves.

Documents

1.1 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B2/AS1	Durability
NZBC C/AS1-AS7	Protection from fire
NZBC G4/AS1	Ventilation
NZBC G12/VM1	Water supplies
NZBC G12/AS1	Water supplies
NZBC H1/AS1	Energy Efficiency
AS/NZS 2492	Cross Linked Polyethylene (PE-X) pipe for pressure applications
AS/NZS 2537.2	Mechanical joining fittings for use with crosslinked Polyethylene (PE-X) for pressure applications - Plastics piping systems for hot and cold water installations - Crosslinked Polyethylene (PE-X) - Fittings
AS/NZS 2642.1	Polybutylene pipe systems - Polybutylene (PB) pipe extrusion compounds
AS/NZS 2642.2	Polybutylene pipe systems - Polybutylene (PB) pipe for hot and cold water applications
AS/NZS 2642.3	Polybutylene pipe systems - Mechanical jointing fittings for use with polybutylene (PB) pipes for hot and cold water applications
AS/NZS 2845.1	Water supply - Backflow prevention devices - Materials, design and performance requirements
AS 2845.3	Water supply - Backflow prevention devices - Field testing and maintenance
AS/NZS 3500.1	Plumbing and drainage - Water services
AS/NZS 3500.4	Plumbing and drainage - Heated water services
AS/NZS 3500.5	Plumbing and drainage - Housing installations
NZS 3501	Specification for copper tubes for water, gas and sanitation
AS/NZS 4130	Polyethylene (PE) pipes for pressure applications
NZS 4305	Energy efficiency domestic type hot water systems
NZS 4602	Low pressure copper thermal storage electric water heaters
NZS 4607	Installation of thermal storage electric water heaters: valve-vented systems
NZS 4617	Tempering (3-port mixing) valves
DIN 8077	Polypropylene (PP) Pipes - PP-H, PP-B, PP-R, PP-RCT - Dimensions
DIN 8078	Polypropylene (PP) Pipes - PP-H, PP-B, PP-R, PP-RCT - General quality requirements and testing.
Plumbers, Gasfitters and Drainlayers Act 2006	
NZ Backflow Testing Standard:	NZ Backflow Testing Standard 2011, Field testing of backflow prevention devices and verification of air gaps

Requirements

1.2 QUALIFICATIONS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a certifying plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

Warranties

1.3 WARRANTY

Provide warranty for:

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2 years: For the supply and installation of the plumbing system and fixtures

- Commence the warranty from the date of practical completion of the contract works.

Performance

1.4 TESTING - TO NZBC G12/AS1
Test to NZBC G12/AS1, 7.5, **Watertightness**, for hot and cold water.
- Test to a pressure of1500 kpa for period not less than 15 minutes.

Confirm the timing before carrying out any tests. Supply potable water and the apparatus needed.
Slowly fill service pipes with water to exclude air. Test and ensure there is no measurable loss of pressure for the minimum period. Slowly fill distribution pipes with water to exclude air. Ensure that with draw-off taps closed the system must remain water-tight.

1.5 TESTING - TO AS/NZS 3500
Test to AS/NZS 3500.1, Section 18, **Testing and commissioning**, for cold water.
- Test reticulation system to a pressure of 1500 kpa for period not less than 30 minutes, to AS/NZS 3500.1, 18.3.1 **Hydrostatic test**. Test storage tanks to AS/NZS 3500.1, 18.3.2 **Storage tanks.**

and
AS/NZS 3500.4, Section 9, **Testing and commissioning**, for hot water.
- Test reticulation system (excluding tanks, water heaters, and some fixtures, valves etc) to a pressure of 1500 kpa for period not less than 30 minutes, to AS/NZS 3500.4, 9 **Testing**. Test complete system (including valves, pumps, water heaters etc) under normal working conditions for a minimum of 48 hours, then check visually, to AS/NZS 3500.4, 9.3 **Testing.**

Confirm the timing before carrying out any tests. Supply potable water and the apparatus needed.
Slowly fill service pipes with water to exclude air. Test and ensure there is no measurable loss of pressure for the minimum period. Slowly fill distribution pipes with water to exclude air. Ensure that with draw-off taps closed the system must remain water-tight.

2. PRODUCTS

2.1 COPPER PIPE
To NZS 3501 complete with copper-alloy compression fittings or crox type joints and seal ring compression joints complete with fittings and accessories brand matched to the pipe manufacturer's requirements with durability to NZBC B2/AS1, Table 1 and NZBC G12/AS1, Table 1.

2.2 PVC-U PIPE
Complete with fittings and accessories brand matched to the pipe manufacturer's requirements with durability to NZBC B2/AS1 Durability, Table 1 and NZBC G12/AS1, Table 1.

2.3 POLYBUTYLENE PIPE
Polybutylene tubing to AS/NZS 2642.1, AS/NZS 2642.2 and AS/NZS 2642.3 complete with fittings and accessories brand-matched with durability to NZBC B2/AS1 Durability, table 1 and NZBC G12/AS1, table1.

2.4 POLYETHYLENE PIPE
To AS/NZS 4130 Series 1 complete with fittings and accessories brand matched to the pipe manufacturer's requirements with durability to NZBC B2 /AS1, table 1 and NZBC G12 /AS1, table1.

Materials - Hot water heating appliances

2.5 ELECTRIC HOT WATER CYLINDER, MAINS PRESSURE
To NZS 4305, ceramic-coated steel thermal storage cylinder, insulated and complete with required fittings.

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Components

2.7 INSULATION
Pre-formed pipe sections complete with bends and fittings, with fixing tape to the manufacturer's requirements and to NZBC H1/AS1.

2.8 PROTECTIVE TAPE
Plasticised PVC tape system with primer, mastic fixing and outer coating.

3. EXECUTION

3.1 EXECUTION GENERALLY
Generally carry out the whole of this work and tests to NZBC G12/VM1 or NZBC G12/AS1.

3.2 HANDLE AND STORE
Handle and store pipes, fittings and accessories to avoid damage. Store on site, under cover on a clean level area, stacked to eliminate movement and away from work in progress.

Store tapware in a shelved, dry and securely locked area. Retain tapware in the manufacturer's original packaging, complete with all fixings and installation instructions. Label each unit separately with its space/fixture number to match.

3.3 CORE HOLES AND SLEEVES
Review location and fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Strip core holes and make good after installation of pipework.

3.4 CONCEAL
Conceal pipework within the fabric of the building unless detailed otherwise. Satin finish chrome plate exposed work, complete with matching ferrule at the surface penetration.

3.5 CORROSION
Separate all metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips.

3.6 THERMAL MOVEMENT
Accommodate movement in pipes resulting from temperature change by the layout of the pipe runs, by expansion joints and by sleeving through penetrations.

3.7 PIPES IN CONCRETE
Water pipes which are under or in concrete floor slab shall be run in a PVC conduit.

3.8 PIPE SIZE
Flow rates to each outlet to be no less than those given in NZBC G12/VM1 or NZBC G12/AS1, table 3, Acceptable flow rates to sanitary fixtures. Pipe size as determined in NZBC G12/AS1, table 4, Tempering valve and nominal pipe diameters.

3.9 ELECTROLYTIC ACTION
Avoid electrolytic action by eliminating contact or continuity of water between dissimilar metals.

3.10 EXCAVATE
Excavate for the water main to a firm, even trench base in straight runs. Allow to backfill.

Application - Jointing

3.11 JOINTING COPPER PIPE
Braze pipe, fit alloy compression fittings, crox type joints and seal ring compression joints to NZBC G12/AS1.

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3.12 JOINTING PVC-U PIPE
Solvent welded joints using spigots and sockets, flanged joints and seal ring compression joints to NZBC G12/AS1.

3.13 JOINTING POLYBUTYLENE PIPE
Aluminium clamped, seal ring compression or push fit "O" ring seal jointing to pipe system manufacturer's requirements.

3.14 JOINTING POLYETHYLENE PIPE
Aluminium clamped, seal ring compression or push fit "O" ring seal jointing to pipe system manufacturer's requirements.

Application - Pipework installation

3.15 POTABLE WATER SUPPLY PIPEWORK INSTALLATION
From connection point, run pipes complete with all fittings, support and fixing, joins and install to manufacturers specifications. Size the pipes and branches in straight runs to deliver the acceptable flow rate to NZBC G12/VM1 or NZBC G12/AS1, table 3, Acceptable flow rates to sanitary fixtures at each outlet. Allow for the expected concurrent use of adjoining fixtures and size the piping layout to eliminate loss of pressure at any point by simultaneous draw-off. Pipework support spacing to be firmly fixed and buffered to eliminate noise and hammer, with preformed tee-connection take-offs and branches, with machine made 3 diameter bends, complete with necessary valves and fittings. Conceal pipework and pressure test before the wall linings are fixed.

3.16 HOT WATER PIPEWORK
Use a take-off spigot to give separate branches to each fitting, lay out pipes with support spacing to NZBC G12/VM1 or NZBC G12/AS1, table 7 Water supply pipework support spacing. Fix firmly and buffer to eliminate noise and hammer, with preformed tee-connection take-offs and branches, and preformed 3 diameter bends, complete with all necessary valves and fittings

Lag all pipes with rigid insulation to the manufacturer's requirements and G12/VM1 or G12/AS1.

3.17 EQUIPOTENTIAL BONDING
Earth metallic water supply pipe and metallic sanitary fixtures to NZBC G12/AS1, 9.0.

3.18 IN-LINE FILTER
Install an in-line filter immediately adjacent to the main isolating valve at the point of entry to the building, in an accessible position to allow for easy cleaning.

Application - Hot water systems

3.19 HOT WATER CYLINDER INSTALLATION GENERALLY
Install hot water cylinders complete to the manufacturer's requirements and to NZBC G12/AS1, 6. 11, Water heater installation. Valve-vented systems to NZS 4607.

3.21 SEISMIC RESTRAINTS - NON-GAS WATER HEATING APPLIANCES
Non-gas (electric, wet-back, solar etc) water heating appliances to be restrained to manufacturer's requirements and NZBC G12/AS1, 6.11, Water Heater Installation.

3.22 INSTALLING HOT WATER PIPE INSULATION - (IF REQUIRED - REFER TO DRAWINGS)
Insulate all hot water pipes to NZBC H1/AS1, AS/NZS 3500.5, 3.33 **Water and Energy Efficiency**, and to the insulation manufacturer's instructions. Cut insulation sections tight between timber framing and tight between the webs of steel studs.

3.23 INSTALL ELECTRIC HOT WATER CYLINDERS
Install where shown complete with all the necessary fittings to the cylinder manufacturer's requirements and in accordance with NZBC G12/AS1: 6.11. Valve-vented systems to NZS 4607.

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3.25 INSTALL HOT WATER CYLINDER OVERFLOW TRAY
Install drained overflow tray to hot water cylinder to NZBC G12/AS1.

3.26 PENETRATIONS
Provide and fit collars and escutcheon plates to match the pipework at all penetrations through constructions.

Completion

3.27 LABEL
Label all pipework with permanent adhesive markers at 3 metre minimum intervals.

3.28 CLEAN IN-LINE FILTER
Clean all in-line filters on completion of works.

3.29 REPLACE
Replace damaged or marked elements.

3.30 LEAVE
Leave work to the standard required by following procedures.

3.31 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

Hot water systems

4.1 ELECTRIC HOT WATER CYLINDER, MAINS PRESSURE
Brand / Model / Size Refer to Product Schedule page in plans

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7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES

1. GENERAL

This section relates to the supply and installation of sanitary fixtures, tapware and sanitary accessories.

1.1 RELATED WORK
Refer to 7120 or 7123 HOT AND COLD WATER SYSTEM for hot water cylinders.
Refer to 7420 or 7421 SANITARY SYSTEMS for the supply and fitting of waste disposal pipework
Refer to the electrical section/s for electrical connection of accessories.

Documents

1.2 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E3/AS1	Internal moisture
NZBC F2/AS1	Hazardous building materials
NZBC G1/AS1	Personal hygiene
NZBC G12/VM1	Water supplies
NZBC G12/AS1	Water supplies
NZBC G13/AS1	Foul water
NZBC G13/AS3	Plumbing and drainage
AS/NZS 1730	Washbasins
AS/NZS 2023	Baths for ablutionary purposes
AS/NZS 3500.1	Plumbing and drainage - water services
AS/NZS 3500.2	Plumbing and drainage - sanitary plumbing and drainage
AS/NZS 3662	Performance of showers for bathing
NZS 4223.3	Glazing in buildings - Human impact safety requirements
Plumbers, Gasfitters and Drainlayers Act 2006	

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

Requirements

1.3 QUALIFICATIONS
Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a Certifying Plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

2. PRODUCTS

2.1 SANITARY FIXTURES
Refer to SELECTIONS for product selection.

2.2 TAPWARE
Refer to SELECTIONS for product selection.

2.3 SANITARY APPLIANCES
Refer to SELECTIONS for product selection.

2.4 SANITARY ACCESSORIES
Refer to SELECTIONS for product selection.

2.5 ELECTRICAL SANITARY ACCESSORIES
Refer to SELECTIONS for product selection.

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3. EXECUTION

Conditions - sanitary fixtures

3.1 DELIVERY
Only deliver to the site fixtures or fittings that can be immediately unloaded into suitable storage or be placed for direct installation.

3.2 STORAGE AND HANDLING
Take delivery of and store components complete with protective casings and coverings in areas that are enclosed, clean and dry and where no work is being done. Remove protection only to the extent that will allow installation.

3.3 QUALITY STANDARDS INCLUDING NZBC G13/AS1
Installation work to comply with NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC G13/AS1 and the fixture manufacturer's requirements.

3.4 QUALITY STANDARDS INCLUDING AS/NZS 3500.2
Installation work to comply with NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, AS/NZS 3500.2, as modified by NZBC G13/AS3, and the fixture manufacturer's requirements.

3.5 SUBSTRATE
Ensure substrate and fixings will allow work of the specified standard.

3.6 CO-ORDINATION
Do not proceed if the points of supply and drainage services do not match the points of the fixtures without force or distortion.

3.7 INSTALLATION REQUIREMENTS INCLUDING NZBC G13/AS1
Install to NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC G13/AS1, NZBC E3/AS1 and to the fixture manufacturer's installation requirements for each component.
Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries and sealants in sequence.
Seal between all sanitary fixtures and wall linings, fixtures and the tops they are in, the tops and wall linings, to NZBC E3/AS1, 3.2.2. Fixtures include baths, basins, tubs or sinks, Tops include, vanities, bath surrounds, sink benches, etc, and there upstands.

3.8 INSTALLATION REQUIREMENTS INCLUDING AS/NZS 3500.2
Install to NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC E3/AS1, AS/NZS 3500.2, as modified by NZBC G13/AS3, and to the fixture manufacturer's installation requirements for each component. Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries and sealants in sequence.
Seal between all sanitary fixtures and wall linings, fixtures and the tops they are in, the tops and wall linings, to NZBC E3/AS1, 3.2.2. Fixtures include baths, basins, tubs or sinks, Tops include, vanities, bath surrounds, sink benches, etc, and there upstands.

3.9 PROVIDE SUPPORT
Confirm fixing points needed for each unit and provide solid blocking at each fixing bracket location.

Conditions - tapware

3.10 RETAIN
Retain tapware in the manufacturer's original packaging and ensure that units are complete with fixings and installation instructions. Label each unit separately with its fitting name and space number.

3.11 STORE
Store tapware packages in a shelved, dry and securely locked area. Provide supervision when the secure area is unlocked and packages and cartons are being distributed; signing off each package from the schedule as released.

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Conditions - sanitary accessories

3.12 RETAIN
Retain fixtures, fittings and hardware in the manufacturer's original packaging and ensure that units are complete with associated fixings and installation instructions. Label each unit separately to match the submitted and approved schedule.

3.13 PACKAGE
Package fixtures, fittings and hardware units required in clear plastic and label each to match the drawings and the submitted schedule. Place packages in cartons selected for 'level', 'location', and/or 'sector' and label the packages and the cartons similarly.

3.14 STORE
Store items in a shelved, dry and securely locked area. Provide supervision when the secure area is unlocked and packages and cartons are being distributed; signing off each package from the schedule as released.

3.15 INSPECTION
Before starting the installation of proprietary items, check relevant spaces and wall and floor finishes for any condition that would not allow the proper installation of any unit. Do not proceed until such conditions have been remedied.

Installation - sanitary fixtures

3.16 INSTALLING TOILET PAN
Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries/bedding and sealants in sequence. Fit the toilet pan in position, plumb, level, flush and rigid without stressing the attachment points of the component. Fixings to be corrosive resistant. Fit seat.

3.17 INSTALLING CISTERNS
Fit firmly in place and connect the specified cisterns from the supply services through the flush pipes to the relative fixtures in the positions as detailed all plumb and level.

Installation - Basins

3.18 INSTALLING WASHBASINS
Install to NZBC G1/AS1, AS/NZS 1730. Set basins firmly to walls or vanities as detailed and to comply with NZBC E3/AS1. Connect to supply and drains through trap to the drainage system.

3.19 INSTALLING VANITIES - BLANK TOP
Install in accordance with the manufacturer's requirements. Cut out basin profile to basin manufacturer's template. Make penetrations for supply and drainage. Fix securely with corrosive resistant fixings. Seal top and upstand to wall surface to comply with NZBC E3/AS1.

3.20 INSTALLING VANITIES - INTEGRAL BASINS
Install in accordance with the manufacturer's requirements. Connect to supply and drains through trap to the drainage system. Seal top and upstand to wall surface to comply with NZBC E3/AS1.

Installation - Showers

3.21 INSTALLING SHOWER FITTINGS
Shower waste, mixer and rose to be install to NZBC G1/AS1 and to AS/NZS 3662.

3.22 INSTALLING SHOWER ENCLOSURES AND WALL LININGS
Install in accordance with NZBC E3/AS1. Sit tray firmly in place as detailed, to levels shown and connect to drainage service, ready for following work. Fit screen and door unit to manufacturer's details. Lining materials and finishes to comply with NZBC E3/AS1.

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3.23 INSTALLING SHOWER DOOR AND SCREEN
To NZS 4223.3 and to the product manufacturer's requirements. Set units level, plumb and true to line and required location, with moving parts and actions freely and easily operating.

Installation - Baths

3.24 INSTALLING BATHS
Install to NZBC G1/AS1. Set firmly in cradle with required points fully supported, level and flush. Connect to supply and drainage services.

Installation - Sinks

3.26 INSTALLING SINK BENCHES
Install in accordance with manufacturer's/supplier's requirements. Connect to supply and drainage services.

3.27 INSTALLING TUB UNITS
Install in accordance with manufacturer's requirements. Connect to supply and drainage services.

Installation - Miscellaneous

3.28 INSTALLING STAINLESS STEEL FIXTURES
Carry out preparatory work and fit elements in position plumb, level, flush and rigid without stressing the attachment points in sequence. Connect to supply and drainage services.

Application - tapware

3.29 GENERAL
To AS/NZS 3500.1 and in accordance with the manufacturer's requirements. Maintain safe water temperatures to comply with NZBC G12/AS1.

Application - sanitary accessories

3.30 INSTALLING ACCESSORIES
Fit specified fittings firmly in place at required dimensions relative to floor and adjoining sanitaryware fittings, all plumb and level.

3.31 LOCATE
Locate units at heights and/or locations shown on the drawings, or as required to comply with NZBC G1/AS1. For any dimension not shown or known, request direction before proceeding.

3.32 CUTTING AND FITTING
Where cutting and fitting of the substrate is necessary for installing any unit, carry out this work before the painting or finishing of that surface. Remove any hardware when required for painting, placing it in the packaging or carton originally supplied and returning it to the secure store until ready for re-installation.

3.33 INSTALLING UNITS
Install each unit in accordance with the proprietary fixture manufacturer's requirements, using the templates and tools supplied or recommended by them. Set units level, plumb and true to line and required location, with moving parts and actions freely and easily operating. Do not make any modifications to supplied units.

Completion

3.34 REPLACE
Replace damaged or marked elements.

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3.35 PROTECTIVE COVERINGS
Leave fixtures, fittings and accessories clean and unblemished with stickers and protective coverings removed, with supply and drainage connections and all parts fully operating and working. Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following work.

3.36 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

4.1 TOILETS
Location: Refer drawings
Toilet pan: Refer to product schedule page in plans

4.2 VANITY UNIT
Location: Refer drawings
Bathroom/Ensuite Vanity: Refer to product schedule page in plans
WC Vanity Refer to product schedule page in plans
Basin mixer: Refer to product schedule page in plans

4.3 SHOWER CUBICLE
Location: Refer drawings
Manufacturer: Refer to product schedule page in plans
Shower mixer and spout Refer to product schedule page in plans

4.4 BATH
Location: Refer drawings
Bath model: Refer to product schedule page in plans
Bath taps/mixer: Refer to product schedule page in plans
Bath spout: Refer to product schedule page in plans

4.5 LAUNDRY TUB
Location: Refer drawings
Tub model: Refer to product schedule page in plans

4.6 TAPWARE
Location: Refer Drawings
Type : Refer to product schedule page in plans

4.7 ELECTRICAL ACCESSORIES
Location: Refer drawings
Heated towel rail: Refer to product schedule in plans

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7411 RAINWATER SPOUTING SYSTEMS

1. GENERAL

This section relates to rainwater disposal systems including spouting and downpipes:
- metal
- PVC

Documents

1.1 DOCUMENTS REFERRED TO
Documents referred to in this section are:

NZBC E1/AS1	Surface water
AS 1273	Unplasticised PVC (uPVC) downpipe and fittings for rainwater
NZMRM CoP	NZ metal roof and wall cladding Code of Practice

Documents listed above and cited in the clauses that follow are part of this specification. However this specification takes precedence in the event of it being at variance with the cited document.

1.2 ABBREVIATIONS AND DEFINITIONS
The following abbreviations are used throughout this part of the specification:

BMT	Base metal thickness
MRM	New Zealand Metal Roofing Manufacturers Inc
Spouting	Roof gutter bracketed off the roof edge or fascia.
Gutter	Internal gutter or gutter formed as integral part of the roof fabric.

Requirements

1.3 QUALIFICATIONS
Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

Warranties

1.4 WARRANTY - INSTALLER/APPLICATOR
Warrant this work under normal environmental and use conditions against:

3 years:	For weatherproofing by substandard workmanship:
From:	Commence the warranty from the date of completion of installation
Form:	Installers standard warranty form

1.5 WARRANTY - MANUFACTURER/SUPPLIER
Warrant this work under normal environmental and use conditions:

10 Years	For failure of coating adhesion
10 Years	For weatherproofing by material penetration
Form:	Manufacturer's standard warranty form
From:	Commence the warranty from the date of completion of installation

Performance

1.6 TEST
Test the completed rainwater disposal system with water to ensure spoutings are laid to correct falls, that both spouting and downpipes are unobstructed and that no ponding occurs in spoutings.

2. PRODUCTS

Materials - metal

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2.1 SPOUTING
Complete with matching brackets to suit spouting and screws. Refer to SELECTIONS for type.

2.2 SPOUTING BRACKETS
All exposed brackets to be colour matched before installation. Brackets to be hot-dipped galvanised, zincalume, aluminium, stainless steel or brass as specified and to suit application. Electroplated components are not acceptable. Refer to SELECTIONS for type.

2.3 DOWNPIPES
Complete with stand-off brackets, screw fixed. Refer to SELECTIONS for type.

Materials - fascia/barge system

2.4 EXTERNAL FASCIA/BARGE SPOUTING SYSTEM
Fascia/barge type complete with jointing, brackets, fittings and accessories, brand matched and complete to the manufacturer's requirements. Refer to SELECTIONS for type.

Components

2.5 DROPPERS
Metal or uPVC droppers, compatible with spouting material and sized to fit inside the downpipe.

2.6 FASTENERS GENERALLY
Minimum Class 4 durability and not less than the roofing material being fixed.

2.7 RIVETS
Sealed aluminium, minimum diameter 4mm.

2.8 SEALANT
MS Polymer sealant.

3. EXECUTION

Conditions

3.1 HANDLE AND STORE
Handle and store downpipes, spouting and accessories to avoid damage. Store on site under cover, on a clean level area, stacked to eliminate movement and away from work in progress. Avoid exposure to sunlight if strippable film is still on the product.

3.2 SUBSTRATE
Check that fascias, barges or cladding are level and true to line and face and will allow work of the required standard without distortion to the product alignment. Do not proceed until they are up to standard.

3.3 THERMAL MOVEMENT
Make adequate provision in the fixing and jointing of the spouting for thermal movement in the length of the spouting. Provide an expansion joint in spouting over 18 metres in length for steel gutter.

3.4 CORROSION
Separate metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips. Do not allow copper downpipes to discharge onto lower galvanized or zinc aluminium coated steel roofs.

Application - metal

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3.5 INSTALLATION GENERALLY
Install to NZMRM CoP NZ metal roof and wall cladding Code of Practice recommendations where not otherwise specified.

3.6 INSTALL VALLEY GUTTERS
Attach valley gutters to valley boards by clips allowing for thermal movement to NZMRM CoP NZ metal roof and wall cladding Code of Practice, clause 8.4.5 Valley gutters. Separate valley gutter from valley boards with a layer of bituminous roof underlay.

3.7 INSTALL SECRET GUTTERS
Install secret gutters to fall allowing for thermal movement to NZMRM CoP NZ metal roof and wall cladding Code of Practice, clause 8.4.8 Secret gutters. Rivet and seal joints with MS Polymer sealant.

3.8 INSTALL PRE-PAINTED METAL SPOUTING
Establish minimum falls necessary (minimum 1:500, 2mm in 1 metre) to outlets to prevent ponding and screw fix brackets true-to-line at 750mm centres maximum for external gutters less than 175mm wide and at 600mm centres maximum for gutters 175mm to 300mm wide. In areas where snow fall is possible the centres should be reduced to 600mm maximum. Lap spouting joints a minimum of 40mm and silicone seal and pop rivet to the manufacturer's recommendations. Cut out neatly for and fit the pre-formed downpipe dropper and silicone seal around the lap joint. All installation to NZMRM CoP NZ metal roof and wall cladding Code of Practice recommendations.

3.9 INSTALL EXTERNAL FASCIA/BARGE SPOUTING SYSTEM
Install concealed fascia brackets to rafters with either screws or nails and fit fascia to a level line. Fit gutter brackets to fall to outlet. Cut and form corner junctions and barge junctions and fit spouting rigidly to brackets. Cut out neatly for and fit pre-formed downpipe droppers. Silicone seal and pop-rivet all lap joints. All installation to NZMRM CoP NZ metal roof and wall cladding Code of Practice recommendations.

3.10 INSTALL DROPPERS
Install either 2 outlets or one outlet and an overflow to each spouting section. Cut out neatly for and fit the pre-formed downpipe dropper and rivet and seal around the joint. All installation to NZMRM CoP NZ metal roof and wall cladding Code of Practice recommendations.

3.11 INSTALL METAL DOWNPIPES
Form downpipes complete with angle bends as needed with joints lapped and sealed. Screw fix with pipe clips to rigidly stand off the wall plumb and discharging into stormwater gully or inlet pipe. All installation to NZMRM CoP NZ metal roof and wall cladding Code of Practice recommendations.

3.12 INSTALL DOWNPIPE SPREADERS
Install downpipe spreaders where required to NZMRM CoP NZ metal roof and wall cladding Code of Practice, clause 8.5.1 Downpipe spreaders. Provide spreaders to downpipes that discharge on to a lower roof. Ensure spreaders do not discharge directly over fasteners or laps. Spreaders to have holes equalling twice the diameter of the downpipe.

3.13 INSTALL OUTLETS AND OVERFLOWS
Install outlets and overflows where required to NZMRM CoP NZ metal roof and wall cladding Code of Practice, clause 8.6.2 Outlets and overflows.

Completion

3.14 REPLACE
Replace damaged or marked elements.

3.15 LEAVE
Leave the whole of this work discharging completely and freely into the stormwater system and free of all debris. Leave work to the standard required by following procedures.

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3.16 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

4.1 SPOUTING
Brand / Profile / Size Refer to Product Schedule page in plans
Colour: as selected by client

4.2 DOWNPIPES
Brand / Profile / Size Refer to Drawings

Fascia/barge spouting system

4.3 EXTERNAL FASCIA/BARGE SYSTEM
Brand: Refer to Product Schedule page in plans

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7420 SANITARY SYSTEMS

1. GENERAL

This section relates to above ground gravity flow sanitary systems;
- for foul water
- from sanitary fixtures to first underground drain connection
- including system wastes, floor wastes, floor waste gullies, traps, vents and valves
- with associated components and accessories to make the system work

1.1 RELATED SECTIONS
Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures tapware and accessories.
Refer to 7430 DRAINAGE for underground drains.

1.2 DOCUMENTS
Documents referred to in this section are:

NZBC G1/AS1	Personal hygiene
NZBC G13/AS1	Foul water - Sanitary plumbing
NZBC G13/AS3	Plumbing and drainage
AS 2887	Plastic waste fittings
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent applications
AS/NZS 2032	Installation of PVC pipe systems
AS/NZS 3500.2	Plumbing and drainage - Sanitary plumbing and drainage

Plumbers, Gasfitters and Drainlayers Act 2006

1.3 QUALIFICATIONS
Carry out all work under the direct supervision of a certifying plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

2. PRODUCTS

2.1 PVC-U WASTE, DISCHARGE AND VENT PIPES
PVC-U pipe to AS/NZS 1260 complete with fittings brand-matched to the pipe manufacturer's requirements.

2.2 EXPOSED PIPES AND TRAPS
Chrome plate on copper pipes and associated copper and brass fittings.
White polybutylene or PVC, including all associated fittings.

3. EXECUTION

3.1 EXECUTION GENERALLY - NZBC G13/AS1
Carry out this work and complete all tests to NZBC G1/AS1: 2.0, 3.0 and NZBC G13/AS1.

3.3 ELECTROLYTIC ACTION
Avoid electrolytic action by eliminating actual contact or continuity of water between dissimilar metals.

3.4 INSTALL TRAPS, WASTE AND VENT PIPES - NZBC G13/AS1
Connect waste outlets to traps and run waste pipes and back vents concealed, sized and fixed to NZBC G13/AS1 and AS/NZS 2032. Discharge wastes into the drainage system stack, soil pipe, or gully trap as shown. Bird proof mesh to all roof vents and vermin proof mesh to all untrapped waste pipes.

3.6 PENETRATIONS
At penetrations through constructions provide and fit collars and escutcheon plates to match pipework.

3.7 TEST
Test soil and waste disposal systems to ensure no leakage exists and leave in proper working order.

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3.8 CLEAN UP
Remove labels and clean fittings. Remove unused materials from the site.

4. SELECTIONS

4.1 PVC-U WASTE, DISCHARGE AND VENT PIPES
Brand/type: Marley

4.2 EXPOSED PIPES AND TRAPS
Brand/type: Marley

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7430 DRAINAGE

1. GENERAL

This section relates to the supply and laying of gravity foul water (sewage), stormwater and groundwater drainage.

1.1 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZBC B1/AS1	Structure
NZBC E1/AS1	Surface water
NZBC G13/AS2	Foul Water
NZBC G13/AS3	Plumbing and Drainage
AS/NZS 1254	PVC-U pipes and fittings for Stormwater and Surface Water applications
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent applications
AS/NZS 2032	Installation of PVC pipe systems
AS/NZS 2033	Installation of Polyethylene pipe systems
AS 2439.1	Perforated Plastics Drainage and Effluent Pipes and Fittings - Perforated drainage pipe and associated fittings
AS/NZS 2566.1	Buried Flexible Pipelines - Structural Design
AS/NZS 2566.2	Buried Flexible Pipelines - Installation
NZS 3104	Specification for concrete production
AS/NZS 3500.2	Plumbing and drainage - Sanitary plumbing and drainage
NZS 3604	Timber-framed buildings
NZS 4229	Concrete masonry buildings not requiring specific engineering design
AS/NZS 4671	Steel reinforcing materials
AS/NZS 5065	Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications

Plumbers, Gasfitters and Drainlayers Act 2006

1.2 AS BUILT DOCUMENTS

Supply a 1:100 scale as-built drawing of drains and fittings to the territorial authority and to the owner on completion.

1.3 QUALIFICATIONS

Drainlayers to be experienced, competent and familiar with the materials and techniques specified. Carry out all work under the direct supervision of a certifying drainlayer under the Plumbers, Gasfitters and Drainlayers Act 2006.

2. PRODUCTS

2.1 CONCRETE

17.5 MPa prescribed mix to NZS 3104.

2.2 REINFORCEMENT

Plain round and/or deformed steel bars, Grade 300 to AS/NZS 4671.

2.3 PVC-U PIPES

PVC-U pipes bends, junctions, fittings and joints to AS/NZS 1254 and AS/NZS 1260.
Underground PVC-U pipe to be Classified as follows:

Classification	Use
SN4 - SN6	Domestic & light load areas
SN8 - SN10	Commercial & Industrial medium load areas
SN16	Public roads & high load areas

2.5 GULLY TRAPS - AS/NZS 3500.2

Gully traps complete with grating to AS/NZS 3500.2, 4.6 Gullies, as modified by NZBC G13/AS3.

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2.8 INSPECTION COVERS
Cast iron frame with screw-down cover.

2.9 TRENCH BACKFILLING MATERIAL - NZBC G13/AS2 & NZBC E1/AS1
Bedding: Clean granular non-cohesive material with a maximum particle size of 20 mm.
Bedding & surround: Clean granular non-cohesive material with a maximum particle size of 20 mm.
Compacted selected fill: Any Fine grain soil or granular material which is free from topsoil and rubbish and has a maximum particle size of 20 mm.
Ordinary fill: Excavated material.
Concrete: 75 mm thick concrete pad.

3. EXECUTION

3.1 EXCAVATE
Excavate for drains to a firm even base with correct gradients set in straight runs. Trenches running parallel, below and close to foundations of buildings to NZS 3604 or NZS 4229 to be separated to:
- NZBC E1/AS1, 3.9.7, **Proximity of Trench to Building**, for stormwater and subsoil drains.
- NZBC G13/AS2, 5.6, **Proximity of Trench to Building**, for foul water drains.

3.2 MANUFACTURER'S REQUIREMENTS
All drainage installations to the pipe and fitting manufacturer's requirements.

3.4 DRAINAGE GENERALLY - AS/NZS 3500.2 & NZBC E1/AS1
Carry out drainage work and tests to AS/NZS 3500.2, as modified by NZBC G13/AS3 (foul water), NZBC E1/AS1 (stormwater). Lay uPVC pipe systems to relevant sections of AS/NZS 2032, NZS 2566.1 and AS/NZS 2566.2. Lay polyethylene pipes and fittings to relevant sections of AS/NZS 2033 and NZS 2566.1.

3.5 LAY FOUL WATER DRAINS
Lay drains in straight runs to correct gradients, to discharge into the network utility operator's sewer. Set inspection fittings on a concrete base.

3.7 INSTALL GULLY TRAPS
Set on concrete 50mm above the surrounding ground or paving and brought up to protect the top of the fitting. Trowel off.

3.8 LAY STORMWATER DRAINS
Confirm the required location of downpipes and finished ground levels before commencing pipework. Set downpipe bends in concrete with the concrete brought up to protect the top of the bend from damage. Lay drains in straight runs to correct gradients to discharge into the network utility operator's stormwater system.

3.10 SOAKHOLES OR TRENCHES (IF REQUIRED - REFER TO DRAWINGS)
Dispose of stormwater on site as shown on the drawings, by soakage, to suit local geology and soil structure; all as directed by the territorial authority.

3.11 CONCRETE ENCASEMENT
Concrete encase shallow drains and drains under driveways, on a 100mm deep 17.5 MPa concrete bed reinforced with three 10mm mild steel bars. Surround pipes with a polythene membrane to allow movement and encase in 100mm 17.5 MPa concrete.

3.12 FIELD TEST
Field test drains for watertightness (PVC-U to AS/NZS 2032 or AS/NZS 2566. 2 Appendix N) to the satisfaction of the territorial authority inspector.

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3.13 PLACING & COMPACTING TRENCH BACKFILLING MATERIAL

Granular bedding and selected fill shall be placed in layers no greater than 100 mm loose thickness and compacted. Base bedding (beneath the pipe) shall be placed and compacted before pipes are laid.

Up to 300mm above the pipe, compaction shall be by tamping by hand using a rod with a pad foot (having an area of 75 ± 25 mm by 75 ± 25 mm) over the entire surface of each layer to produce a compact layer without obvious voids, without disturbing the drains.

More than 300 mm above the pipe, compaction shall be by at least four passes of a mechanical tamping foot compactor (whacker type) with a minimum weight of 75 kg.

4. SELECTIONS

4.1 PVC-U PIPES

Brand/type: Marley

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7701 ELECTRICAL BASIC

1. GENERAL

This section relates to the wiring for domestic and small scale commercial installations, including:
- power
- lighting
- electrical automation
- security system
- complete with componentry
- electrically-powered fittings
- fire rated sealers, liners and accessories

1.1 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

CFL	compact fluorescent lamp
ELV	extra low voltage
GLS	general lighting service
IP	international (ingress) protection classification
LCD	liquid crystal display
LED	light emitting diode
MCB	miniature circuit breaker
NUO	Network Utility Operator
PCB	printed circuit board
PIR	passive infrared
RCBO	residual current-operated circuit breaker with over current protection
RCCB	residual current-operated circuit breakers
RCD	residual current device
SIA	security integration architecture
TPS	tough plastic sheathed
TCF	Telecommunications Carriers' Forum

Documents

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
NZBC F6/AS1	Visibility in escape routes
NZBC F7/AS1	Warning systems
NZBC G4/AS1	Ventilation
NZBC G9/AS1	Electricity
AS/NZS 1125	Conductors in insulated electric cables and flexible cord
AS/NZS 1768	Lightning protection
AS/NZS 2201.1	Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
AS 2293.1	Emergency escape lighting and exit signs for buildings - System design, installation and operation
AS 2293.3	Emergency escape lighting and exit signs for buildings - Emergency escape luminaires and exit signs
AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3008.1.2	Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical New Zealand installation conditions
AS/NZS 3100:2009	Approval and test specification-general requirements for electrical equipment
AS/NZS 3112	Approval and test specification - Plugs and socket-outlets
AS/NZS 3113	Approval and test specification - Ceiling roses

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AS/NZS 3190	Approval and test specification - Residual current devices (current-operated earth-leakage devices)
AS/NZS 3350.1	Safety of household and similar electrical appliances - General requirements
AS/NZS 3439.3	Low-voltage switchgear and controlgear assemblies - Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards
AS 3786	Smoke alarms
NZS 4514	Interconnected smoke alarms for houses
AS/NZS 5000.2	Electric cables - Polymeric insulated - for working voltages up to and including 450/750v
AS/NZS 60598.2.2:2001	Luminaires - Particular requirements - Recessed luminaires
IEC 61643	Components for low voltage surge protection devices

Electricity (Safety) Regulations 2010 (Reprint as at 4 April 2016)
TCF Premises Wiring Code of Practice 2011

Warranties

1.3 WARRANTY
Warrant the complete electrical installation under normal environmental and use conditions against failure of materials and execution.
1 year: Warranty period

Requirements

1.4 COMPLY
Comply with the Electricity (Safety) Regulations 2010, AS/NZS 3000, AS/NZS 3008.1.2 and TCF Premises Wiring Code of Practice for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection. Arrange for the required inspections of listed work. Pay all fees.

1.5 QUALIFICATIONS
Carry out work under the supervision of an electrical licensed supervisor.

1.6 SAFETY OF INSTALLATION - DESIGN BY ELECTRICIAN
Before installation work commences provide a Certified Design. The Certified Design is to comply with the Electrical (Safety) Regulations (2010), regulations 58. It must be signed by the designer of the installation.

1.7 ELECTRICAL CERTIFICATE OF COMPLIANCE
Supply a certificate of compliance (CoC) to the owner, and if required the NUO, as required by the Electricity (Safety) Regulations (2010), prior to connection.
- Arrange for the NUO to inspect before the meter installation, listed work inspection, polarity check and supply becoming live.
- Arrange for an inspector to inspect as required by regulation 70.

1.8 ELECTRICAL SAFETY CERTIFICATE
Provide an Electrical Safety Certificate (ESC), as required by the Electrical (Safety) Regulations 2010, to the owner and when required the BCA. To be provided no later than 20 working days after connection and prior to Practical Completion.

2. PRODUCTS

2.1 MAINS SUPPLY, SINGLE PHASE
Tough plastic sheathed neutral screened cable to AS/NZS 4961 and AS/NZS 3008.1.2, with a minimum rating of 60 amps per phase. Include pilot cable where required by network utility company.

2.2 CABLES
Tough plastic sheathed copper conductors to AS/NZS 5000.2, stranded above 1.0mm², and to AS/NZS 3008.1.2. Minimum sizes as below. Increase sizes if the method of

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installation, thermal insulation, cable length or load will reduce the cable rating below that of the MCB rating, or produce an excessive voltage drop.

Lighting circuits: Domestic: 1.0mm² on 6 amp MCBs

Power circuits: 2.5mm² on 16 amp MCBs for domestic and unenclosed or unfilled cavity construction
2.5mm² on 16 amp MCBs for domestic insulated construction, or filled cavity
2.5mm² on 20 amp MCBs for unenclosed or unfilled cavity construction
2.5mm² on 16 amp MCBs for insulated construction, or filled cavity, or lengths over 30 metres

Hot water cylinder circuits: Single phase: 2.5mm² on 20 amp MCBs

Range/oven/hob circuits: Single phase: 6mm² on 32 amp MCBs

Heat resistant cable for final connections to all heated appliances, and high temperature cable in ambient conditions that may be above 35°C.

2.3 METER BOX

Proprietary manufactured, weatherproof where mounted outdoors, and complete with meter mounting, main switch and fuse.

2.4 DISTRIBUTION BOARD

Flush surface mount boards manufactured to AS/NZS 3439.3 and installed in accordance with AS/NZS 3000. Manufactured from engineering grade resin with a glow wire rating of 850°C, complete with neutral and earth busbars, and insulated comb phase bar. Distribution boards to have 20% spare capacity for future additions and alterations.

2.5 CIRCUIT PROTECTION

General requirements including main switch 63A or 100A. Residual current protection 30mA, ensure RCCBs' meet Type A and comply with AS/NZS 3190. MCBs to 4.5kA or 6kA rated.

2.6 SMOKE ALARMS

Type 1 domestic smoke alarm to NZBC F7/AS1. 1.2 **Descriptions of alarm systems**. Alarm to AS 3786. A wired 230 volt ionised smoke detector type.

2.7 SWITCHED SOCKET UNITS

10 amp, 230 volt flat 3 pin socket outlets fitted with safety shutters and manufactured to AS/NZS 3100, AS/NZS 3112 and AS/NZS 3113, single or multi gang as detailed.

2.8 WALL BOXES

Standard grid size or equivalent to be manufactured from plastic or metal, with 2 or more gang size to be metal with steel inserts for accessory securing screws. Screw fixed.

2.9 SWITCH UNITS

Single pole switches to be 16 amp minimum rated, double pole or intermediate to be 16 amp minimum rated. All switches to be 230 volt a.c. polycarbonate flushplate units. Refer to drawings/schedules for number of switches per unit, dimmer units, neon (indicator or toggle) units and 2 way units.

2.10 HOT WATER SYSTEM SWITCH

One way 20 amp switch complete with cable clamp for flexible PVC conduit to element enclosure.

2.11 SURGE PROTECTION

Protection for the homes appliances with IEC 61643 Class ll surge protection devices fitted to the switchboard. For variable electronic equipment fit IEC 61643 Class lll surge protection to switched socket outlets.

2.12 RESIDENTIAL RECESSED LIGHT FITTINGS

Residential recessed luminaires to AS/NZS 60598.2.2, types IC-F, IC, CA-80 or CA-135 only.

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2.13 EXHAUST FANS
Ceiling, wall or duct mounted exhaust fans for ventilation to NZBC G4/AS1, and compliant with AS/NZS 3350.1.

2.14 HEATED TOWEL RAILS
Fixed wired heated towel warmers, double insulated, IPX4 splash-proof, compliant with AS/NZS 3350.1, scratch resistant powdercoated or chrome finish.

3. EXECUTION

3.1 OUTDOOR SWITCHES & SOCKETS
Using materials with superior UV protection, impact strength, and addition chemical resistance when compared with interior polycarbonate fittings. Weather protected, switches to IP56 minimum, and sockets to IP53 minimum. Sockets fitted with safety shutters behind socket pins, and all products able to be padlocked off or on.

3.2 MAIN SUPPLY
Lay underground mains to the NUO requirements. Excavate trench, install cable and marker tape and backfill.

3.3 METER BOX
Fit to meter box manufacturer's and Electricity Retailer's requirements. Recess into external wall in sheltered area and flash to weatherproof to NZBC E2/AS1 fig 69. Arrange for meter installation and connection.

3.4 DISTRIBUTION BOARD
Fit to AS/NZS 3000 and board manufacturer's requirements. Recess into wall or surface mount and ensure fire containment properties of the enclosure are maintained.

3.5 CIRCUIT PROTECTION
Install MCBs at distribution board to AS/NZS3000 to protect each final sub circuit.

3.6 EARTH BONDS
Bond together and to earth all plumbing fittings not adequately isolated, to AS/NZS 3000, the Electricity (Safety) Regulations 2010 and the fitting manufacturer's requirements.

3.7 MAIN EARTH
Provide a plastic toby box to contain and protect the earth electrode. Fix the connecting earth wiring closely and securely against wall surfaces.

3.8 EARTH LEAKAGE PROTECTION
Install RCD protection to AS/NZS 3000.

3.9 RCD - DOMESTIC INSTALLATIONS
Install 30mA RCD protection at the switchboard for all final sub circuits to control outlets and lighting except for fixed or stationary cooking equipment, to AS/NZS 3000.

3.10 RCD - SPECIFIC INSTALLATIONS
Install 30mA RCDs at the distribution board.
Install fixed wired RCD protected outlets (SRCD) in the following areas:
- Wet areas: bathrooms, laundries, kitchens.
- Near pools and water features.
- Where intended for use with cleaning equipment.
- Hand-held tools subject to movement in use, i.e. work-shops, garages.

3.11 SET-OUT
The position of outlets and equipment shown on drawings is indicative of requirements. Confirm documents and site conditions are not in conflict with other services or features. Resolve conflicts and discrepancies before proceeding with work affected. Confirm on site the exact location, disposition and mounting heights of all outlets, fittings, equipment, penetrations, and use of exposed wiring. Fix outlet items level, plumb and in line.

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3.12 CABLING

Install wiring systems to AS/NZS 3000. All cabling run concealed. No TPS cable laid directly in concrete. Locate holes in framing for the passage of cables at the centre line of the member. Install cable in conduits where required to pass through concrete or underground. In walls run cabling horizontally and vertically in straight lines. In ceilings either run cabling along ceiling framing or attached to catenary wires. Clip cabling to ceiling framing/catenary wires.

All cabling installed into Zog Steel frames shall be run through plastic grommets installed into service holes.

3.13 CABLING CIRCUITS

Install all circuits with the appropriately rated cable and circuit protection. Install with a maximum of 8 light switch units or 4 double or single switched socket units on any circuit. Minimum 2 lighting circuits per floor. Separate circuits for all electric heating appliances. Kitchen sockets to be on at least two different circuits.

3.14 WALL BOXES

Mount flush in cavity construction size to fit products selected. Fix vertically mounted wall boxes to studs. Screw fix horizontally mounted switched socket outlet wall boxes to solid blocking or nogs. Fix switch panel wall boxes to solid blocking.

3.15 SWITCH AND SOCKET UNITS

Fit all single and double switch units, all sockets to the following heights (to the centre of the unit) unless shown otherwise on the drawings.

Switch Units: 1000mm above finished floor
Socket Units: 150mm above work benches
400mm above finished floor

Mount light switches and switch socket outlets vertically and socket units horizontally. Label all switch units that control electrical equipment or special lighting circuits by colour filled engraving on the switch. Use proprietary engraved switch mechanisms where applicable.

3.16 RECESSED LIGHT FITTINGS - CLEARANCE TO INSULATION

Non-residential applications;
The clearance between insulation and recessed downlights;
- Leave 100mm gap to AS/NZS 3000, figure 4.9
- Provide larger gaps where required by the downlight manufacturer

Residential applications;
- Ensure new recessed downlights are one of the new classes classified in AS/NZS 60598.2.2; CA 80, CA 135, IC and IC - F.
- Classification type CA 80, CA 135, to AS/NZS 60598.2.2; insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to AS/NZS 60598.2.2; insulation can abut and cover over the top of the downlight
- Provide larger gaps where required by the light manufacturer
- In a retrofit situation where the insulation is non-approved or unknown, ensure 100mm clearance from the insulation to AS/NZS 3000, figure 4.9.

3.17 SMOKE ALARMS

Install Type 1 domestic smoke alarm system to NZBC F7/AS1 3.0 **Domestic smoke alarms**, NZS 4514 and to the alarm manufacturer's requirements. Fit neatly and without damage to the surrounding finish.

3.18 SURGE PROTECTION

Install surge protection devices to manufacturer's requirements and in accordance with AS/NZS 3000 and AS/NZS 1768. When fitting IEC 61643 Class ll protection at the switchboard, protect the device by a dedicated MCB.

3.19 ELECTRIC POWERED FITTINGS AND EQUIPMENT

Install and wire fittings and equipment to individual fittings and equipment manufacturer's requirements. Refer to the drawings for required layouts and locations for equipment. Refer to SELECTIONS for schedules of fittings.

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3.20 BATHROOM ELECTRICAL FIXTURES

Install all electrical fixtures. Connect the following bathroom and toilet electrical items:

- Heated towel rails: Install to manufacturers requirements and installed in accordance with AS/NZS 3000 and the NZBC G9/AS1
- Mirror demisters: Locate centrally above the wash hand basin(s). Connect wiring to room lighting unless specified otherwise.
- Exhaust fans: Install exhaust fans to manufacturer requirements. Installed in accordance with AS/NZS 3000 and NZBC G4/AS1.

3.21 OUTDOOR/EXTERIOR SERVICES

Install all wiring systems in accordance with AS/NZS 3000 and in accordance with the manufacturer's recommendations:
Provide circuits and connections for exterior installations, including ELV 12/24 Volt path lighting and electronic irrigation systems. Refer to drawings for connection points.
Where underground, ensure appropriate protection, such as thickness of sheathing, conduit, depth of cabling, and proximity to other services.
Use the appropriate rated fittings for power control and power supply. Weather protected switches to IP56, and sockets to IP53 as a minimum. Install to manufacturer's specifications using recommended fittings and sealants to maintain the products integrity.
Earth leakage protection to be provided for in areas where there is increased risk to human safety in the form of either RCDs at the distribution board, or socket outlet. RCDs are recommended for visible awareness of protection.

3.22 LABELLING

Include label under each controller, switch and circuit breaker on distribution boards.
Include a warning notice if light dimmers are used in the installation. List the rating of each circuit.

Completion

3.23 COMPLETION

Leave installation operating correctly, with equipment clean and operational.

4. SELECTIONS

Materials

4.1 SELECTIONS - FITTINGS AND HARDWARE

Confirm selections of all outlet fittings and hardware with the owner in writing before ordering.

4.2 METER BOX

Location:	Refer Drawings
Brand / type:	As per Golden Homes standard selections

4.3 DISTRIBUTION BOARD

Location:	Refer Drawings
Brand / type:	As per Golden Homes standard selections

Outlets - fittings

4.4 HEATED TOWEL RAILS

Location	**Brand / type**
Refer Drawings	As per Golden Homes standard selections (IP45 rated)

4.5 BATHROOM FANS

Location	**Brand / type**
Bathroom / ensuite-Extract:	As per Golden Homes standard selections

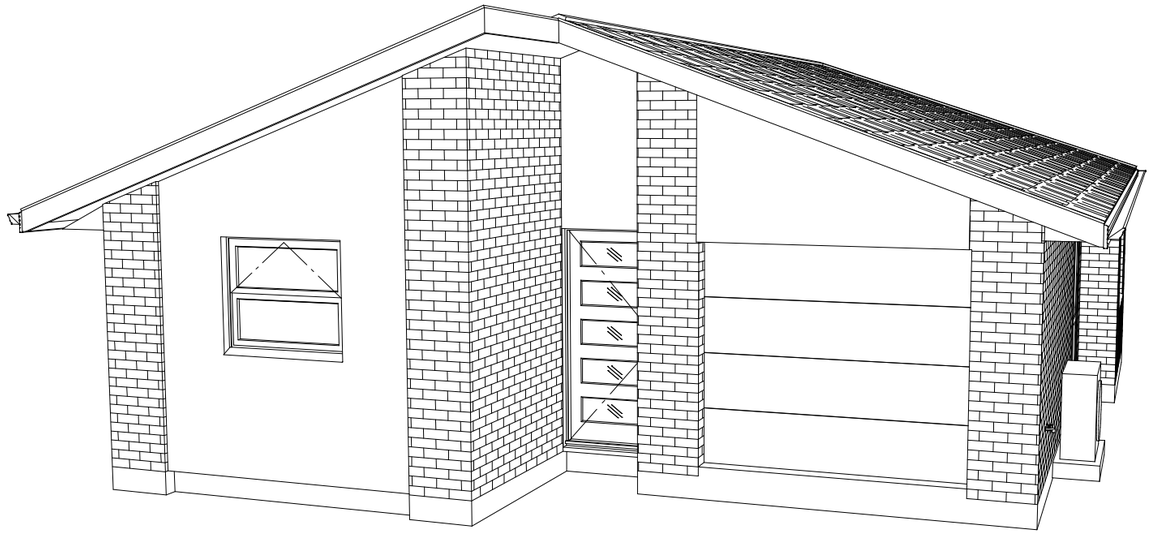
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2	Site Existing
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4	Site Works
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10	Elevations .1
11	Elevations .2
12	Floor Plan
13	Foundation Plan
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16	Cross Section
17	Bracing Plan
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19	Wall Frame Details - Lintels & Hold Downs
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21	Exterior Joinery Details - Installation & Seal 1
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23	HomeRAB TB Fixing Layout
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37	Insulation Details
38	Electrical Plan
39	Product Schedule



3D Picture Indicative only

Reports used and required on-site

Geotechnical report used for foundation design	= Geotechnical Completion Report by Aurecon ref: 247593-320 Rev 3 dated: 8 March 2019
Storm-water design / method	= On Site, Soakage Assessment by Lysaght ref: 152870 dated: 1 February 2019
	= Soakage Testing & Assessment by Aurecon ref: 247593 dated: 21 January 2019
Waste-water design / method	= Council connection
Water treatment design / method	= Council connection
Certificate of Title 866647	
Interest 11333786.2	= Consent Notice
Interest 1133378.5	= Land Covenant

Note: Prior to any construction starting plans must be reviewed by all contractors and any issues involving information or workability for their own trade and for following trade, any issues must be notified to draughting, so that those issues can be resolved before construction starts.

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NOTES:

ZOG® frames & trusses

- ZOG® frames & trusses are designed using Vertex engineering & detailing software.
- ZOG® framing is 90x40x0.75mm rollformed from AXXIS® steel provided by NZ Steel Ltd.

FOUNDATION ENGINEER
e3 Consultants NZ Ltd
STEEL FRAME ENGINEER
e3 Consultants NZ Ltd

Building Design Summary

Site data

Ground bearing:	(refer AS2870)
Subsoil Class:	(NZS1170, section 5)
Wind zone:	(NZS3604, section 5)
E-quake zone:	(NZS3604, figure 5.4)
Climate zone:	(NZS4218, B1)
Exposure zone:	(NZS3604, figure 4.2)
Rainfall zone:	(NZBC:E1, Niwa)
Snowload:	(NZS3604, figure 15.1)

Building data

Building cat:	(NZS3604, table 1.1)
Floor live loads:	(NZS3604, table 1.2)
Protect. from fire:	(C1/AS1: Risk Group SH)

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

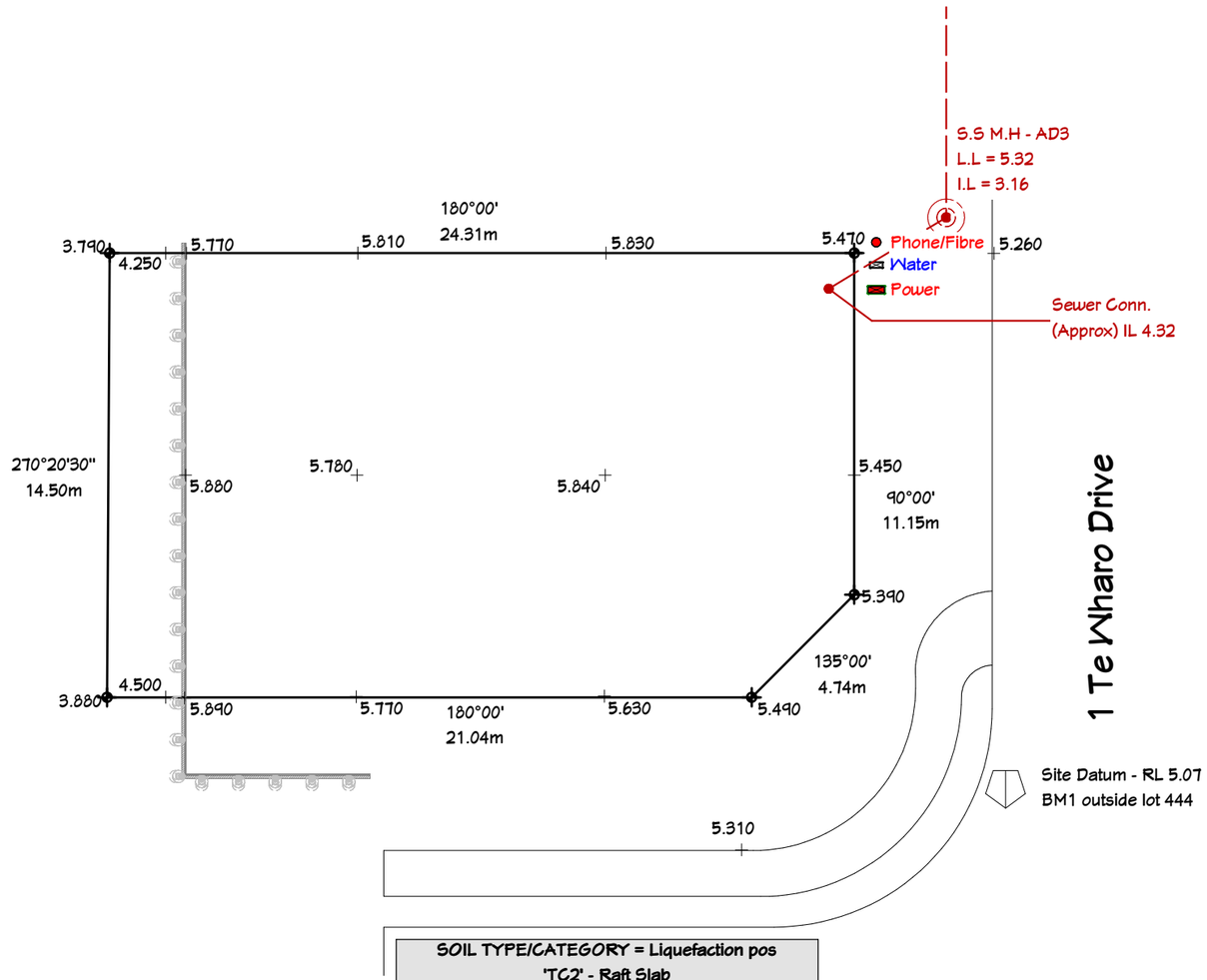
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Contents & Design

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE:	SHEET No. 1 OF 39

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SOIL TYPE/CATEGORY = Liquefaction pos 'TC2' - Raft Slab

FLOOD MANAGEMENT

Minimum building platform RL 5.10m to Moturiki Datum
Finished Ground Level RL 5.90
Minimum FFL RL 6.05
as per Lysaght Dwg no. 152870-ABS3-200-EW Rev 5 in Report
Soakage Testing & Assessment by Aurecon ref: 247593 dated: 21 January 2019

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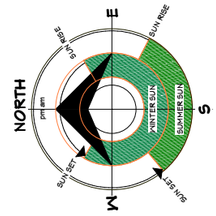
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NOTES:

Prior to starting any works

- Locate and identify boundary pegs, service connection points and there inverts (Confirm all falls shown in drawings will comply)
- Public protection from onsite hazards, Site safety fencing (when required by T.A), 2.0m(min) to prevent site hazards from harming traffic or passers-by, to restrict unauthorized entry by children - ensure fencing is difficult to be climbed, gates and doors do not project beyond site when open, and encloses the whole site.
- All building sites to have Worksafe NZ compliant warning signs erected.
- Any hazardous equipment or materials will be stored onsite only if secured, by portable building lock up or in the house being built (after lock-up stage)
- Sites to be assessed on a individual basis by construction managers for compliance with NZBC clause F5 and if specific hazards exist then a work-site barrier must be erected.



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Site Existing

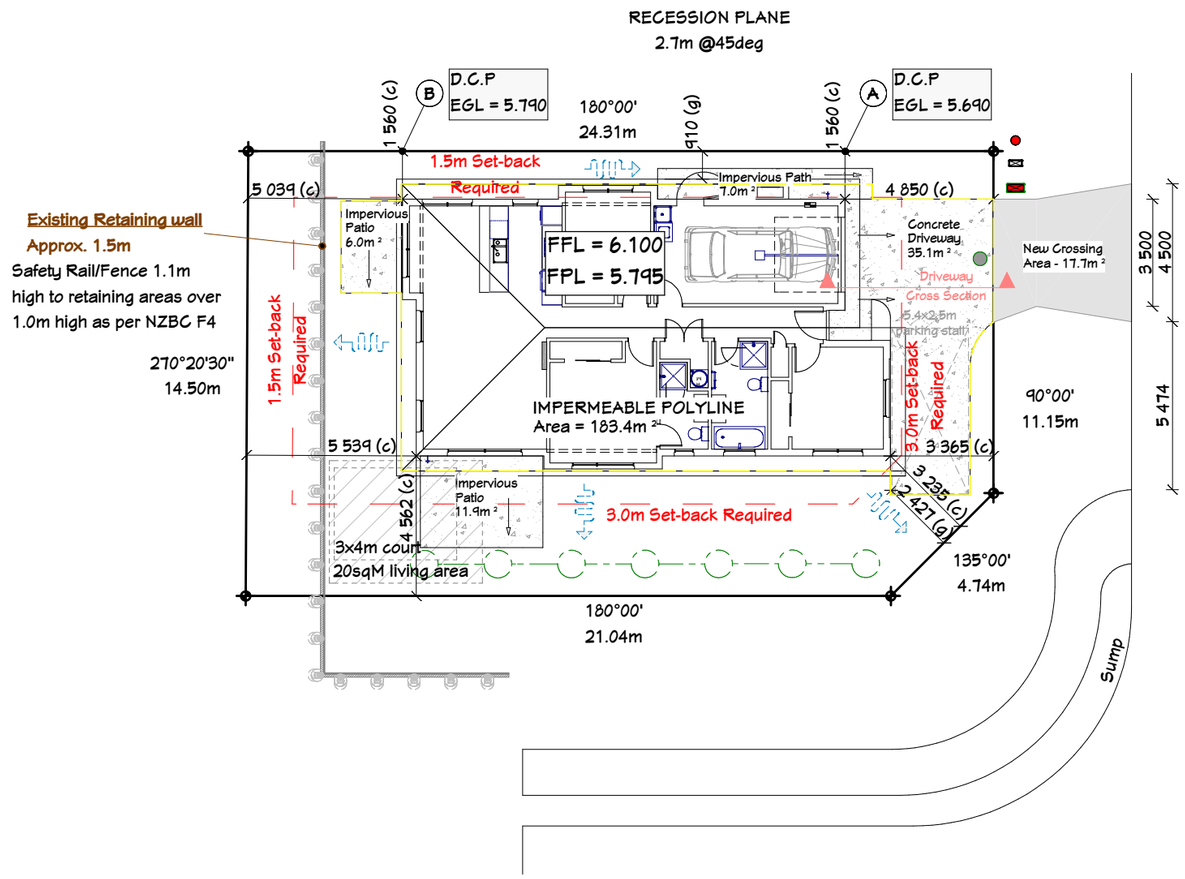
JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	1:200	SHEET No.	2 OF 39

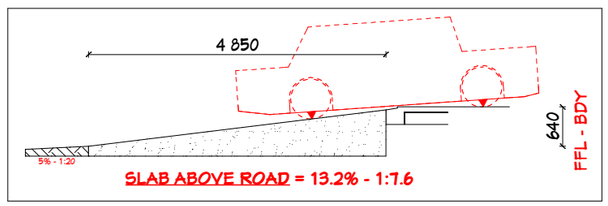
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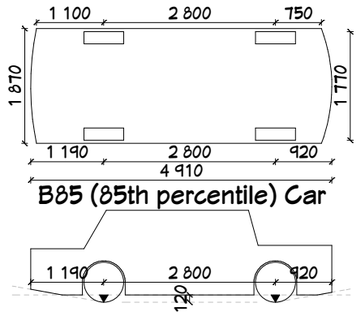
Site area	= 347m²	
Footprint (over cladding)	= 126.7m²	= 36.6%
Roof	= 147m²	= 42.4%
Impermeable (Polyline)	= 183.4m²	= 52.9%

(Impermeable, excludes the overlapping of each Impermeable Surface)

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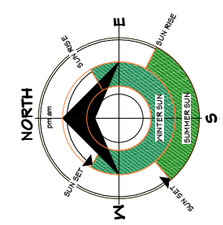
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NOTES:

KEY

FFL = Finished floor level
FGL = Finished ground level
FPL = Finished platform level
EGL = Existing ground level
D.C.P = Daylight control point
(f) = Dimension to foundation
(c) = Dimension to cladding
(g) = Dimension to gutter/eave
= Phone/Fibre
= Power
= Water
= Bubble Up Chamber
= Type 1 sump
= Type 2 sump
= Drainage channel
= Overland flow path
= Fall of paving



CLIENT:

Creamer Residence
Lot 444, DP 530967
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Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

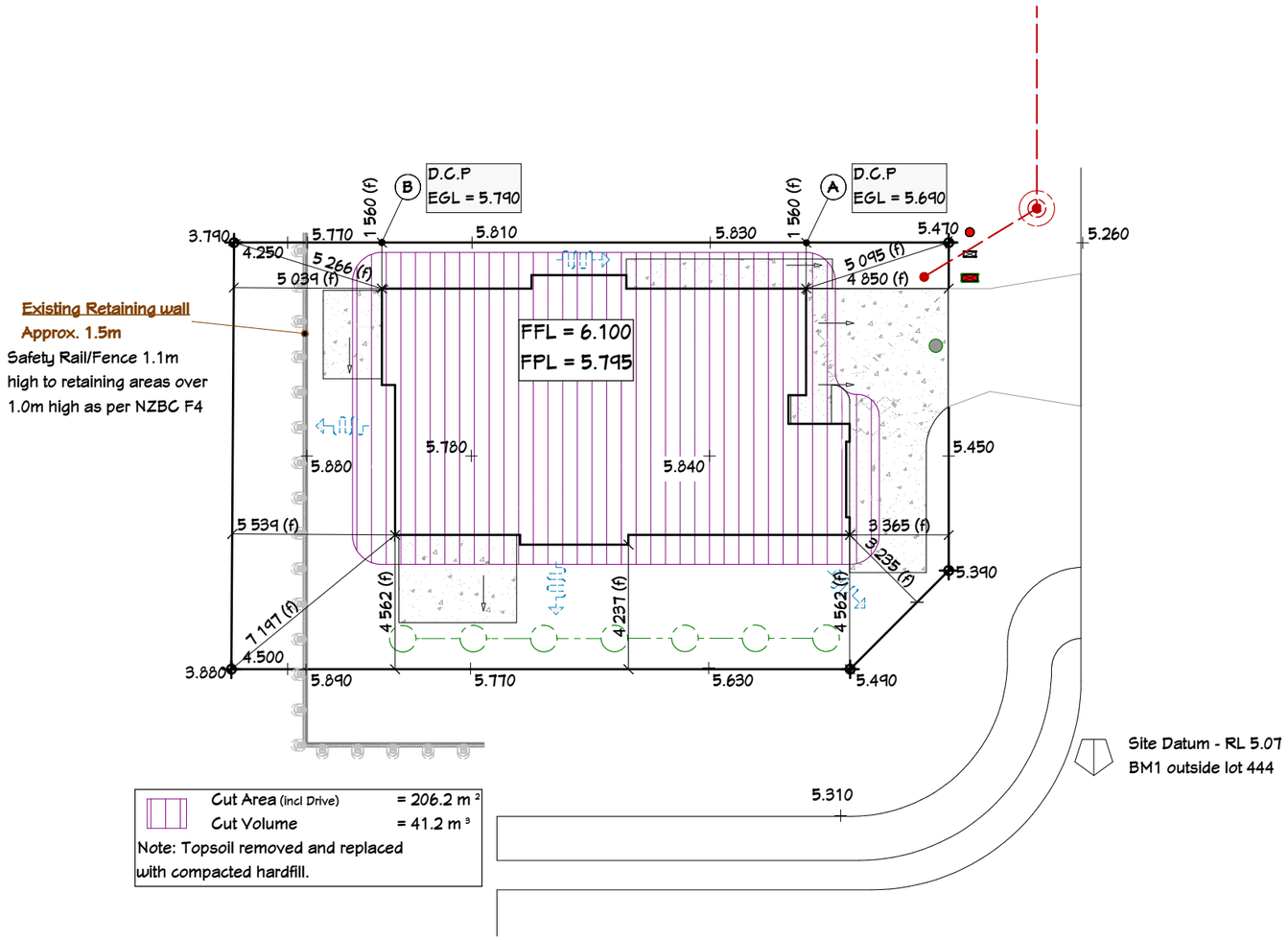
Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Site Planning

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	1:200	SHEET No.	3 OF 39

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Excavation and foundation compaction to be in accordance with the geotechnical report accompanying the drawings. (ref page 1 for report)
Minimum Ultimate Bearing Capacity required for slab is: 200kPa
Extent of Platform beyond Foundation Edge: 1000mm
Dig out depth is: All topsoil (Approximate only to be confirmed on-site during excavation)
General Notes:



Cut Area (Incl Drive)	= 206.2 m²
Cut Volume	= 41.2 m³

Note: Topsoil removed and replaced with compacted hardfill.

- All floor / platform levels to be confirmed on site prior to commencing foundations
- Depth and distance out from building footprint of the foundation hardfill, when required, is to be as stated in the Geotechnical Report used for Foundation Design. Ref page 1 for report.
- The actual ground conditions encountered during excavation for all consent related construction shall be monitored and verified, in writing, as similar to the conditions given in report(s) noted
- Any variations in conditions that could affect the consent related construction must be re-evaluated by a suitably qualified engineer and an updated report provided to DINEX for redesign of the affected construction.

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= Power
= Water
= Bubble Up Chamber
= Type 1 sump
= Type 2 sump
= Drainage channel
= Overland flow path
= Fall of paving

Onsite sediment control
- In accordance with TA's requirements.
- Access via stabilised entry/exit pad.
- Covered wind proof skip bin
- Site access, storage and construction should be controlled so that there is no adverse environmental effects.
- Temporary down pipes to be installed to control roof water run-off

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

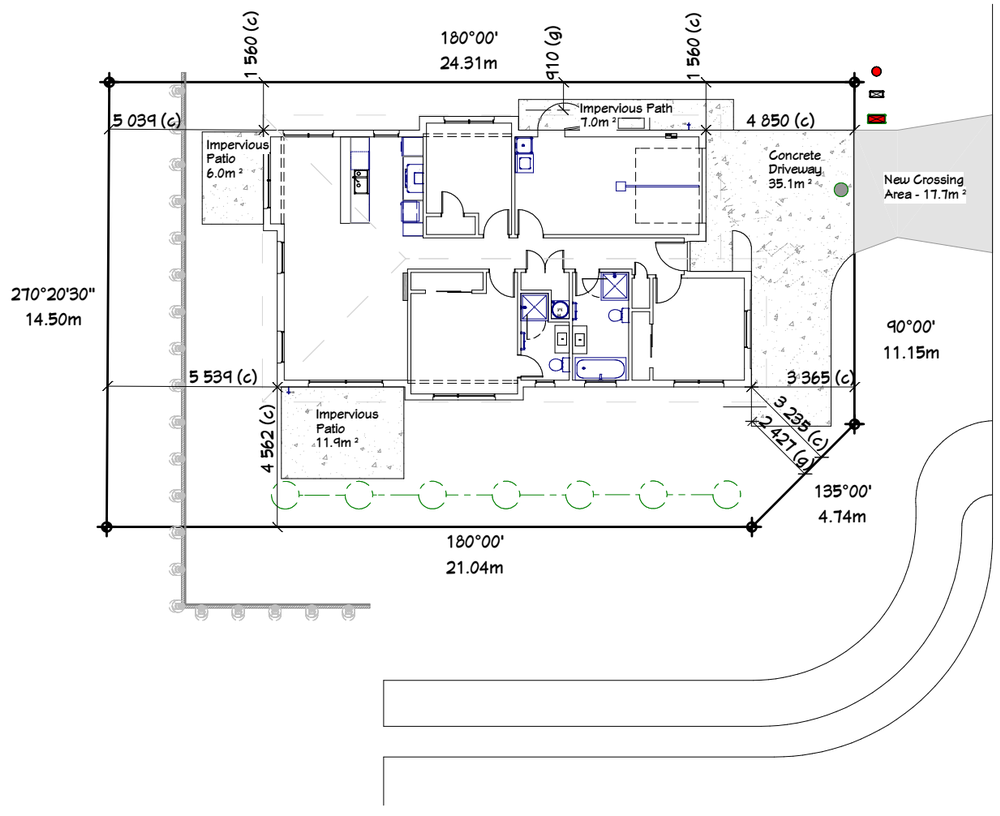
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Site Works

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	1:200	SHEET No.	4 OF 39

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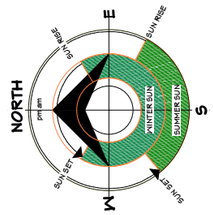
1 Te Wharo Drive

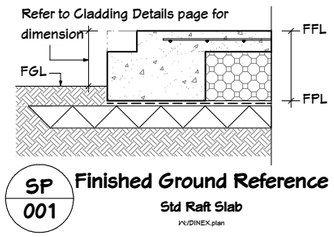
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GOLDEN HOMES™

CODEMARK™ CM70023

NOTES:





CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

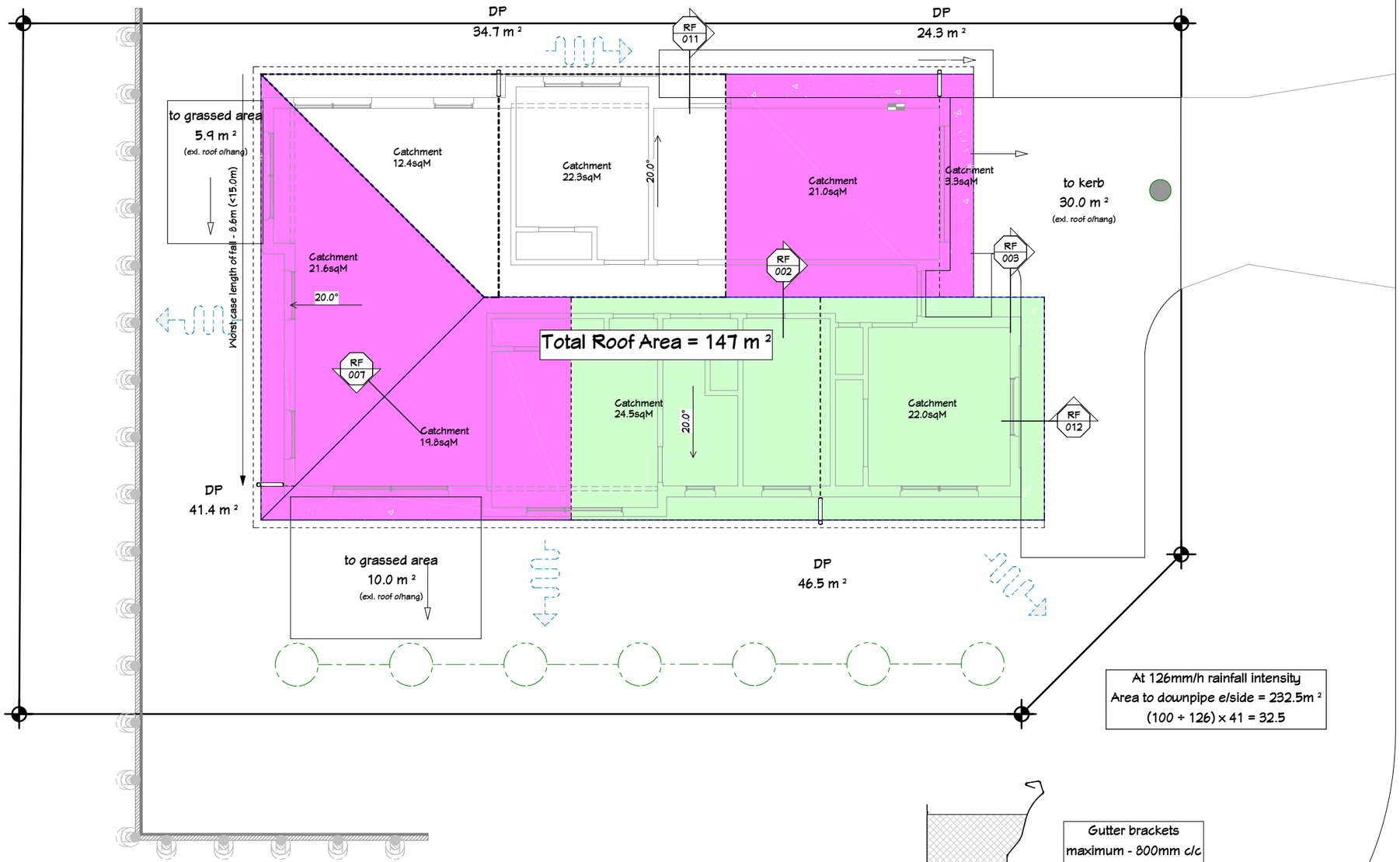
TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

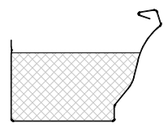
Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Site Plan

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	1:200	SHEET No.	5 OF 39



At 126mm/h rainfall intensity
Area to downpipe e/side = 232.5m²
(100 ÷ 126) x 41 = 32.5



Gutter brackets
maximum - 800mm c/c

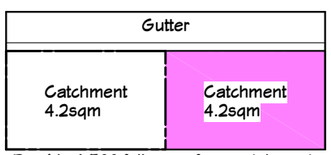
RAINWAY CLASSIC 125 GUTTER
Material : 0.5mm Colourcoat Steel
Cross Sectional Area : 5208mm² (with free 10mm board)
Flow Capacity : 71 litres/min.
Minimum Recommended Fall : 1:500

DOWNPIPE
Minimum 80mm diameter

	Under 25 deg	Under 35 deg	Under 45 deg	Under 55 deg
Rainfall Intensity, I (mm/hr)	100	100	100	100
Area to downpipe e/side (m²)	41	34	27	21
Area to downpipe Total (m²)	80	70	60	50

DD 017 **External Gutter**
Rainaway Classic 125
V:\DINEX.plan

GUTTER FALL REQUIREMENTS



Provide 1:500 fall away from catchment intersections to the downpipes

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NOTES:
- Flow direction of surface water follows slope of the natural ground, unless otherwise noted
- The finished ground level (FGL) adjoining the concrete slab-on-ground shall be formed so as to carry water away from the building, at a slope of not less than 1:25, for a distance of at least 1.0m from the building
- Paved entry steps/patios to be 180mm (max) below the FFL, with a slip coefficient to comply with NZBC D1 AS1/VM1, and a minimum cross fall of 1:100 (1:50 max), away from building
- Driveway to have a minimum cross fall of 1:100, 1:50 max when forming part of the access via walking with a slip coefficient to comply with NZBC D1 AS1/VM1.
- All paving will fall to permeable surfaces, unless otherwise noted
- For cladding and floor clearances, refer to cladding details

KEY
- = Bubble Up Chamber
- = Type 1 sump
- = Type 2 sump
- = Drainage channel
- = Overland flow path
- = Fall of paving

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

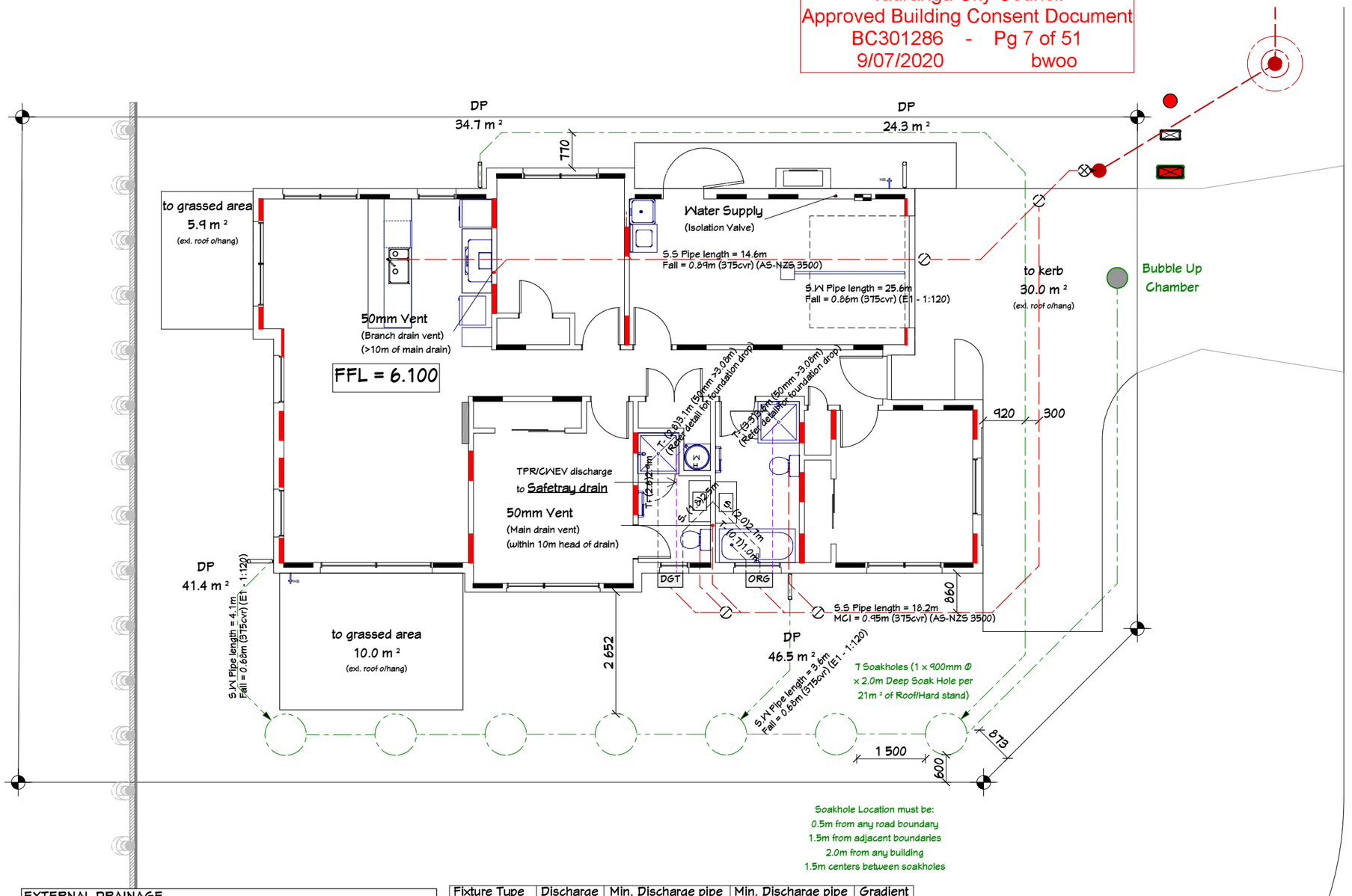
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Site Surface Water

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	1:100	SHEET No.	6 OF 39

Tauranga City Council
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9/07/2020 bwoo



EXTERNAL DRAINAGE

AS-NZS 3500, Pipe sizes

MCI - Minimum connection invert (bellow FFL)

Sewer drain - 100mm uP.V.C pipe, 1:60 Gradient(min)

Stormwater drain - 100mm uP.V.C pipe, 1:120 Gradient(min)

*All inverts allow 650mm below FFL at the head of the drain to allow for gully and pipe cover

INTERNAL PLUMBING WASTE KEY

S indicates a sink and has +700mm for developed length

T indicates a shower tray or bath and has +300mm for developed length

(#.#) in all cases indicates the plan length

Fixture Type	Discharge Fixtures	Min. Discharge pipe size to FWG (mm)	Min. Discharge pipe size to DGT (mm)	Gradient
Basin	1	40	40	1:40
Bath(Safetray)	4	40	40	1:40
Shower	2	40	40	1:40
Laundry	5	50	50	1:40
Kitchen sink	3	Not Permitted	65	1:40
FWG	up to 10	Not Permitted	65	1:40
WC	4	Not Permitted	100	1:60

Note: All Fixtures are to include individual water traps.
Level Invert Reducer installed to all Fixtures at Floor Level increasing the pipe diameter to 100mm.

Discharge Pipe Table

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NOTES:

Bracing Element Lines

- Prior to making penetrations for pipe work or other, the contractor must review the plans to ensure the work will not effect the ZOG® structural framing or bracing elements.
- Vanity Wastes - All vanity wastes to be put into wall frame to allow for wall hung vanities.
- Laundry tub volume - N/A due to washing machine connections provided
- Kitchen sink volume, sink shall be capable of fully containing a solid cylinder of 300 mm diameter and 125 mm depth.

Key

= IP = Inspection Point
= RE = Rodding Eye
= DP = Down Pipe
DGT = Disconnector Gully Trap
FWG = Floor Waste Gully Trap
ORG = Overflow Relief Gully Trap
= 100mm uPVC Stormwater Drain
= 150mm uPVC Stormwater Drain
= 100mm uPVC Wastewater Drain
= Fixture Waste Pipes
= Bubble Up Chamber
= Type 1 sump
= Type 2 sump
= Drainage channel

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

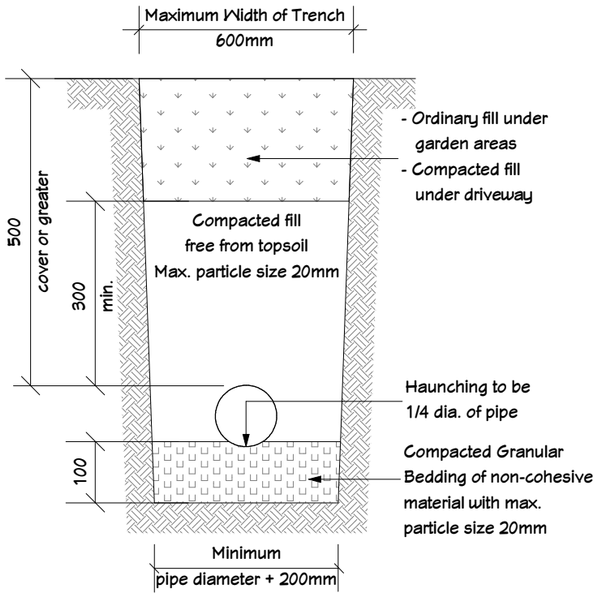
TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

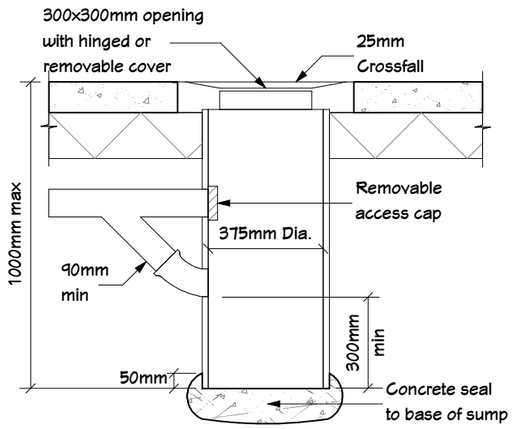
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
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Exposure Zone:	C
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Rain Intensity (10%AEP):	126mm/hr
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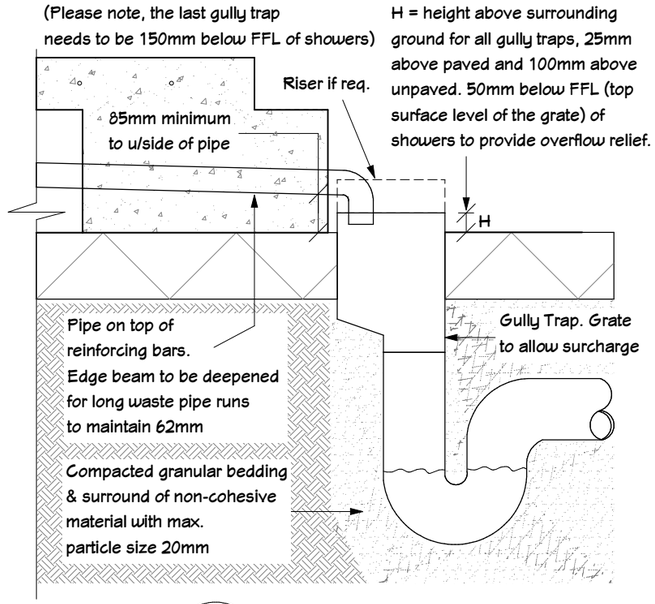
Site Drainage

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	1:100	SHEET No.	7 OF 39

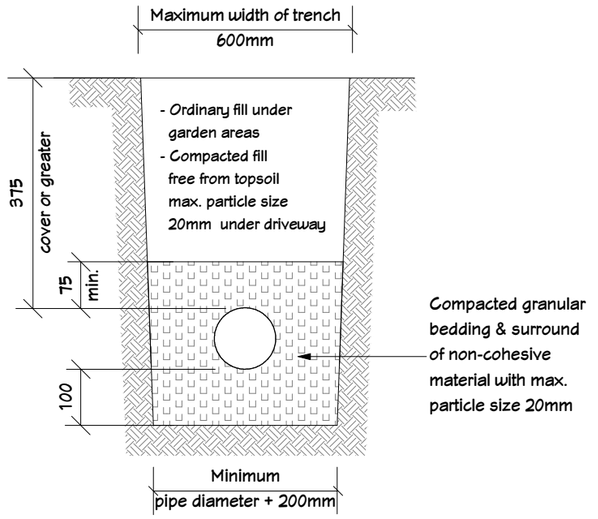


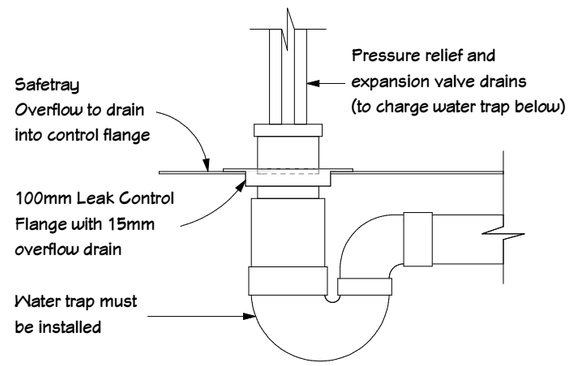


DD 005 Surface Water Sump
Type One
W:\DINEX.plan

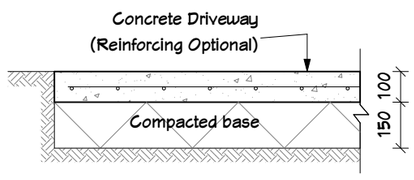


DD 009 Standard Gully Trap
Through Edge Beam
W:\DINEX.plan

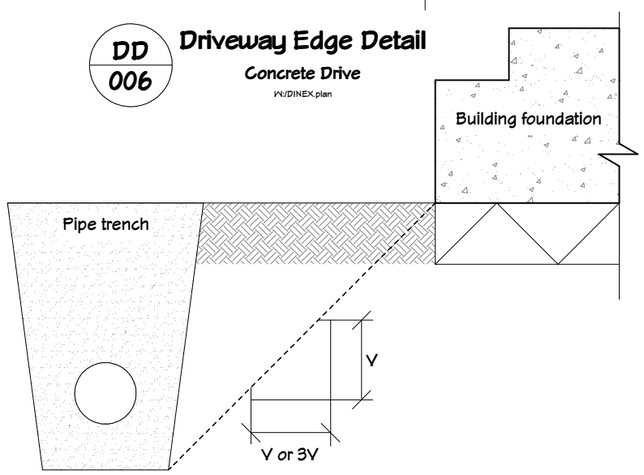




DD 021 Safetray Drain
Leak Control Flange
W:\DINEX.plan

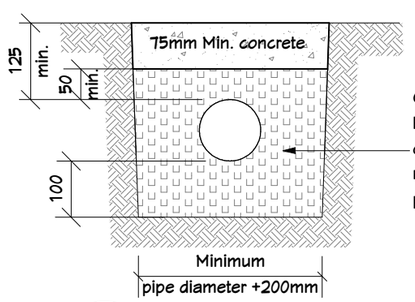


DD 006 Driveway Edge Detail
Concrete Drive
W:\DINEX.plan

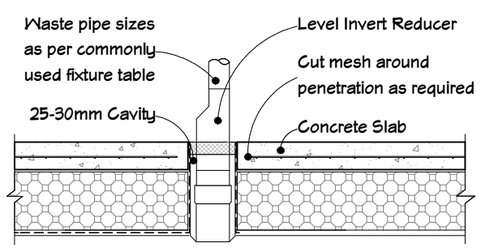


V = Pipe trenches open less than 48 hours
3V = Pipe trenches open more than 48 hours (except rock)

DD 008 Trench next to foundation
Raft Slab
W:\DINEX.plan



DD 007 Pipe Bedding and Backfilling
W:\DINEX.plan



DD 022 Level Invert Reducer
Sleeved Through Raft Slab
W:\DINEX.plan

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CODEMARK™ CM70023

NOTES:

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

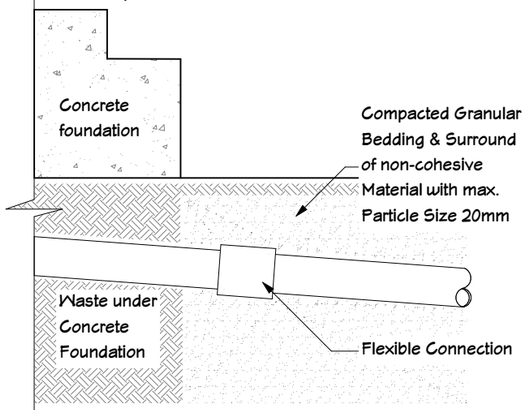
Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Drainage Details 1

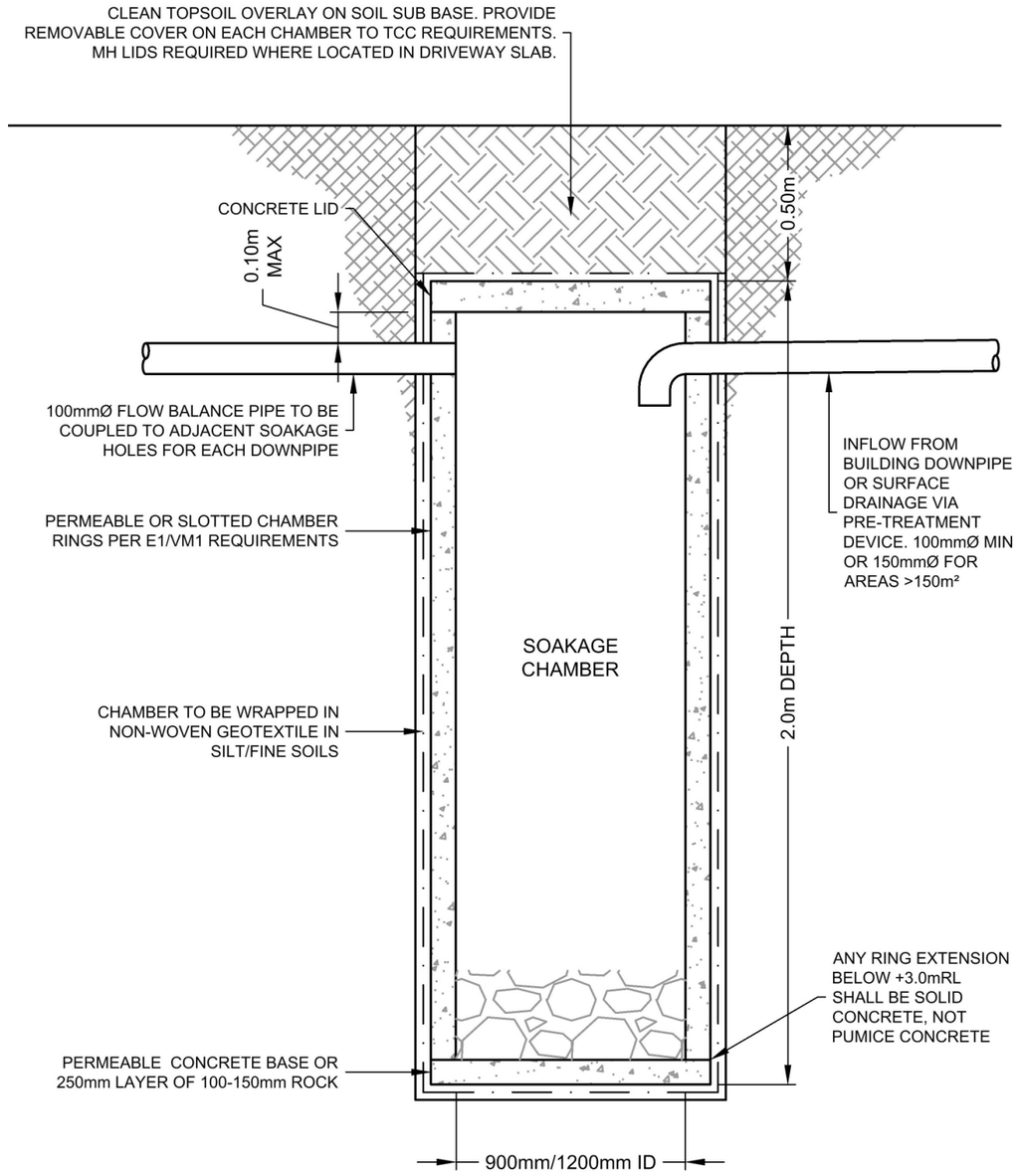
JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	N.T.S	SHEET No.	8 OF 39

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Note, the last gully trap needs to be 150mm (min) below FFL of showers to provide overflow relief



DD 014 **Flexible Connection**
Pipe under Raft Slab
W:/DINEX.plan



SOAKAGE RING
NOT TO SCALE

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CODEMARK™ CM70023

NOTES:

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

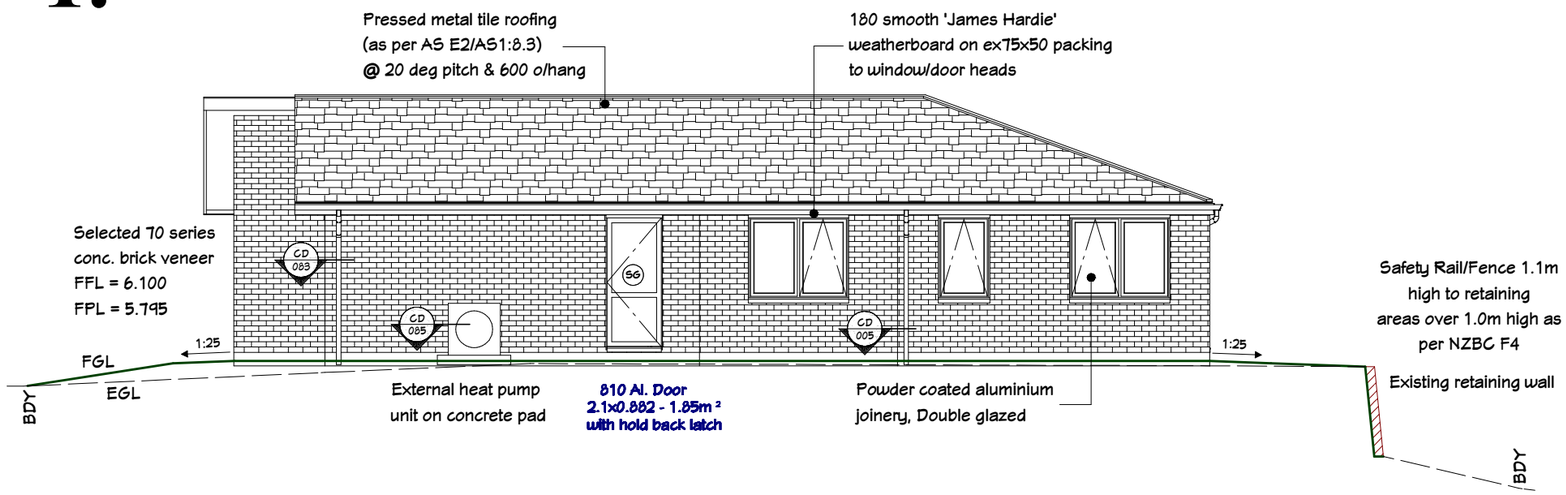
Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Drainage Details 2

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE:	SHEET No. 9 OF 39

Tauranga City Council
Approved Building Consent Document
BC301286 - Pg 10 of 51
9/07/2020 bwoo

1.



2.

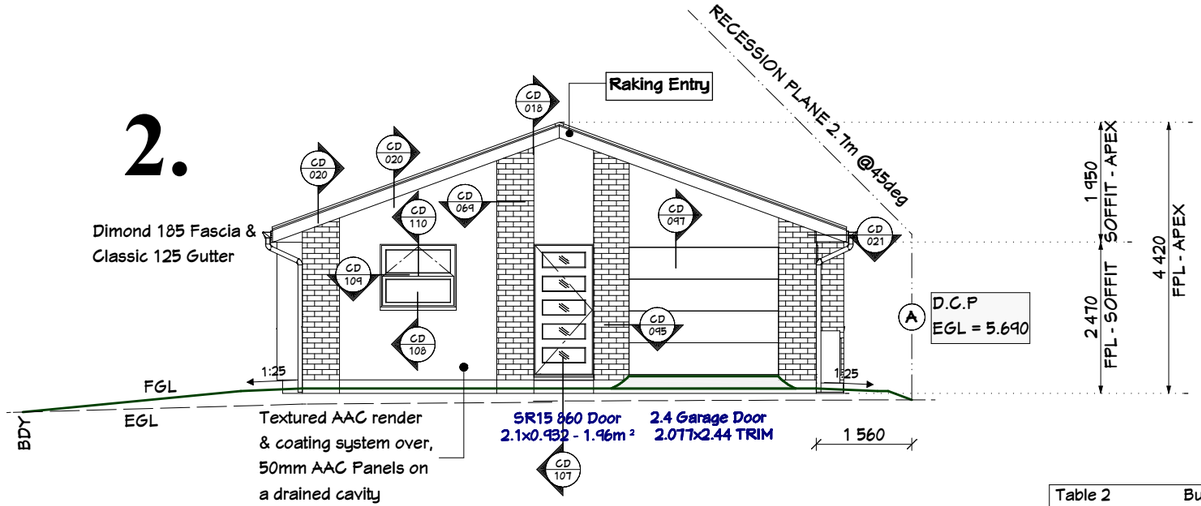


Table 2 Building envelope risk matrix Paragraph 3.1.2. Figure 1					
All Walls	Risk Severity				
Risk factor	Low	Med	High	Very High	Subtotals for each risk factor
Wind zone (per NZS 3604)	0	0	1	2	1
Number of storeys	0	1	2	4	0
Roof/wall intersection design	0	1	3	5	3
Eaves width	0	1	2	5	2
Envelope complexity	0	1	3	6	1
Deck Design	0	2	4	6	0
				Total Risk Score	7

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NOTES:

- If windows & doors are shown upto soffit, window and door sizes are to be measured on site prior to the manufacture of those units.

FFL = Finished Floor Level
FGL = Finished Ground Level
FPL = Finished Platform Level
EGL = Existing Ground Level

SG Indicates safety glass

Safety Glazing

- All glazing is to be in accordance with the NZ Building Code Handbook and NZS.4223, Parts 1, 2, & 3 Code of Practice for Glazing in Buildings.
- All glazing panels to bathrooms and toilets to have safety glazing to the interior panel only
- All gazing to be confirmed by the manufacturer prior to construction

Callout of Details

= Reference to Cladding Details CD###

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
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Earthquake Zone:	2
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Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

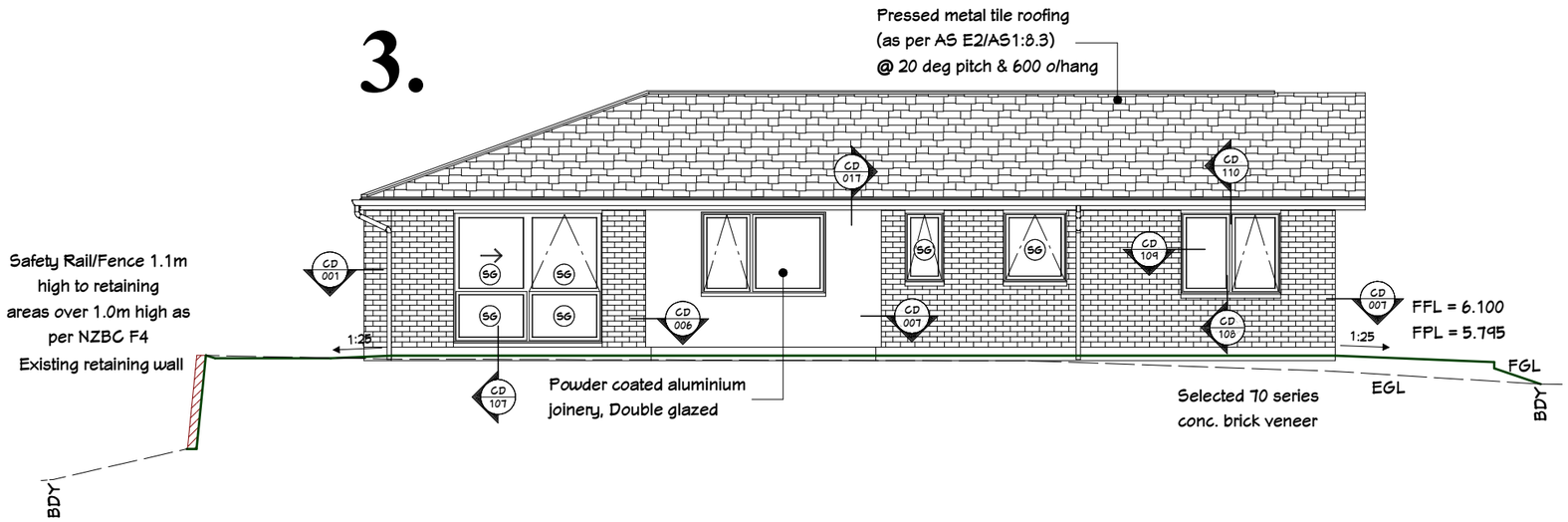
Elevations .1

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	1:100	SHEET No.	10 OF 39

Tauranga City Council
Approved Building Consent Document
BC301286 - Pg 11 of 51
9/07/2020 bwoo

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3.



4.

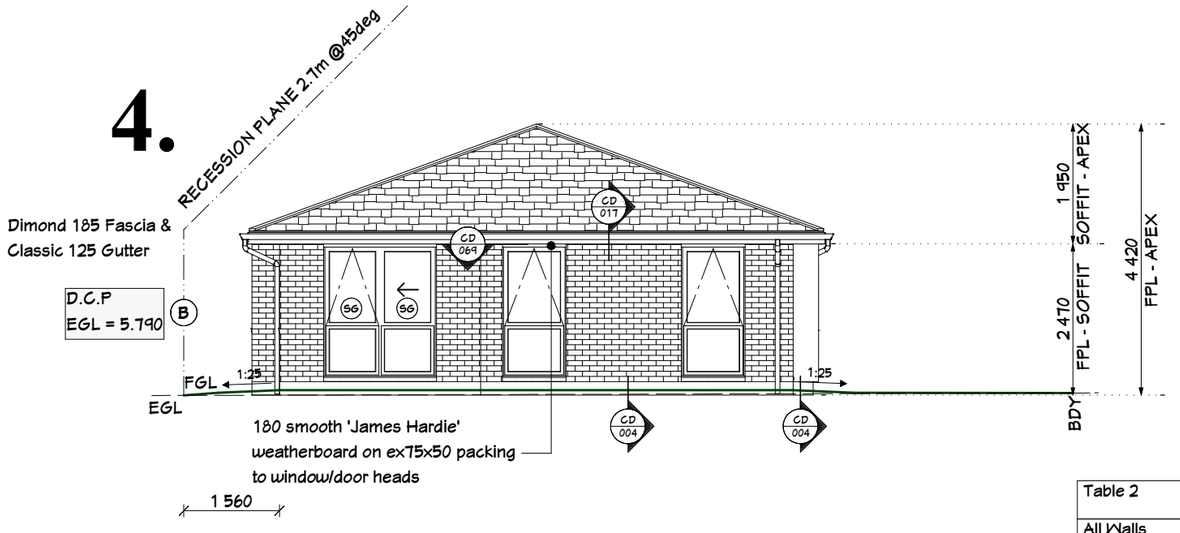


Table 2	Building envelope risk matrix Paragraph 3.1.2. Figure 1				
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Number of storeys	0	1	2	4	0
Roof/wall intersection design	0	1	3	5	3
Eaves width	0	1	2	5	2
Envelope complexity	0	1	3	6	1
Deck Design	0	2	4	6	0
				Total Risk Score	7

GOLDEN HOMES™

CODEMARK™ CM70023

NOTES:

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Callout of Details

= Reference to Cladding Details CD###

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
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Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Elevations .2

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	1:100	SHEET No.	11 OF 39

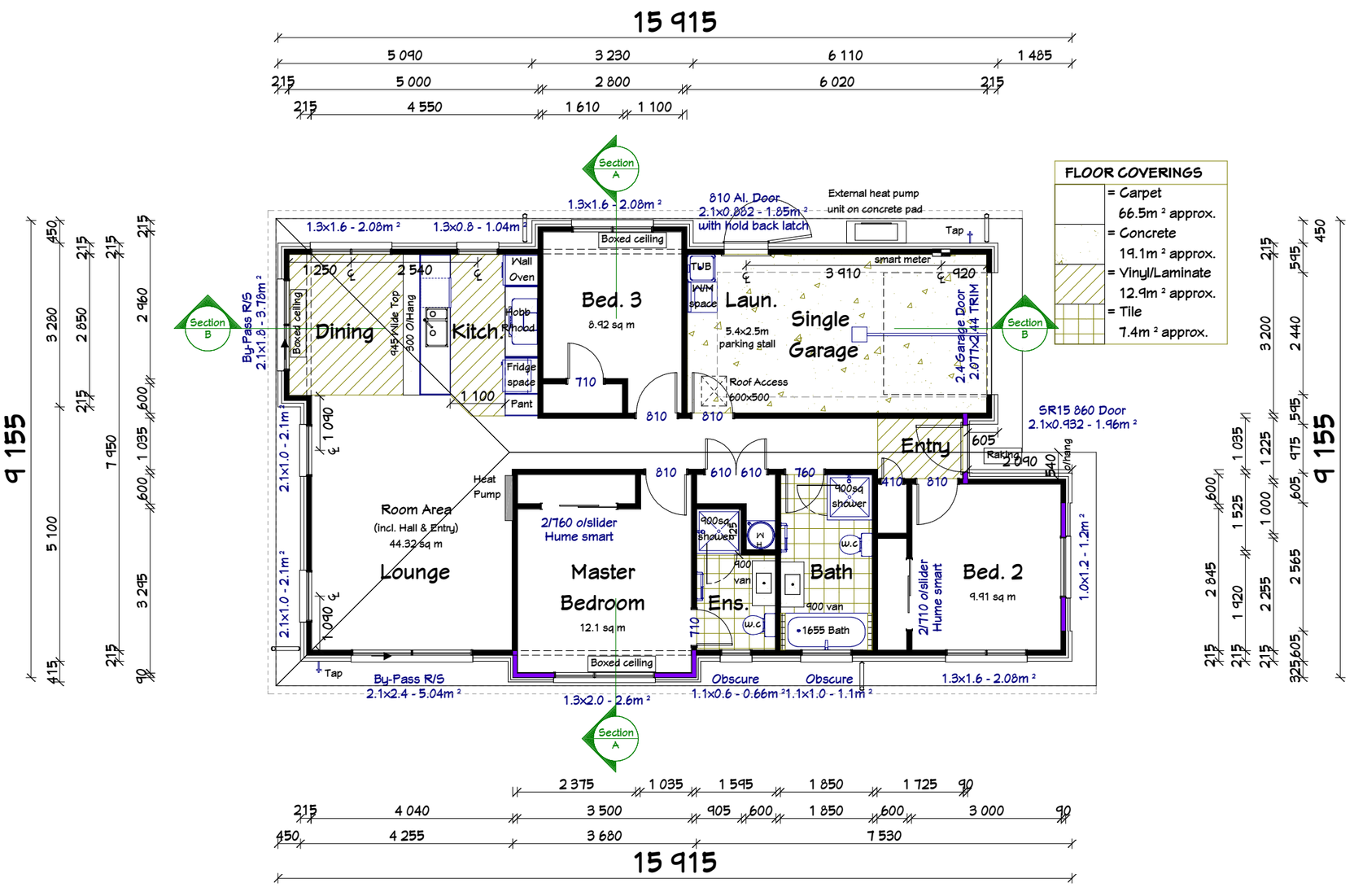
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Approved Building Consent Document
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9/07/2020 bwoo

J:\8000 Steel Frame Construction\80966 Creamer\80966 Creamer.plan

TOTAL FLOOR AREA	= 126.7sqM
FOUNDATION AREA	= 126.0sqM
LIVING AREA	= 105.3sqM
GARAGE AREA (incl. Laun)	= 21.4sqM
TOTAL ROOF AREA	= 147sqM

APPROXIMATE Exterior wall perimeter	= 51.4m
APPROXIMATE Interior wall perimeter	= 51.4m
APPROXIMATE Fascia & Gutter lineal meters	= 40.8m
APPROXIMATE Barge lineal meters	= 10.0m

Stud height - 2.42m throughout
Truss heel height - 95.8mm
Interior door leaf height - 1980



FLOOR COVERINGS

= Carpet	66.5m ² approx.
= Concrete	19.1m ² approx.
= Vinyl/Laminate	12.9m ² approx.
= Tile	7.4m ² approx.

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CODEMARK™ CM70023

NOTES:

89x41mm ZOG® framing

- Natural lighting is provided via glazing to 10% of floor areas for individual rooms
- Natural ventilation is provided via exterior openings of no less than 5% of floor area for individual rooms
- Internal and external walking surfaces to comply with NZBC D1/AS1 2.1.1 - 2.1.3, and Table 2
- External Access Routes surface is either; brushed concrete, exposed crushed aggregate concrete, profiled timber with the profile across the direction of travel, or be flooring selected by the client with a wet slip coefficient of no less than 0.4, refer to the specification for compliance procedure in such situations
- Where FFL is greater than 1.0m from FGL and the bottom of the opening is closer than 760mm to the FFL or a climbable fixture, a restrictor stay is to be fitted to limit the maximum opening so that a 100mm dia sphere cannot pass through it.
- All access routes are to be protected by dangerous projections as shown in D1/AS1, Fig 6



ELEVATION GUIDE

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

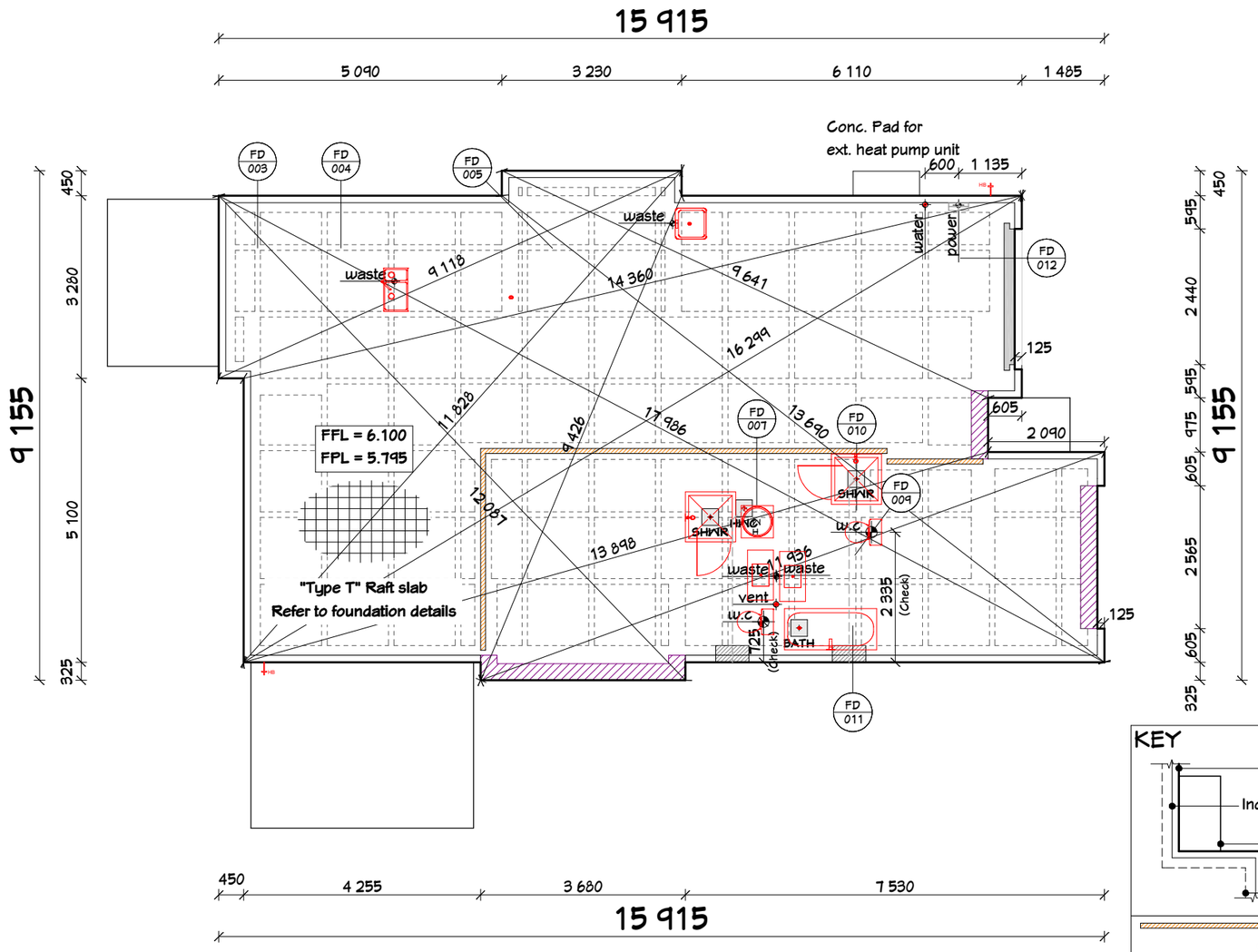
Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Floor Plan

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	1:100	SHEET No.	12 OF 39

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Excavation and foundation compaction to be in accordance with the geotechnical report accompanying the drawings. (ref page 1 for report)
Minimum Ultimate Bearing Capacity required for slab is: 200kPa
Extent of Platform beyond Foundation Edge: 1000mm
Dig out depth is: All topsoil (Approximate only to be confirmed on-site during excavation)
General Notes:

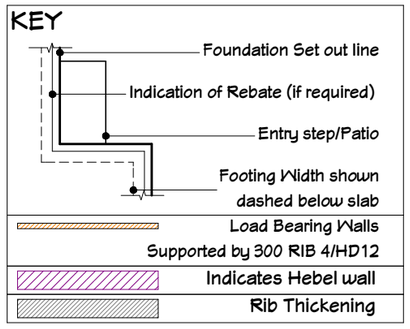


MAXIMUM PIPE RUNS *(Slab to provide top cover, 85mm min bottom cover)*

PIPE DIA	GRADIENT	MAX DISTANCE 220mm PODS
40mm	1:40	3480mm
50mm	1:40	3080mm
65mm	1:40	2480mm

INCREASED RUNS

Additional distance can be achieved by thickening the rib and edge beam
- 50mm thickening = 2000mm of additional distance
- 100mm thickening = 4000mm of additional distance



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CODEMARK™ CM70023

NOTES:
- The dimensions on this foundation plan are an indication only and have been shown to help verify each trades on calculation from the floor plan.
- Refer to the cladding detail sheets for all cladding rebates.
- Concrete pour must not start until the earth bonding has been completed.
- No slab shrinkage saw cuts are to be made in this raft slab under any circumstances unless specifically asked for by the consulting engineer.
- Unless specified in detail Concrete to be 20MPa (or 25MPa when Timber Driven Piles are shown or within TC2, TC3 zones or exposure zone D) at 28 days.
- Excavation and hardfill to a depth as required to reach good ground bearing
- Granular fill material shall be placed and compacted in layers of 150 mm maximum thickness, over the area beneath the proposed ground slab, so that the total thickness of granular base is not less than 75 mm nor more than 600 mm.
- If the finished platform could cause intrusions to DPM layer, it must be protected by blinding the hardfill with sand 5-25mm thick.
- Where kitchen islands are isolated, conduits will be required for power and/or water supply.

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

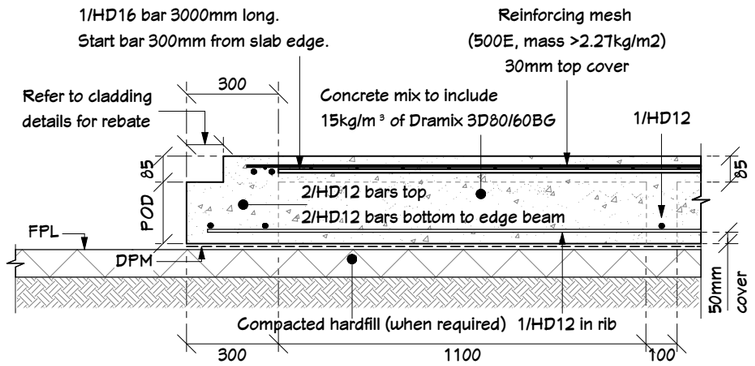
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Foundation Plan

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	1:100	SHEET No.	13 OF 39

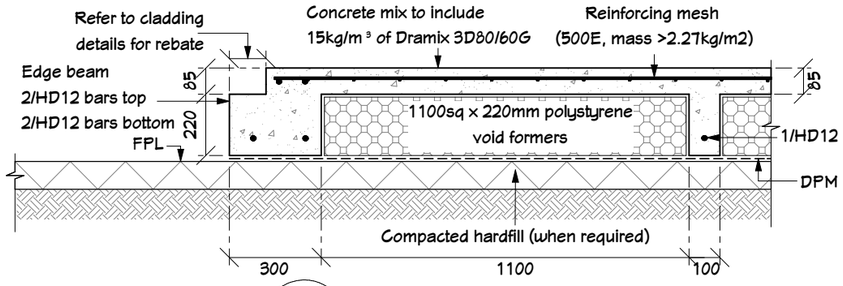
Tauranga City Council
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FD 003 **Raft Slab Type T**

Section A

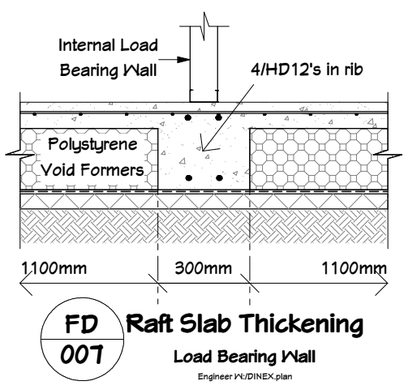
Engineer WL/DINEX.plan



FD 004 **Raft Slab Type T**

Section B

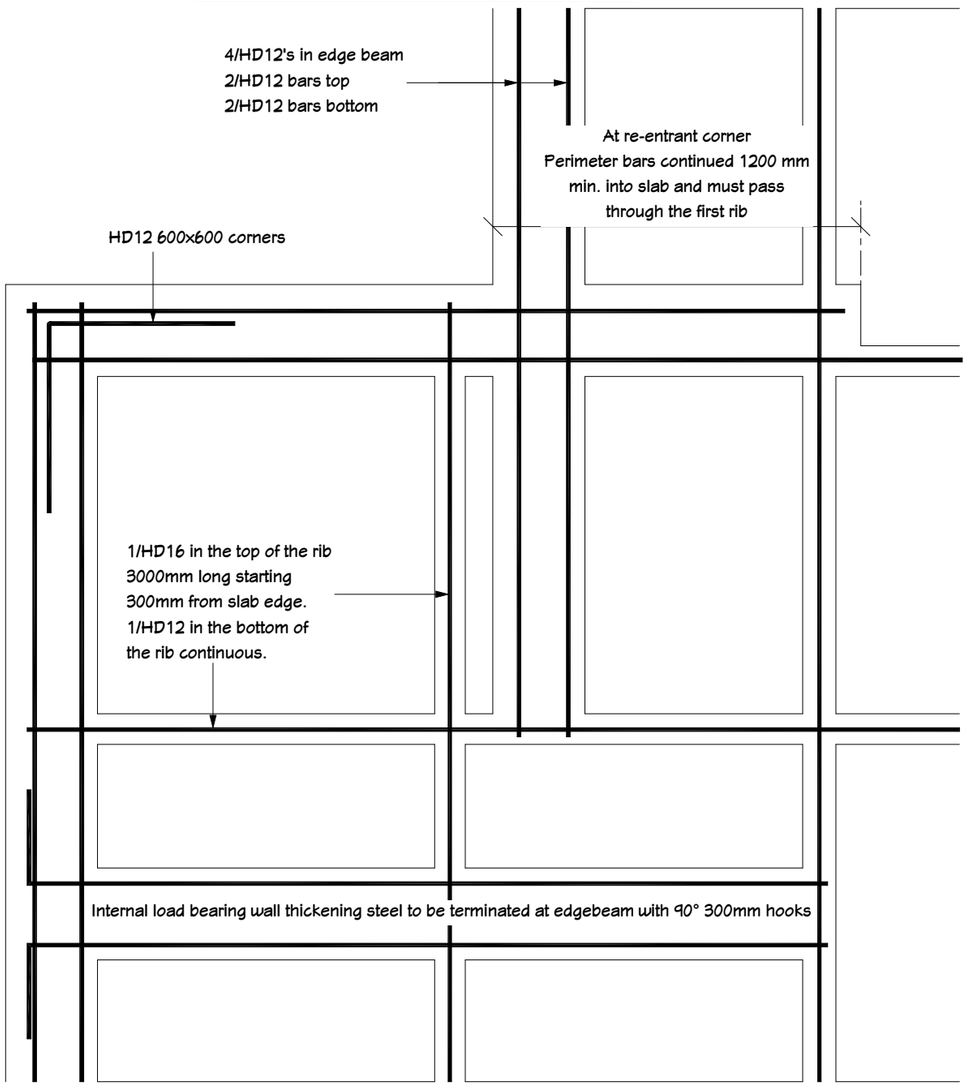
Engineer WL/DINEX.plan



FD 007 **Raft Slab Thickening**

Load Bearing Wall

Engineer WL/DINEX.plan



FD 005 **Raft Slab Type T**

Typical Corners

Engineer WL/DINEX.plan

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CODEMARK™ CM70023

NOTES:

- DPM under the slab to be - polyethylene not less than 0.25 mm thick and installed as per NZS:3604
- Concrete slab reinforcement to be earth bonded with rod approx 400 long tied to the mesh and top rod of the perimeter where power and water enters dwelling, and to comply with NZBC Clause G9.3.1a
- All reinforcing is to be in accordance with NZS 4671.
- All HD12 reinforcing should be lapped 720mm min.
- For cladding and floor clearances, refer to cladding details
- The finished ground level adjoining the raft slab shall be formed so as to carry water away from the building, at a slope not less than 1:25 for a minimum distance of 1.0m. As per NZS:3604
- Minimum clearance for reinforcement unless shown otherwise:
  Exposed during construction = 25mm,
  Slab mesh = 30mm from top of slab,

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

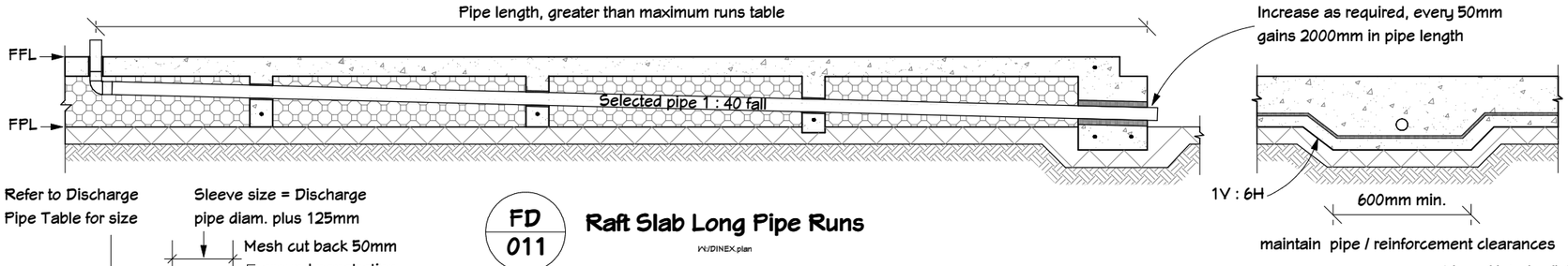
TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

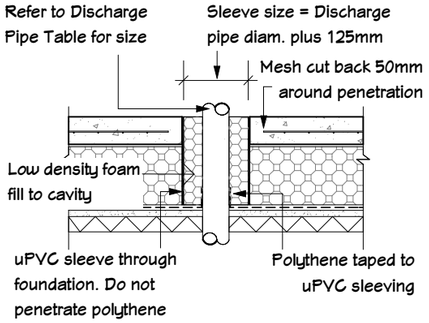
Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Foundation Details 1

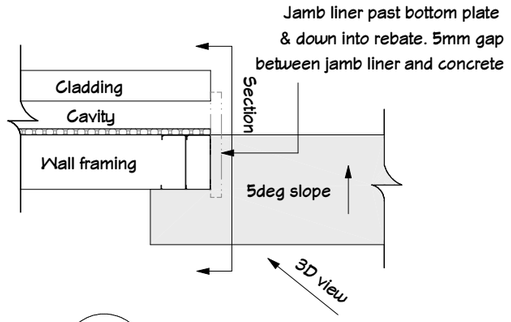
JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE: NTS	SHEET No. 14 OF 39



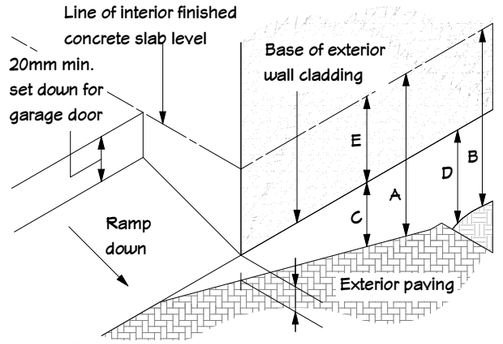
FD 011 **Raft Slab Long Pipe Runs**
W:/DINEX.plan



FD 009 **Raft Slab Pipe Penetration**
Sleeved Thru Slab
W:/DINEX.plan



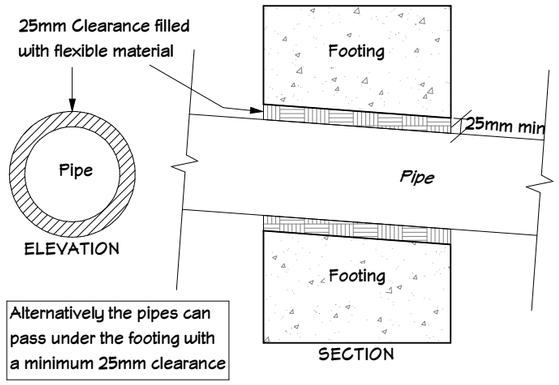
FD 012 **Garage Door Rebate**
Plan View
W:/DINEX.plan



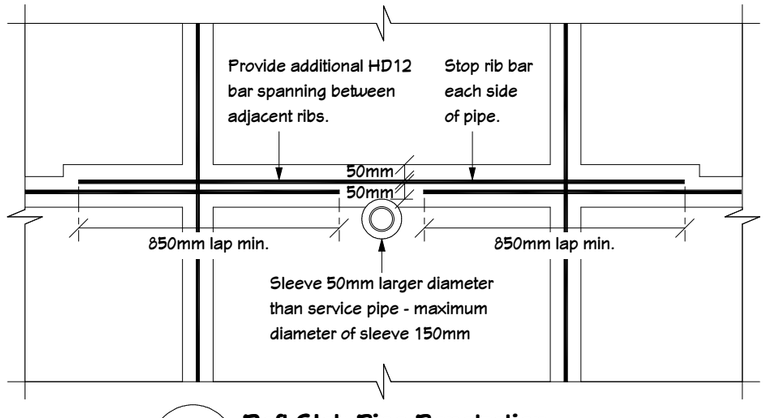
25mm min. clearance between bottom of cladding and driveway at garage door openings

Minimum clearances (mm)	Masonry veneer		Other claddings				
	A	B	A	B	C	D	E
Concrete slab	100	150	150	225	100	175	50

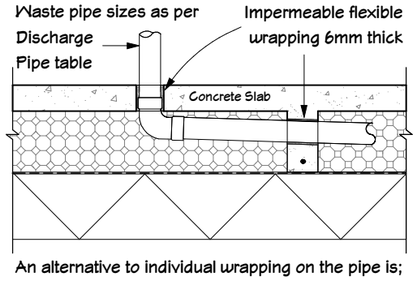
FD 012 **Garage Door Rebate**
Exterior 3D View
W:/DINEX.plan



FD 009 **Pipe Penetration**
Sleeved through Footing
W:/DINEX.plan

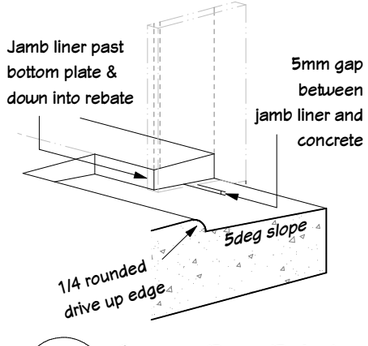


FD 010 **Raft Slab Pipe Penetration**
Pipe Within Rib
W:/DINEX.plan

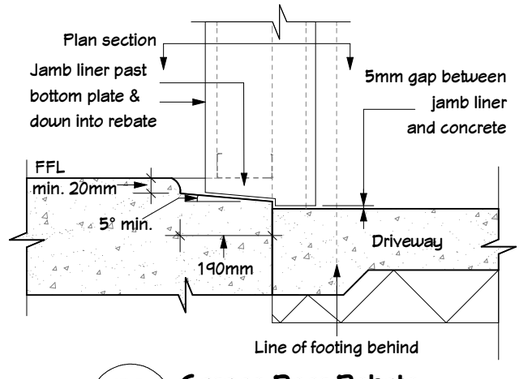


An alternative to individual wrapping on the pipe is;
Plumbest Polythene Pipe Sleeving by 'HydroFlow'

FD 009 **Raft Slab Pipe Penetration**
Sleeved Thru Ribs
W:/DINEX.plan



FD 012 **Garage Door Rebate**
Interior 3D View
W:/DINEX.plan



FD 012 **Garage Door Rebate**
Section
W:/DINEX.plan

Tauranga City Council
Approved Building Consent Document
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GOLDEN HOMES™

CODEMARK™ CM70023

NOTES:

- DPM under the slab to be - polyethylene not less than 0.25 mm thick and installed as per NZS:3604
- Concrete slab reinforcement to be earth bonded with rod approx 400 long tied to the mesh and top rod of the perimeter where power and water enters dwelling, and to comply with NZBC Clause G9.3.1a
- All reinforcing is to be in accordance with NZS 4671.
- All HD12 reinforcing should be lapped 720mm min.
- For cladding and floor clearances, refer to cladding details
- The finished ground level adjoining the raft slab shall be formed so as to carry water away from the building, at a slope not less than 1:25 for a minimum distance of 1.0m. As per NZS:3604
- Minimum clearance for reinforcement unless shown otherwise:
  Exposed during construction = 25mm,
  Slab mesh = 30mm from top of slab,

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

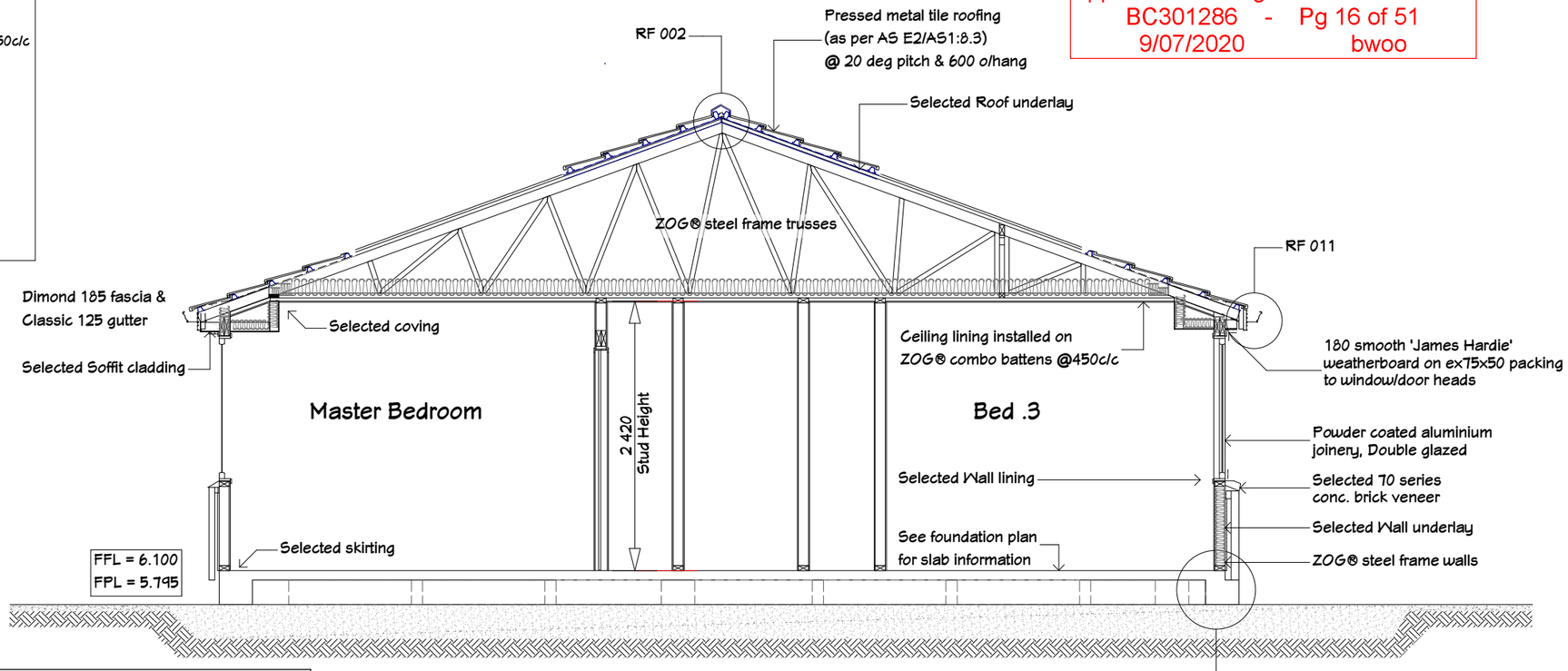
Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Foundation Details 2

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	NTS	SHEET No.	15 OF 39

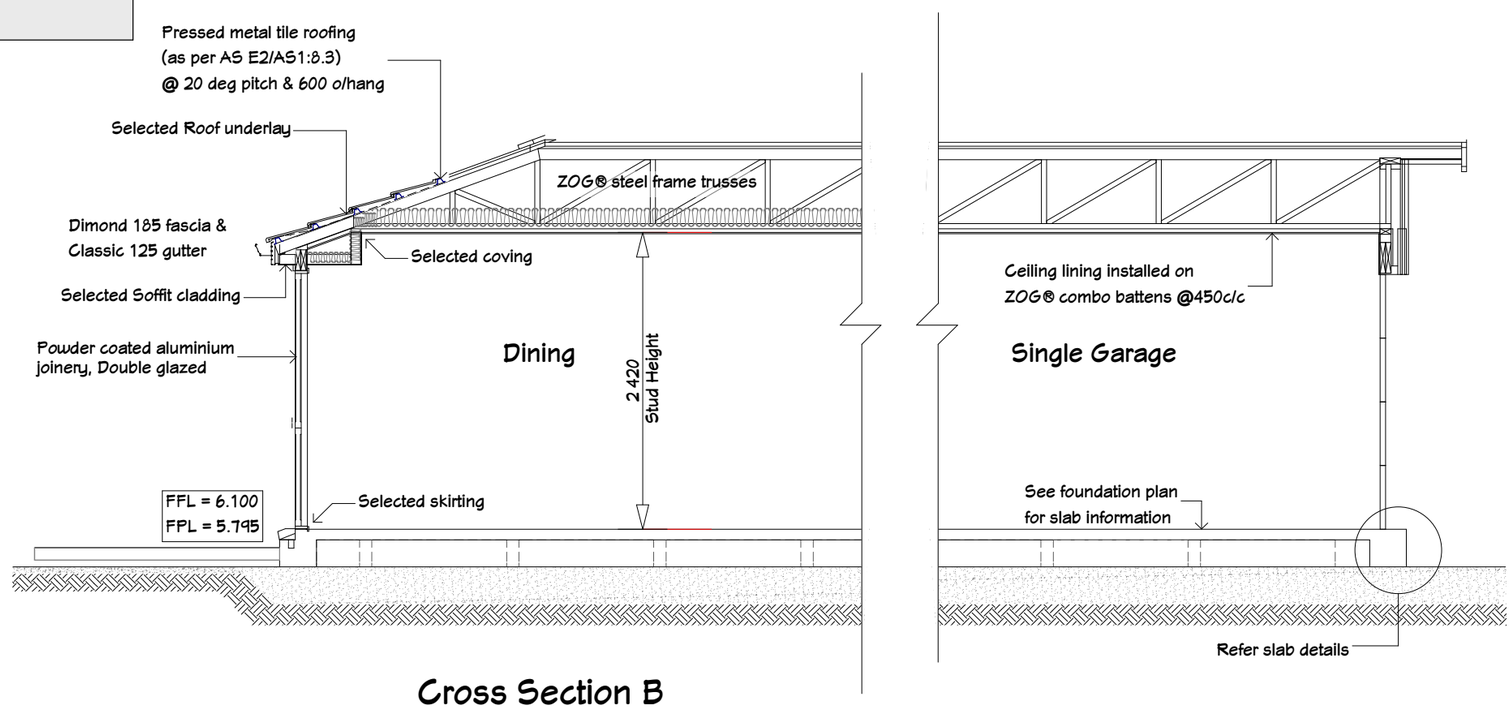
Tauranga City Council
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Structure:	ZOG® steel frame trusses
	ZOG® steel frame walls
	Metal battens@370mm c/c
	ZOG® ceiling battens @ 450c/c
Overhang:	Refer elevations/Floor plan
Fascia system:	Refer to Product Schedule
Roof Underlay:	Refer to Product Schedule
Soffit:	Refer to Product Schedule
Thermal break & Wall Underlay:	Refer to Product Schedule
Cladding:	Refer to Product Schedule
Ceiling Lining:	Refer to Product Schedule
Wall lining:	Refer to Product Schedule
Joinery Frames:	Aluminium double glazed



Cross Section A

2420 STUDHEIGHT ADDITIONAL EXTERNAL WALL FRAME REQUIREMENTS:
(upto & incl. High wind)
Brick cladding (Stretcher Bond)
Studs @ 600c/c & Nogs @ 1200c/c
AAC cladding
Studs @ 600c/c & Nogs @ 1200c/c



Cross Section B

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CODEMARK™ CM70023

NOTES:

- Any timber used in the construction of the building must have a DPC layer separating it from any ZOG® steel framing.
- Roof underlay must be installed as per the manufacturers specification.

Fixings

- All fixings to be as per the latest ZOG® steel frame manual and comply with Section 4, Durability, NZS:3604:2011

INSULATION
Walls = R-2.2 batts
Ceiling = R-3.6 batts

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

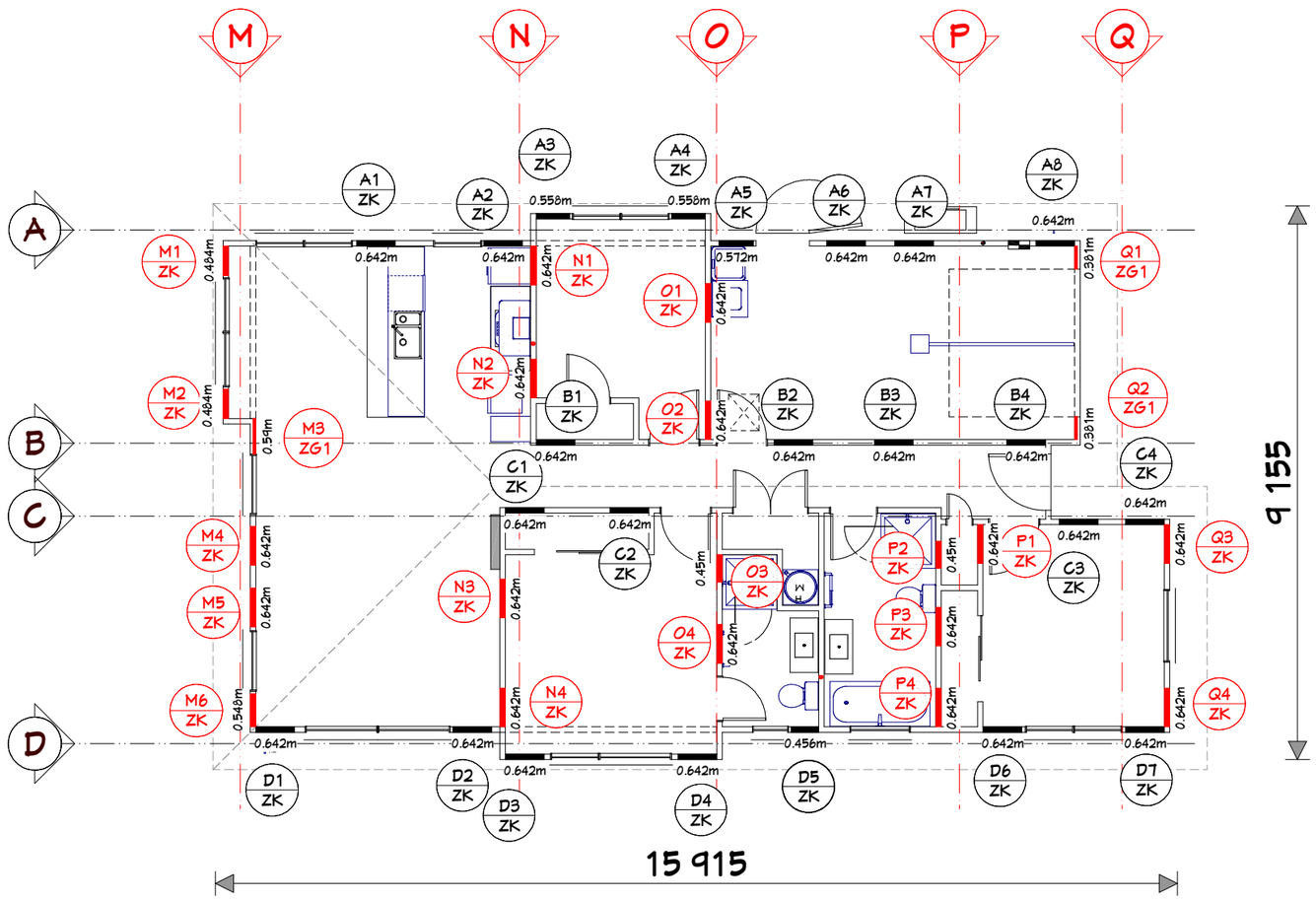
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Cross Section

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	1:50	SHEET No.	16 OF 39

Tauranga City Council
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PLEASE NOTE:
- Brace hold downs vary for Internal v's External braces

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CODEMARK™ CM70023

NOTES:

Bracing Element A1 / ZK ← Label, Type

Bracing Element Lines ———

- Holes or intrusions into the ZOG® frame bracing elements may require engineers specific design for remedial work.
- ZOG® must be contacted for an alternative solution prior to any intrusions and/or modifications being made to bracing elements.
- Bracing plan to be read in conjunction with bracing details located on the following sheet.
- Hold down bolts for bracing are not to be any closer than 100mm from any other hold down bolt. If there is another hold down bolt closer than 100mm to the end of the brace element and it is of the equivalent capacity or higher than that required for the brace, then no further bracing hold down is required. 'The designer' must be contacted for a solution if there is conflicting bolts with a lesser capacity than that required for the brace.
- If a sheets are used as part of the bracing element, penetrations within those sheets must not be greater in size than 90mmx90mm and must not be closer than 90mm to any edge of any of those sheets.
- All braces must be located within 600mm of the location shown on this plan.

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

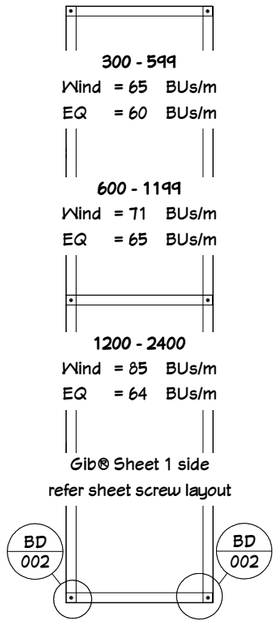
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
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Snowload:	0.0kPa

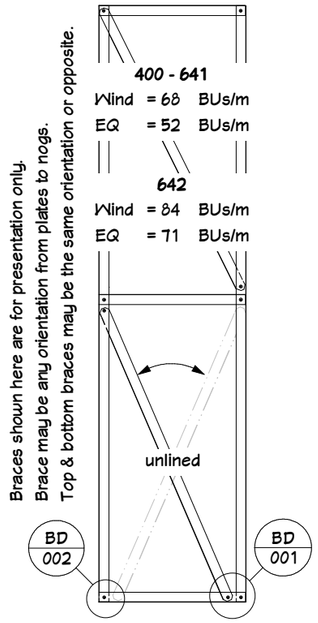
Bracing Plan

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	1:100	SHEET No.	17 OF 39

Tauranga City Council
Approved Building Consent Document
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BD 008 **ZG1** 300 - 2400
W:/DINEX.plan



BD 005 **ZK** 400 - 642
W:/DINEX.plan

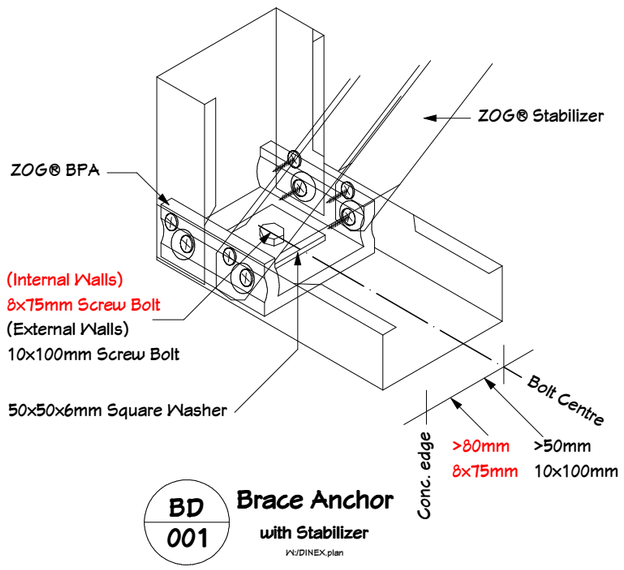
Penetrations into the sheet of a bracing element must be a maximum of 90mm x 90mm and must not be within 90mm of the sheet edge.

25mm or 30mm Gib® screws for all Gib Sheet Bracing.

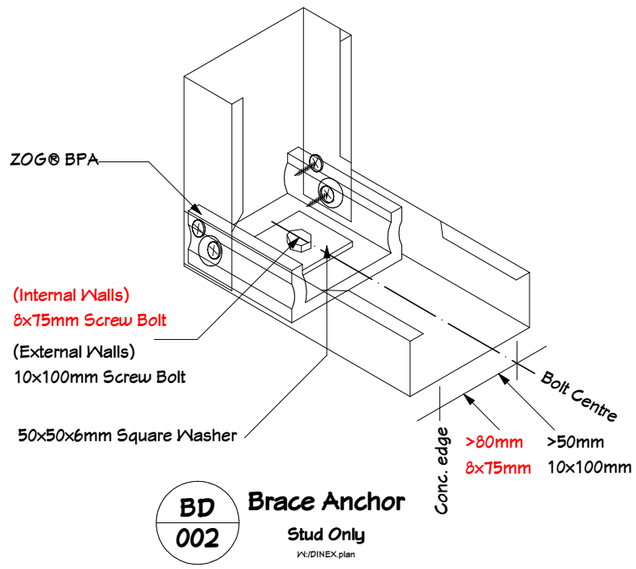
Screws at 50, 50, 50, 75, and 75mm from the edge of the sheet at cnrs and then at 150mm ctrs for the rest of the perimeter.

Centre of the screw min 12mm from wrapped edge and 18mm from cut edge.

BD 004 **Brace Gib Sheet Screw Layout**
(No specific screw layout required for braces noted as unlined)
W:/DINEX.plan



BD 001 **Brace Anchor** with Stabilizer
W:/DINEX.plan



BD 002 **Brace Anchor** Stud Only
W:/DINEX.plan

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CODEMARK™ CM70023

NOTES:

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

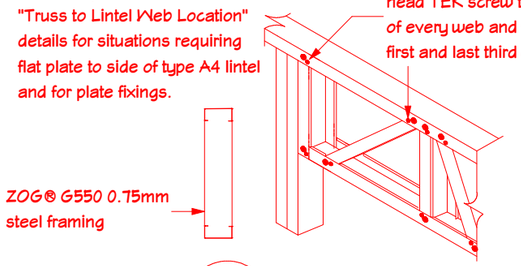
Bracing Details - Walls

JOB No:	80966	SALES:	Darren
LBP:	C.Weame 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	N.T.S	SHEET No.	18 OF 39

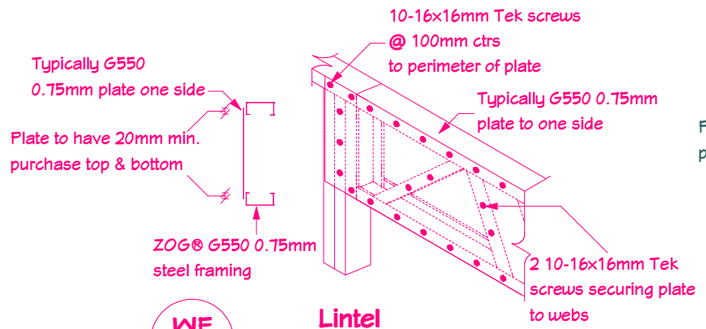
Tauranga City Council
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9/07/2020 bwoo

Refer "Top Plate Stiffener" and "Truss to Lintel Web Location" details for situations requiring flat plate to side of type A4 lintel and for plate fixings.

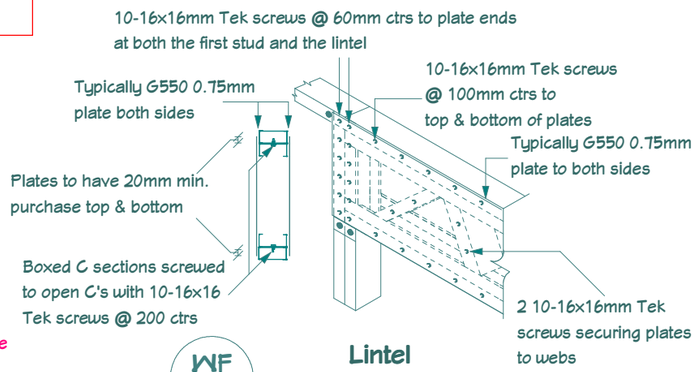
Additional 10-16x16mm flat head TEK screw to each end of every web and vertical in the first and last third of the lintel.



WF 035 **Lintel**
Type A4
W:/DINEX.plan

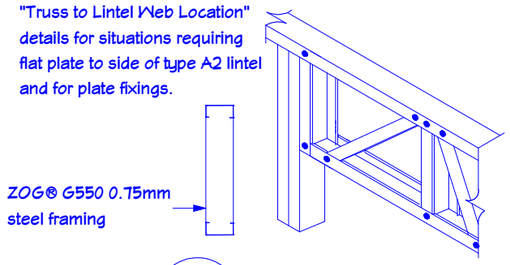


WF 039 **Lintel**
Type E (plate is fixed on site)
W:/DINEX.plan

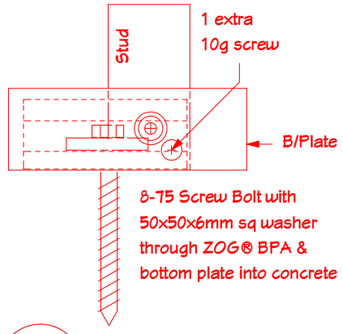


WF 040 **Lintel**
Type F (plates are fixed on site)
Engineer W:/DINEX.plan

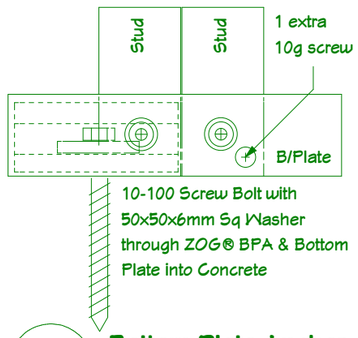
Refer "Top Plate Stiffener" and "Truss to Lintel Web Location" details for situations requiring flat plate to side of type A2 lintel and for plate fixings.



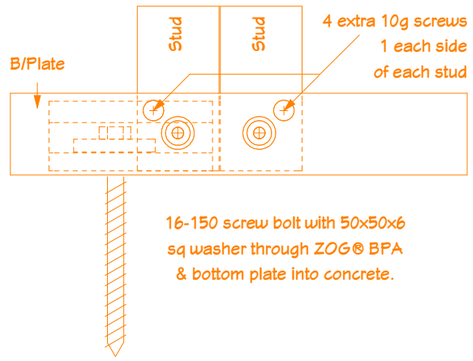
WF 033 **Lintel**
Type A2
W:/DINEX.plan



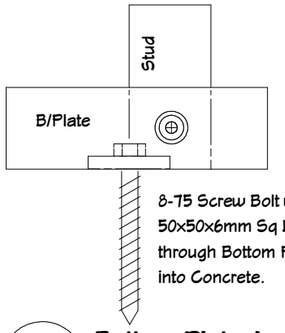
WF 006 **Bottom Plate Anchor**
Type A (10kN Hold Down)
W:/DINEX.plan



WF 007 **Bottom Plate Anchor**
Type B (15kN Hold Down)
W:/DINEX.plan



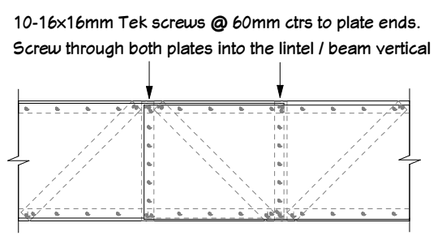
WF 008 **Bottom Plate Anchor**
Type C (20kN Hold Down)
W:/DINEX.plan



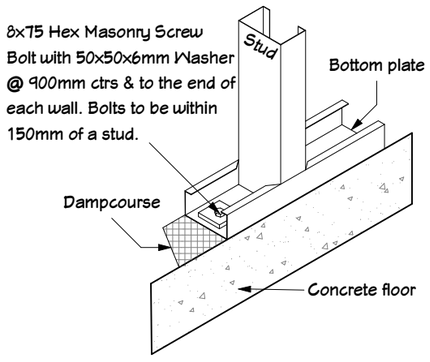
WF 005 **Bottom Plate Anchor**
Type S (5kN Hold Down)
W:/DINEX.plan

Bottom Plate Hold Down Table WF010

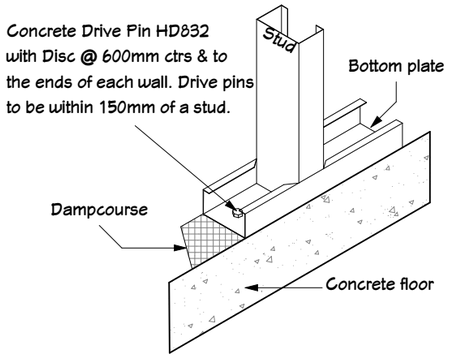
Type	Uplift (kN)	Description
Standard	7.50	Galv. 8-75 with 50x50x6 washer
A	10.00	Galv. 8-75 with ZOG BPA & 50x50x6 washer
B	15.00	Galv. 10-100 with ZOG BPA & 50x50x6 washer
C	20.00	Galv. 16-150 with ZOG BPA & 50x50x6 washer



WF 030 **Plate Joining**
on Lintels & Beams
W:/DINEX.plan



WF 001 **Bottom Plate Fixing**
Load Bearing Walls
W:/DINEX.plan



WF 002 **Bottom Plate Fixing**
Non-Load Bearing Walls
W:/DINEX.plan

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CODEMARK™ CM70023

NOTES:

Hold Down Labels A B

- Hold downs for lintels are shown on the Floor Framing Layout page of the detailing plans. Any opening not showing a hold down label are type S. All other types are labeled.
- Hold downs for trusses are shown on the Hold Down Plan. All trusses must have a minimum of type S at the stud below the truss on all load bearing walls.
- Refer to Top Plate Details for transfer of loads to studs where trusses are not within 100mm ctrs to the nearest stud.
- Refer to Floor Framing Layout plan for opening lintel types. Where lintel plates are required, they are to be fixed on site as shown in these lintel details.

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

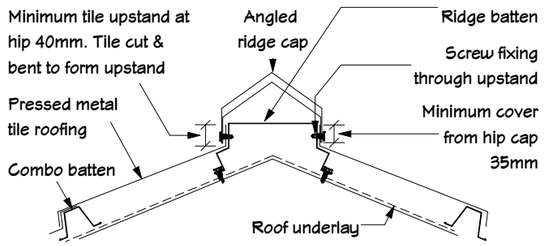
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

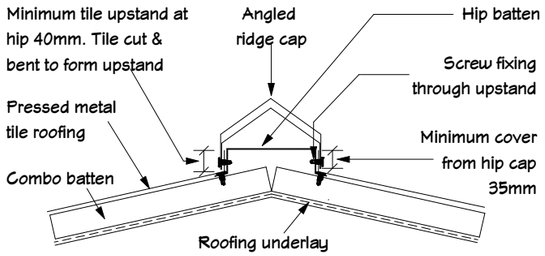
Wall Frame Details - Lintels & Hold Downs

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE: N.T.S	SHEET No. 19 OF 39

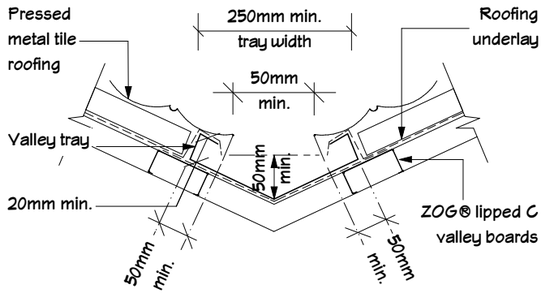
Tauranga City Council
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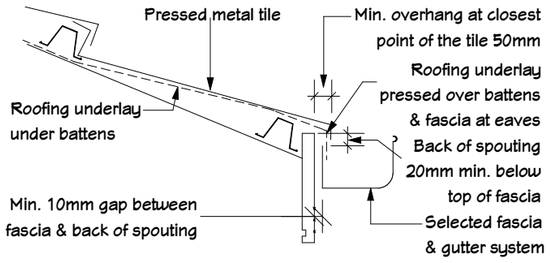
RF 002 **Ridge Flashing**
Metal Tile
W:/DINEX.plan



RF 007 **Hip Flashing**
Metal Tile
W:/DINEX.plan

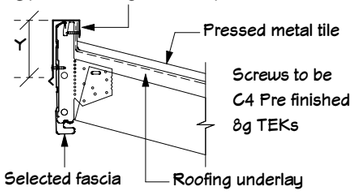


RF 009 **Valley Tray**
Metal Tile
W:/DINEX.plan



RF 011 **External Gutter**
Metal Tile
W:/DINEX.plan

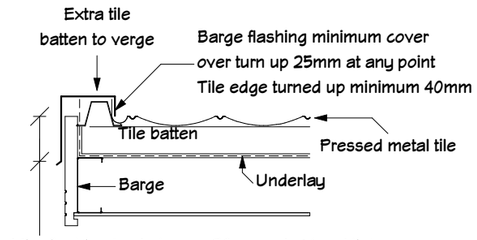
Barge flashing minimum cover over turn up 25mm at any point. Tile edge turned up minimum 40mm.



Low, Med, High Wind Zones
Y = 50mm min.

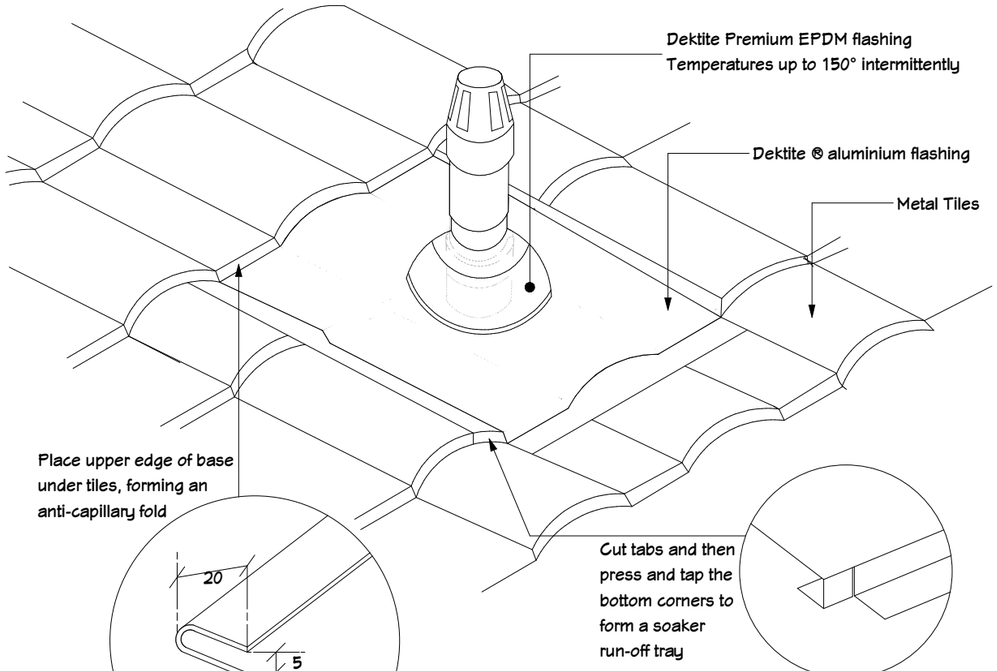
Very High, Extra High Wind Zone
Y = 70mm min.

RF 003 **Apex Flashing**
Metal Tile
W:/DINEX.plan



Min. flashing lap to barge: 70mm upto Very High wind zone, 90mm for Extra High wind zone.

RF 012 **Barge Flashing**
Metal Tile
W:/DINEX.plan



RF 085 **Pipe Penetration Flashing**
Metal Tile
W:/DINEX.plan

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CODEMARK™ CM70023

NOTES:

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

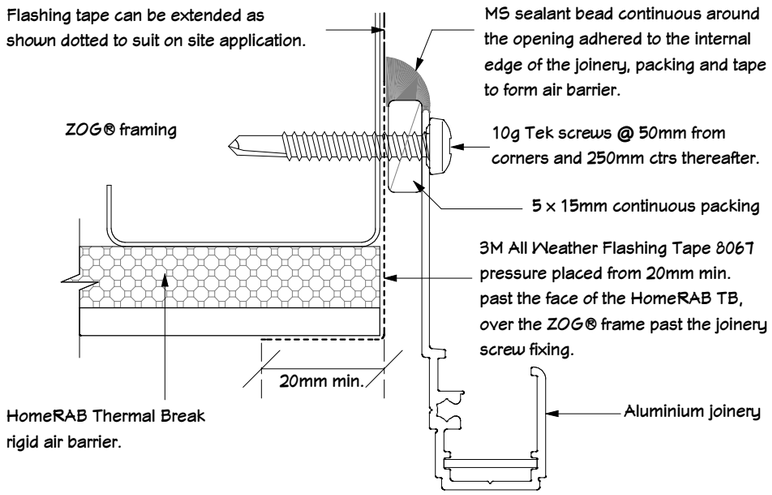
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Roof Flashings - Metal Tile

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE:	SHEET No. 20 OF 39

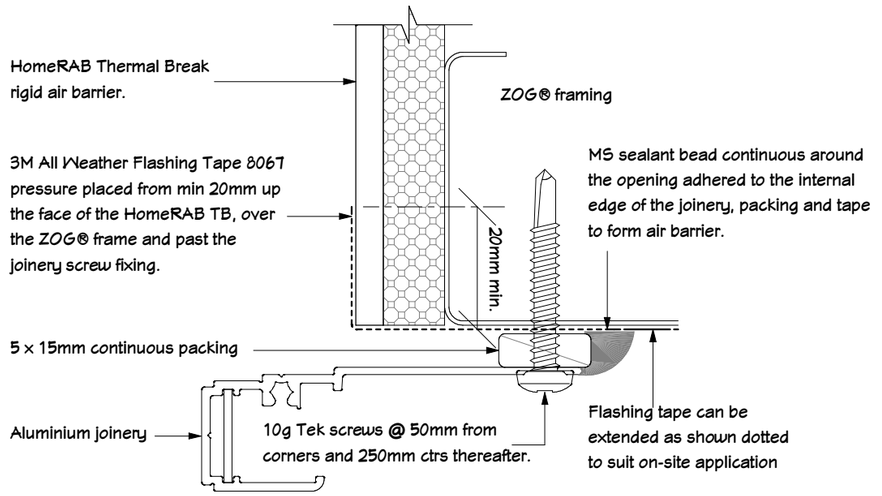
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EJ 006 **Aluminium Joinery Connection**

Jamb at ZOG Frame

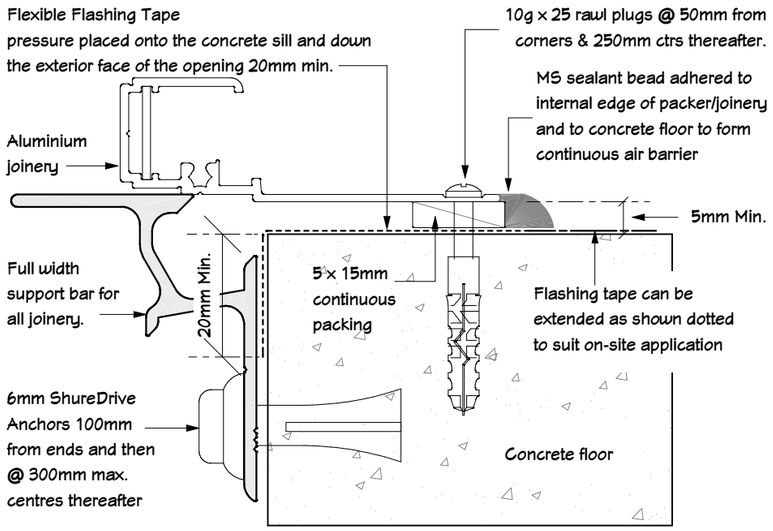
W:/DINEX.plan



EJ 007 **Aluminium Joinery Connection**

Head at ZOG Frame

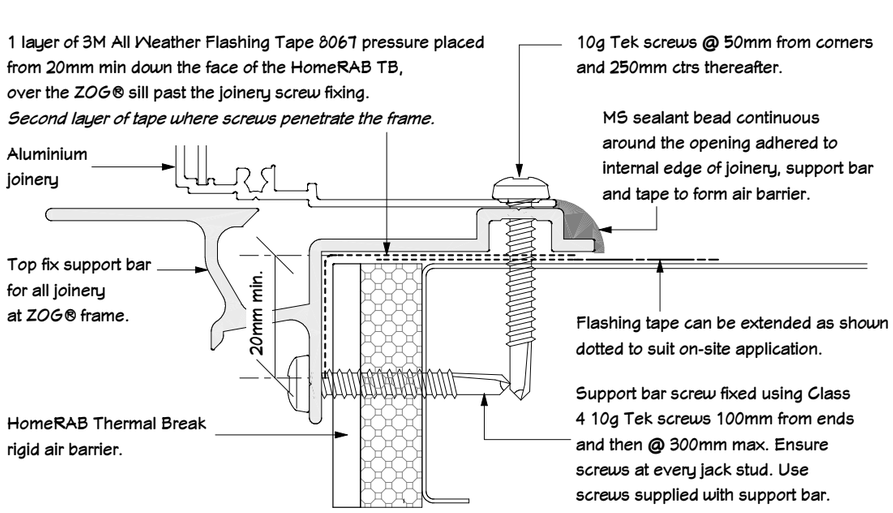
W:/DINEX.plan



EJ 004 **Aluminium Joinery Connection**

Sill at Conc Floor

W:/DINEX.plan



EJ 005 **Aluminium Joinery Connection**

Sill at ZOG Frame

W:/DINEX.plan

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NOTES:

- Refer to the NALCO Golden Homes Window & Exterior Door Installation Procedure manual for installation method.

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

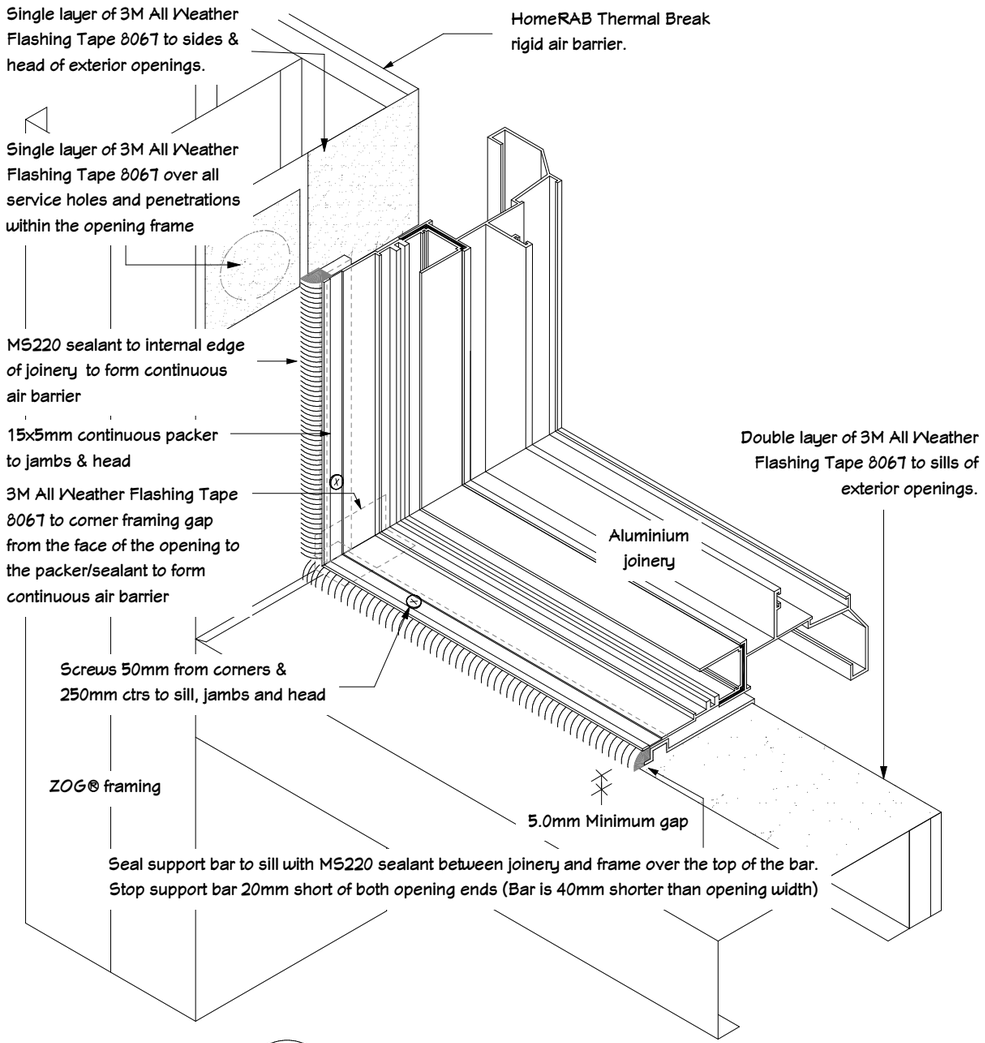
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

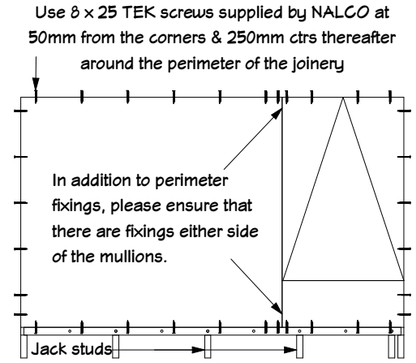
Exterior Joinery Details - Installation & Seal 1

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	N.T.S.	SHEET No.	21 OF 39

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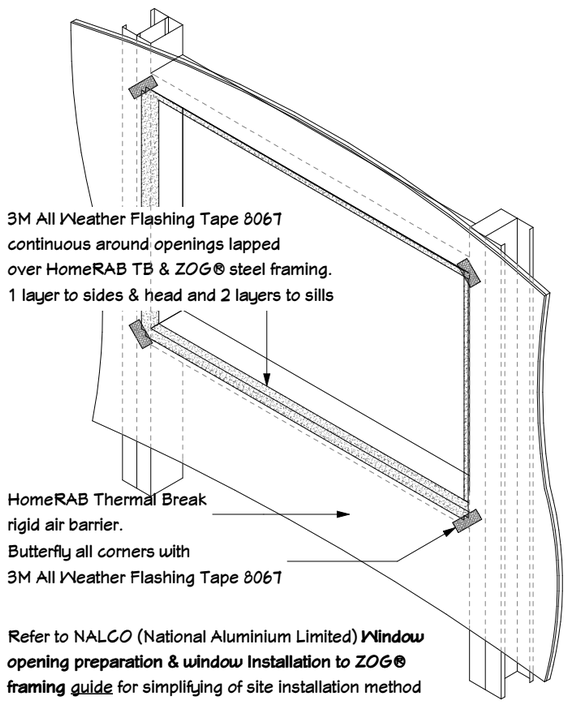


EJ 014 **Aluminium Joinery Opening**
3D of Corner Fixing & Sealant
W:/DINEX.plan



Support bar on all windows and doors.
Support bar supports are to be fixed at 300mm ctrs using 10 x 25mm 24TPI Class 4 screws supplied by NALCO. Ensure one screw is fixed through support bar into every jack studs.
Stop support Bar 20mm short of each opening jamb (40mm shorter than opening width)

EJ 016 **Aluminium Joinery**
Fixing to ZOG Frame
W:/DINEX.plan



Refer to NALCO (National Aluminium Limited) ***Window opening preparation & window installation to ZOG® framing*** *guide* for simplifying of site installation method

EJ 013 **Aluminium Joinery Opening**
3D of Flashing Tape
W:/DINEX.plan

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CODEMARK™ CM70023

NOTES:
- Joinery must be installed in accordance with NZS4211 and as shown in the NALCO Golden Homes Window & Exterior Door Installation Procedure manual.

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

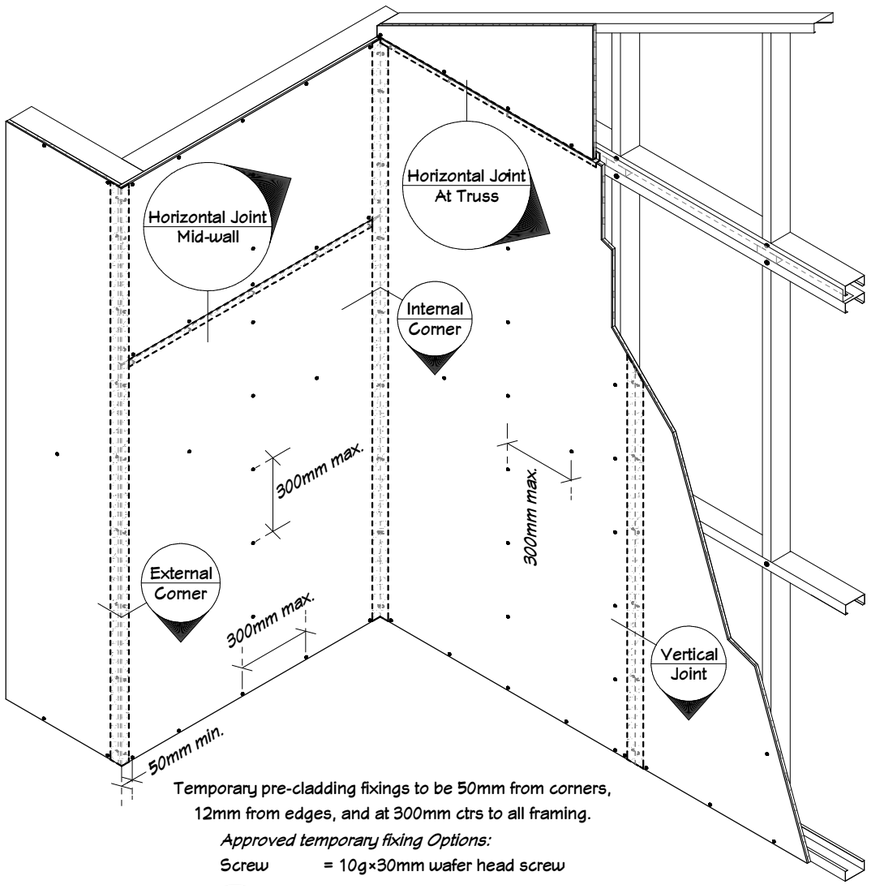
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Exterior Joinery Details - Installation & Seal 2

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	N.T.S.	SHEET No.	22 OF 39

Tauranga City Council
Approved Building Consent Document
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Temporary pre-cladding fixings to be 50mm from corners, 12mm from edges, and at 300mm ctrs to all framing.

Approved temporary fixing Options:

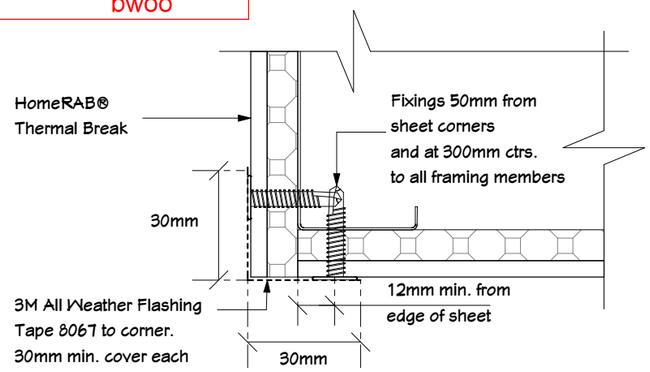
Screw = 10g×30mm wafer head screw

CD 001

HomeRAB Thermal Break

Fixing Layout

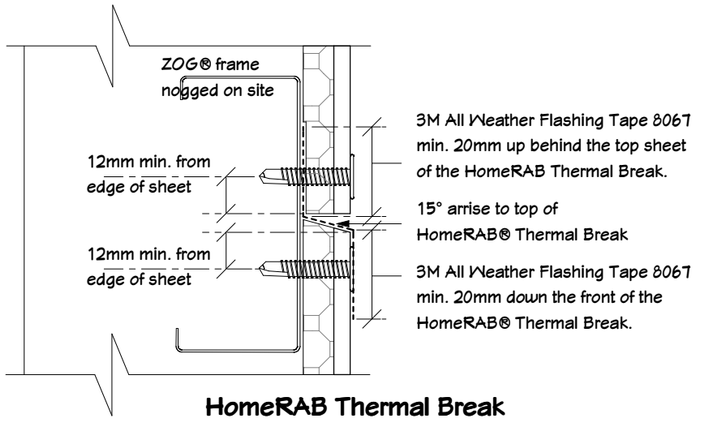
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HomeRAB Thermal Break

External Corner

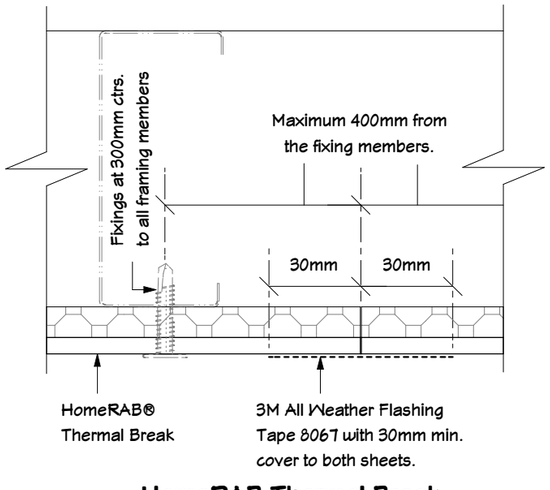
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HomeRAB Thermal Break

Horizontal Joint Mid-frame

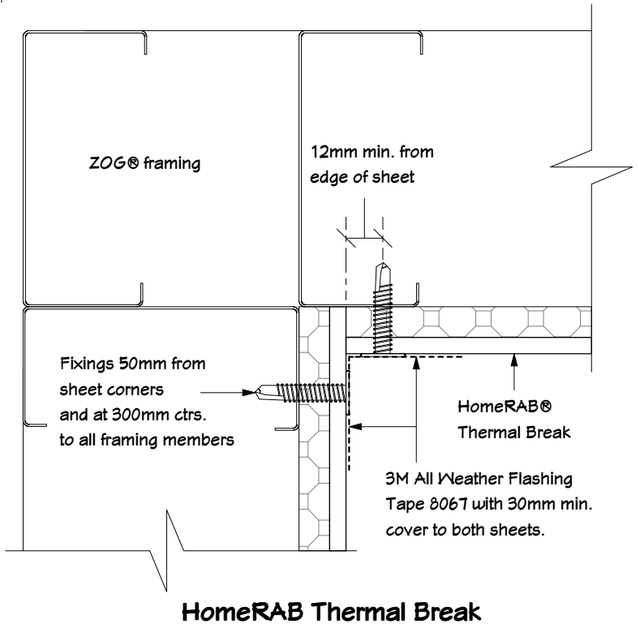
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HomeRAB Thermal Break

Vertical Joint

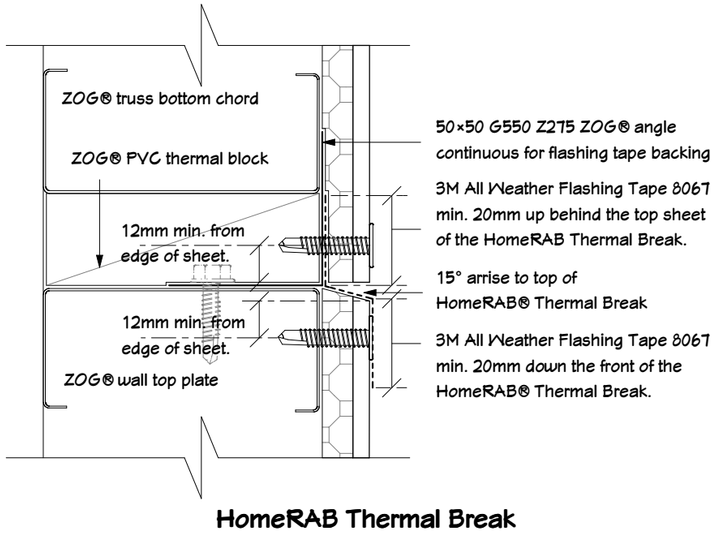
W:\DINEX.plan



HomeRAB Thermal Break

Internal Corner

W:\DINEX.plan



HomeRAB Thermal Break

Horizontal Joint at Truss

W:\DINEX.plan

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CODEMARK™ CM70023

NOTES:

- Once HomeRAB TB and exterior joinery has been installed in accordance these plans and specifications, the system will meet a full 90 day rigid air barrier compliance.
- This system will act as a cladding system for this building 90 days.

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

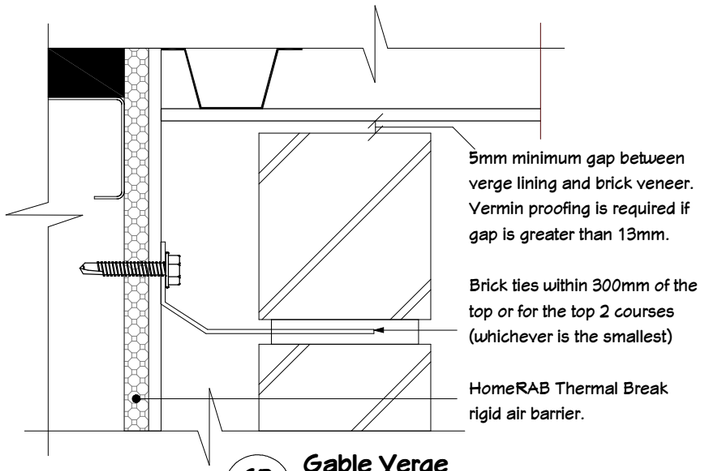
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

HomeRAB TB Fixing Layout

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	N.T.S.	SHEET No.	23 OF 39

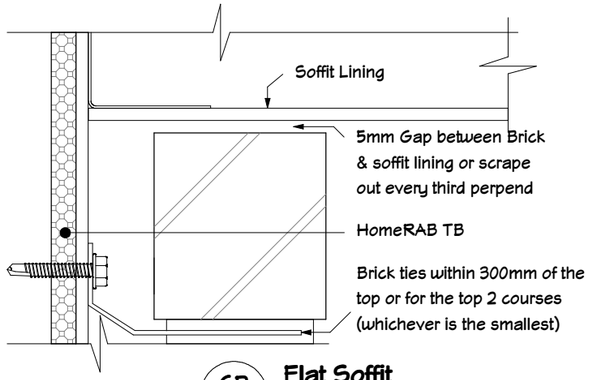
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CD 020 **Gable Verge**

Brick

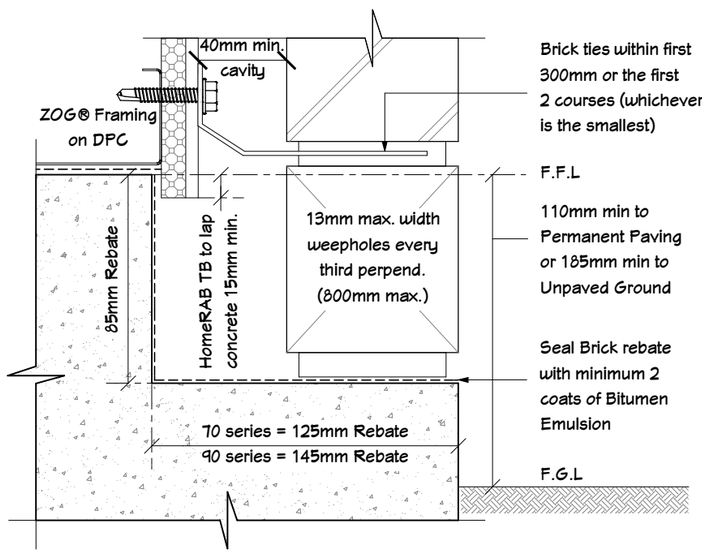
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CD 017 **Flat Soffit**

Brick

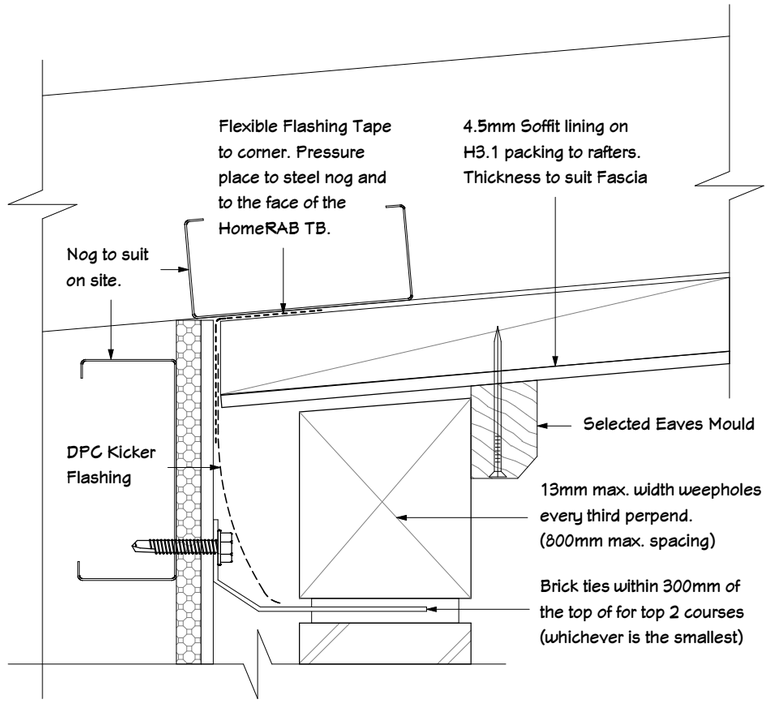
W:/DINEX.plan



CD 004 **Base at Concrete Floor**

Brick

W:/DINEX.plan



CD 018 **Reverse Sloping Soffit**

Brick

W:/DINEX.plan

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CODEMARK™ CM70023

NOTES:

Brick Tie Requirements

- brick veneer maximum mass of 220kg/m ² and minimum thickness of 70mm.
- corrosion protection of 470g/m ² galvanizing to 300MPa strength steel, up to and including exposure zone c.
- Walls ≤ 4.0m high
  Type B prefix EH tie maximum spacing of 600mm horizontally, 400mm vertically and 300mm or two course (whichever is the smaller) from edges or openings unless otherwise shown in details. Walls > 4.0m high 400mm horizontally in lieu of 600mm.

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

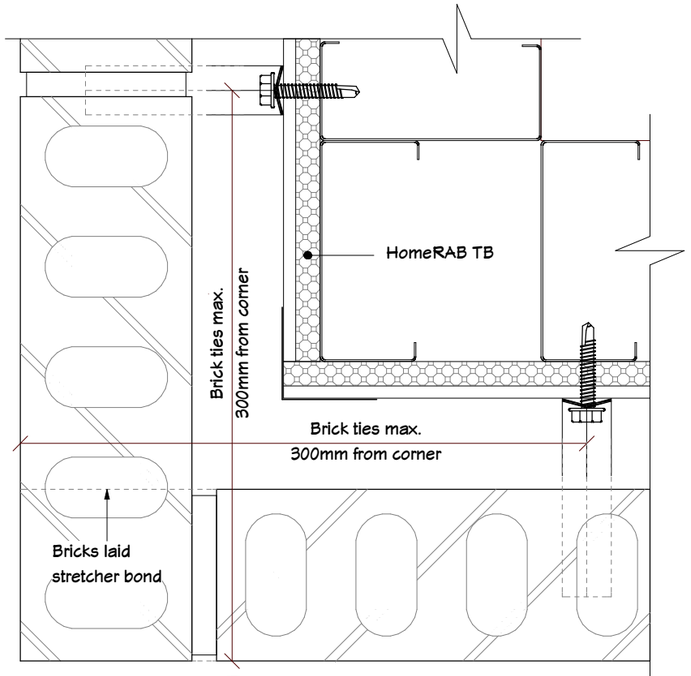
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

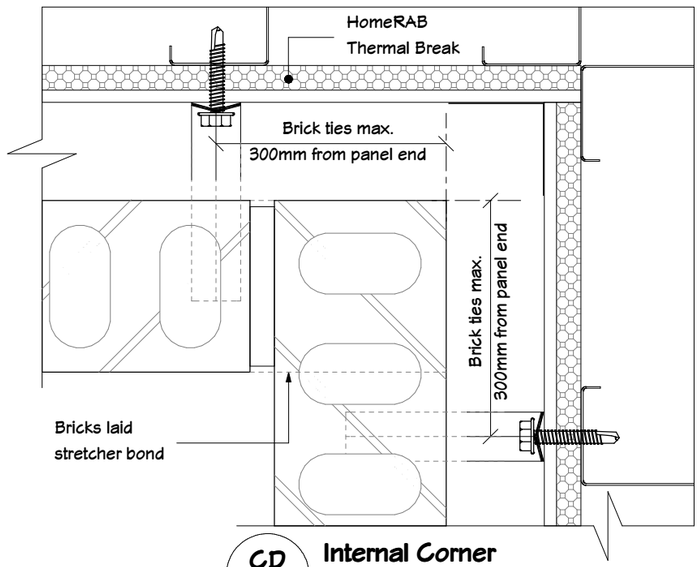
Cladding Details - Brick Veneer 1

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE:	SHEET No. 24 OF 39

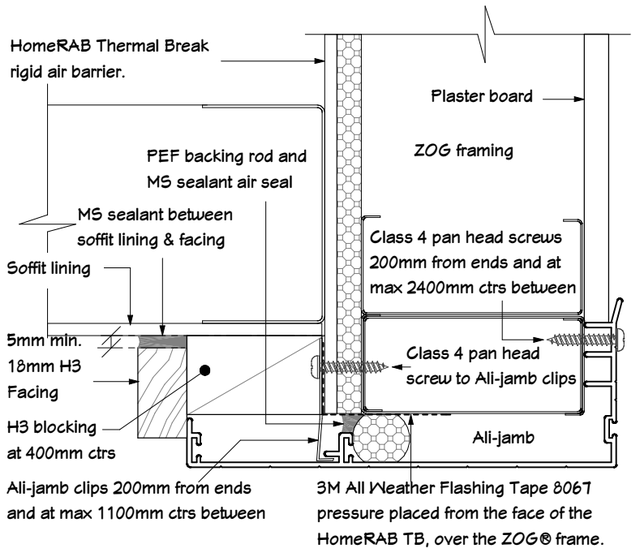
Tauranga City Council
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CD 007 **External Corner**
Brick
W:\DINEX.plan



CD 005 **Internal Corner**
Brick
W:\DINEX.plan



CD 096 **Garage Door Head at Soffit**
Ali-jamb
W:\DINEX.plan

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GOLDEN HOMES™

CODEMARK™ CM70023

NOTES:

Brick Tie Requirements

- brick veneer maximum mass of 220kg/m ² and minimum thickness of 70mm.
- corrosion protection of 470g/m ² galvanizing to 300MPa strength steel, up to and including exposure zone c.
- Walls ≤ 4.0m high
  Type B prefix EH tie maximum spacing of 600mm horizontally, 400mm vertically and 300mm or two course (whichever is the smaller) from edges or openings unless otherwise shown in details. Walls > 4.0m high 400mm horizontally in lieu of 600mm.

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

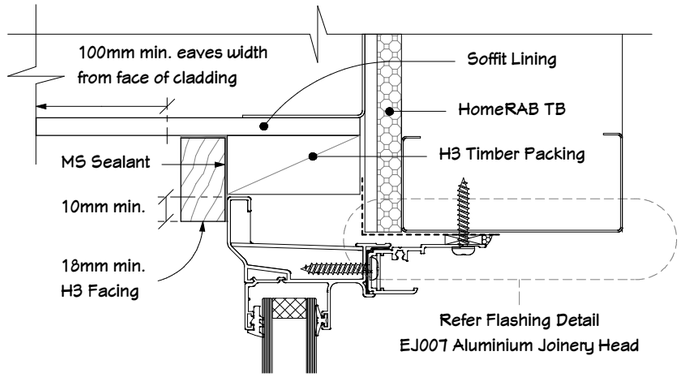
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Cladding Details - Brick Veneer 2

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE:	SHEET No. 25 OF 39

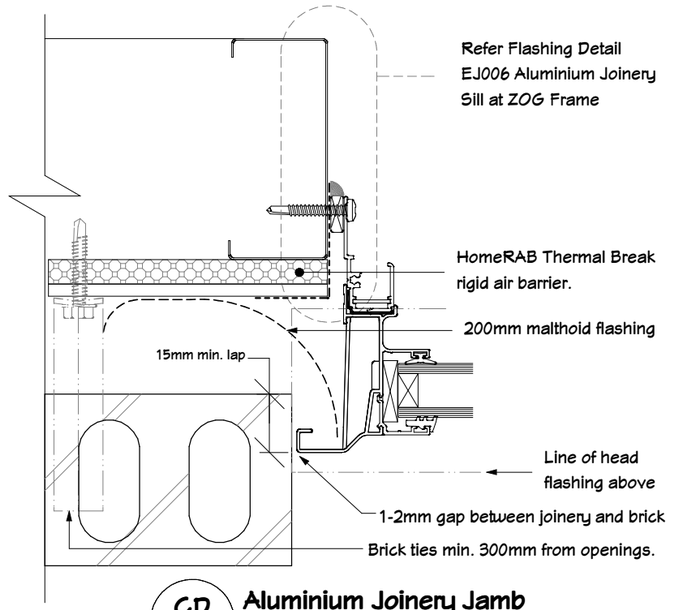
Tauranga City Council
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CD 110 **Aluminium joinery Head**

Facing to soffit

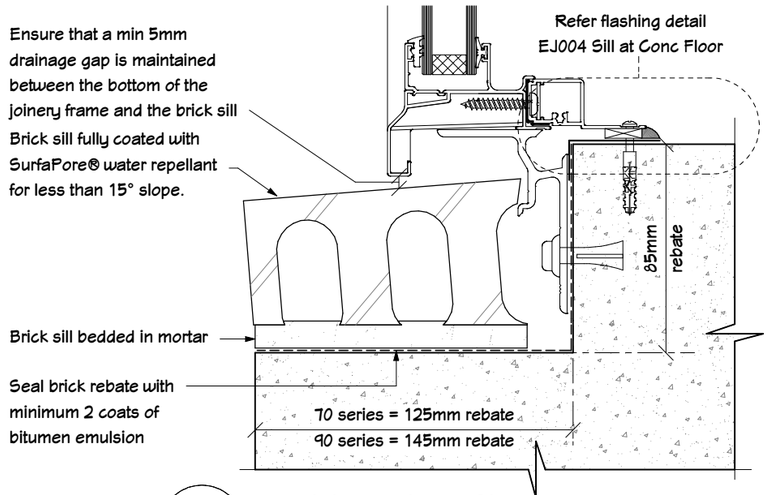
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CD 109 **Aluminium Joinery Jamb**

Brick

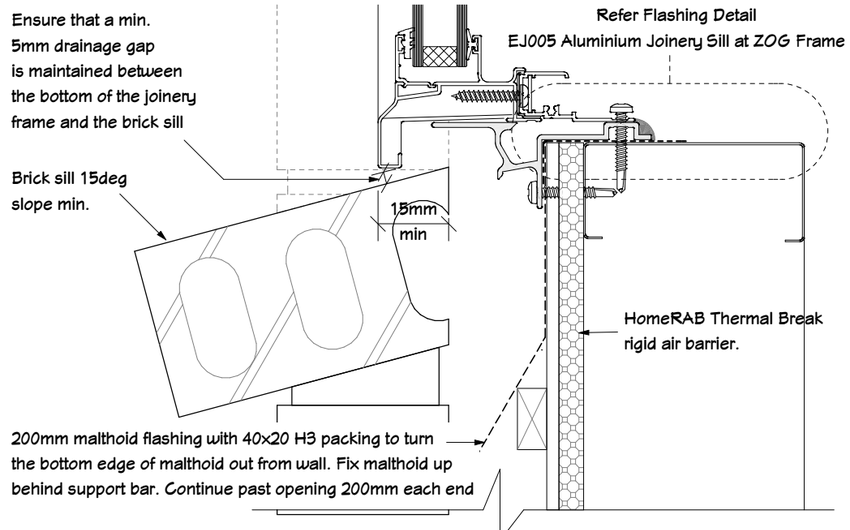
W:/DINEX.plan



CD 107 **Aluminium Joinery Sill at Floor**

Brick

W:/DINEX.plan



CD 108 **Aluminium Joinery Sill at Frame**

Brick

W:/DINEX.plan

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GOLDEN HOMES™

CODEMARK™ CM70023

NOTES:

Brick Tie Requirements

- brick veneer maximum mass of 220kg/m ² and minimum thickness of 70mm.
- corrosion protection of 470g/m ² galvanizing to 300MPa strength steel, up to and including exposure zone c.
- Walls ≤ 4.0m high
  Type B prefix EH tie maximum spacing of 600mm horizontally, 400mm vertically and 300mm or two course (whichever is the smaller) from edges or openings unless otherwise shown in details. Walls > 4.0m high 400mm horizontally in lieu of 600mm.

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

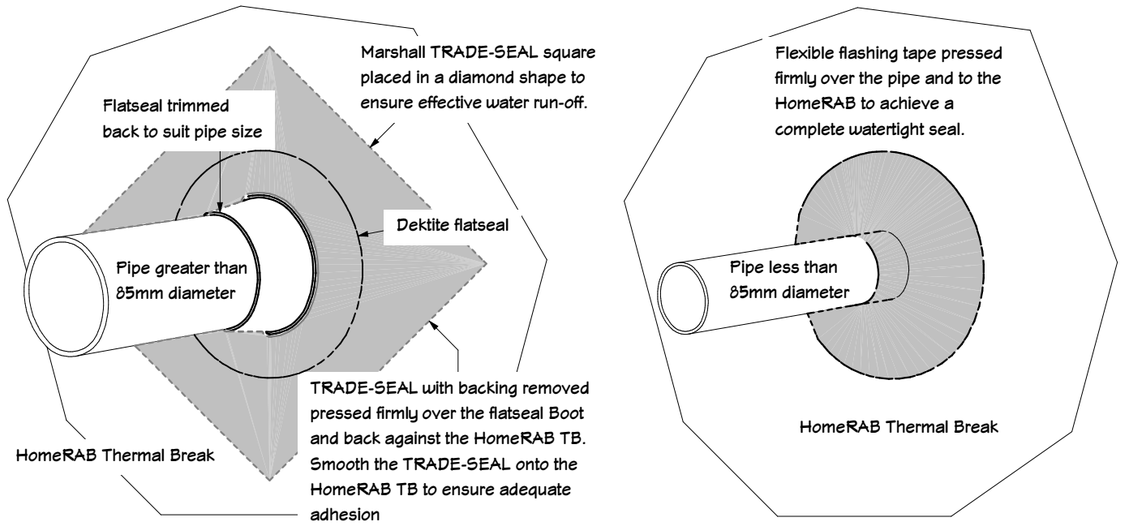
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

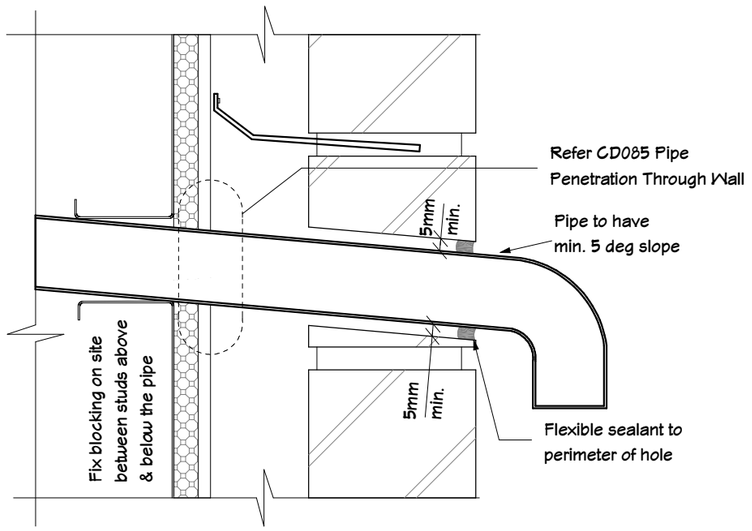
Cladding Details - Brick Veneer 3

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE:	SHEET No. 26 OF 39

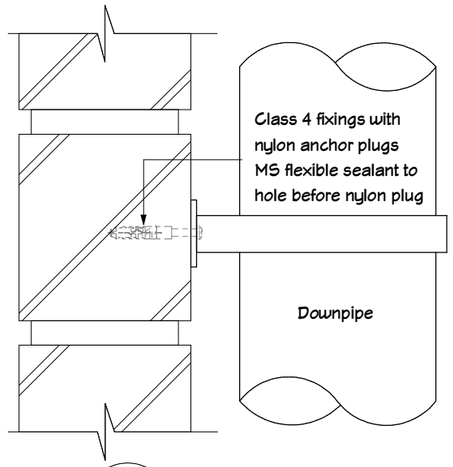
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CD 085 **Pipe Penetration**
Through Wall
W:\DINEX.plan



CD 085 **Pipe Penetration**
Brick
W:\DINEX.plan



CD 083 **Downpipe Fixing**
Brick
W:\DINEX.plan

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GOLDEN HOMES™

CODEMARK™ CM70023

NOTES:

Brick Tie Requirements

- brick veneer maximum mass of 220kg/m ² and minimum thickness of 70mm.
- corrosion protection of 470g/m ² galvanizing to 300MPa strength steel, up to and including exposure zone c.
- Walls ≤ 4.0m high
  Type B prefix EH tie maximum spacing of 600mm horizontally, 400mm vertically and 300mm or two course (whichever is the smaller) from edges or openings unless otherwise shown in details. Walls > 4.0m high 400mm horizontally in lieu of 600mm.

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

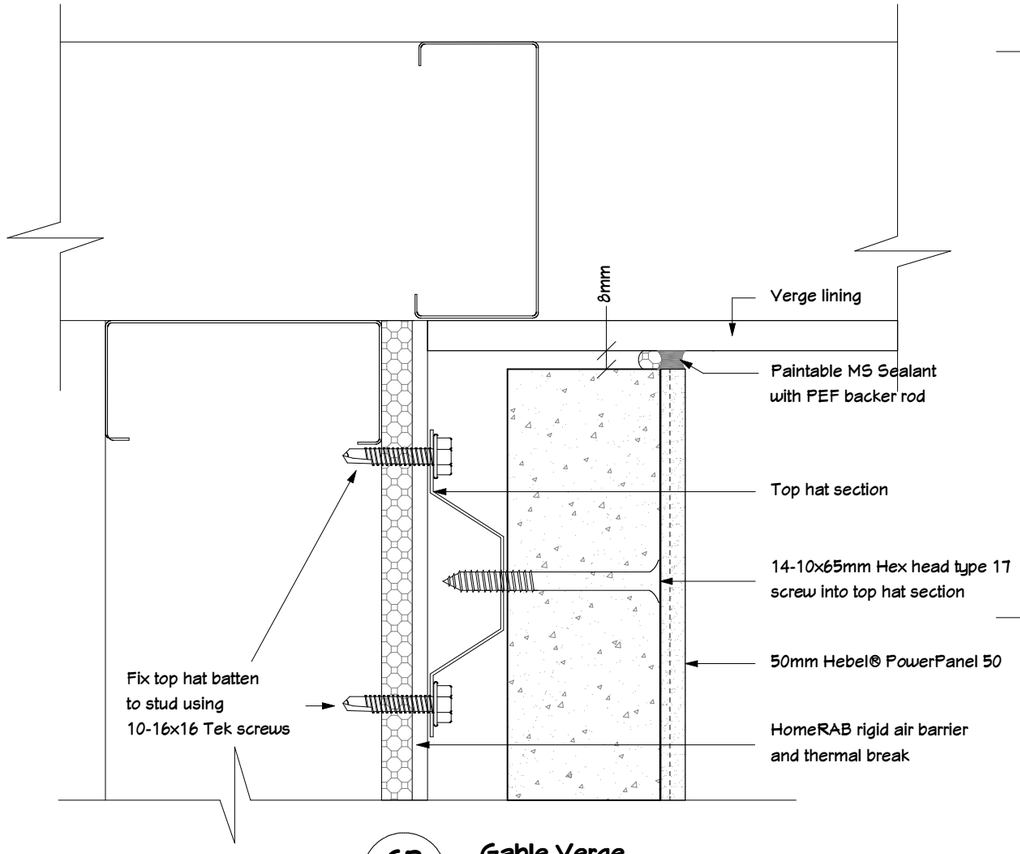
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

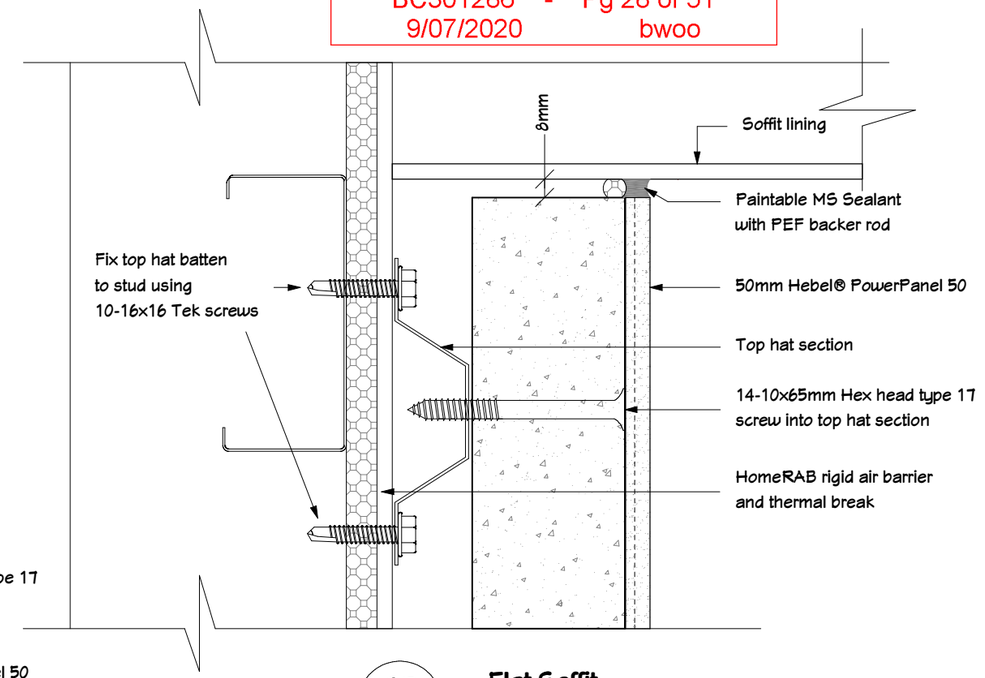
Cladding Details - Brick Veneer 4

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE:	SHEET No. 27 OF 39

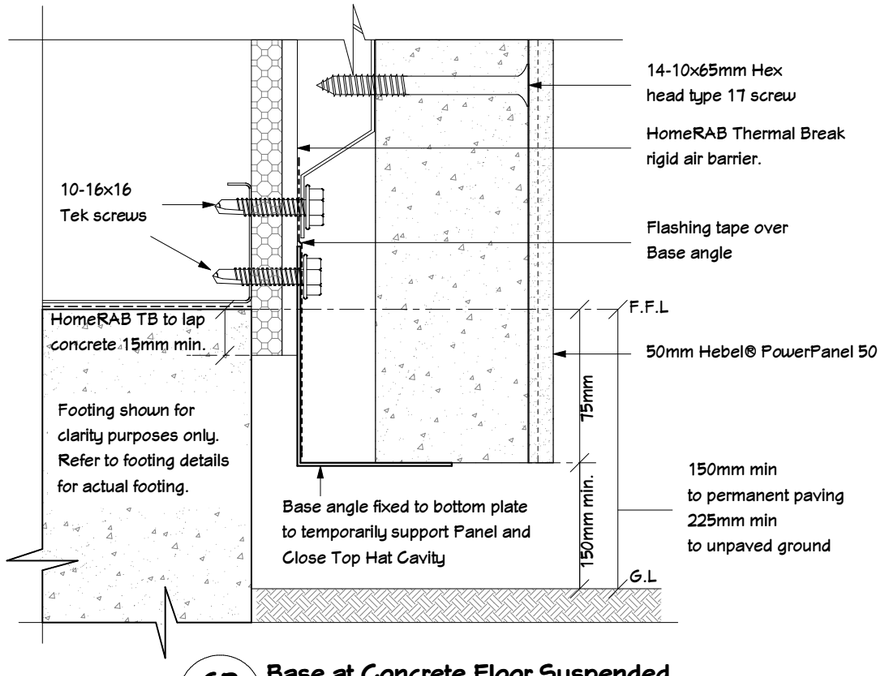
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CD 020 **Gable Verge**
Hebel® PowerPanel 50
W:\DINEX.plan



CD 017 **Flat Soffit**
Hebel® PowerPanel 50
W:\DINEX.plan



CD 004 **Base at Concrete Floor Suspended**
Hebel® PowerPanel 50
W:\DINEX.plan

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GOLDEN HOMES™

CODEMARK™ CM70023

NOTES:

Number of Screws per Panel per Top Hat

Wind Region	Screws
≤ Medium	2
High	3
Very High	3
Extra High	4

SUSPENDED

Maximum Top Hat Spacing for 600mm Stud Centres

Wind Region	Spacing
≤ Medium	925
High	825
Very High	725
Extra High	650

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

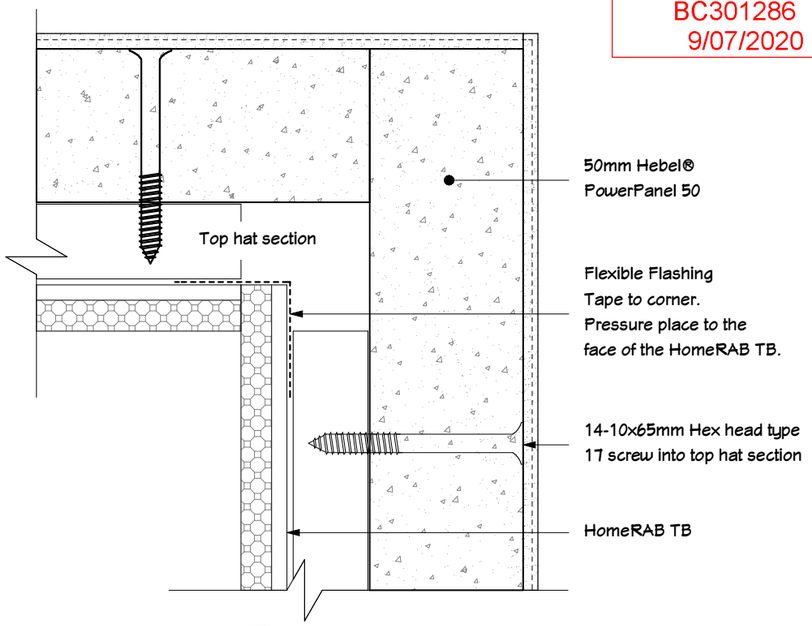
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

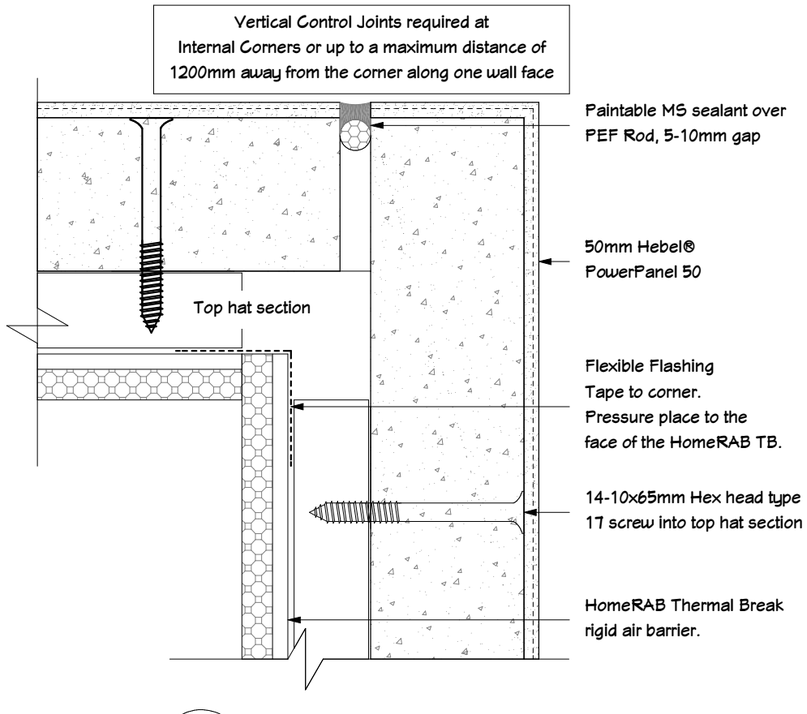
Cladding Details - Hebel 50 1

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE:	SHEET No. 28 OF 39

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CD 007 **External Corner**
Hebel® PowerPanel 50
W:\DINEX.plan



CD 007 **External Corner Control Joint**
Hebel® PowerPanel 50
W:\DINEX.plan

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GOLDEN HOMES™

CODEMARK™ CM70023

NOTES:

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

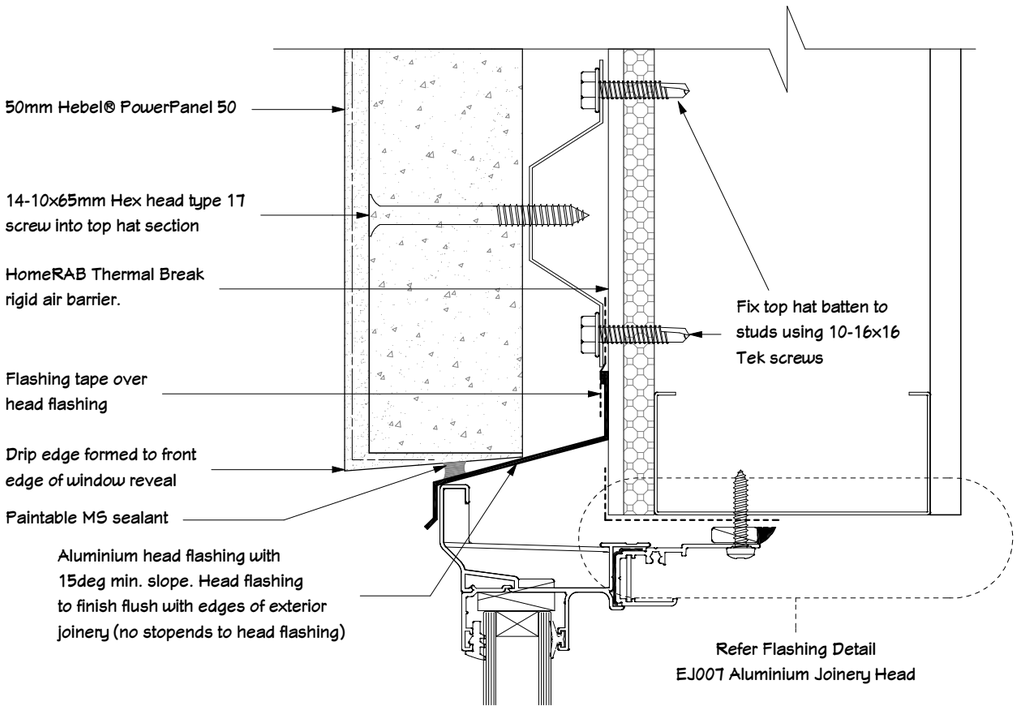
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Cladding Details - Hebel 50 2

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE:	SHEET No. 29 OF 39

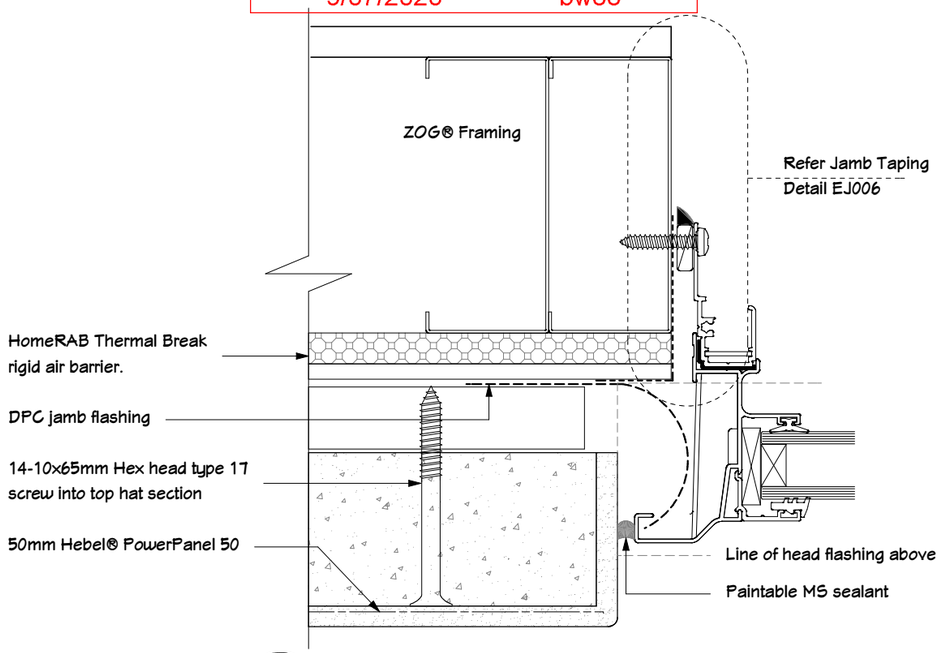
Tauranga City Council
Approved Building Consent Document
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9/07/2020 bwoo



CD 110 **Aluminium Joinery Head (AL)**

Hebel® PowerPanel 50

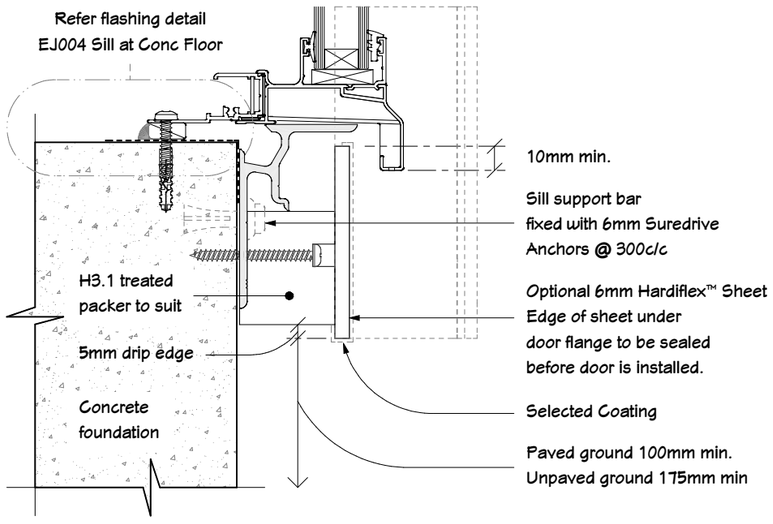
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CD 109 **Aluminium Joinery Jamb**

Hebel® PowerPanel 50

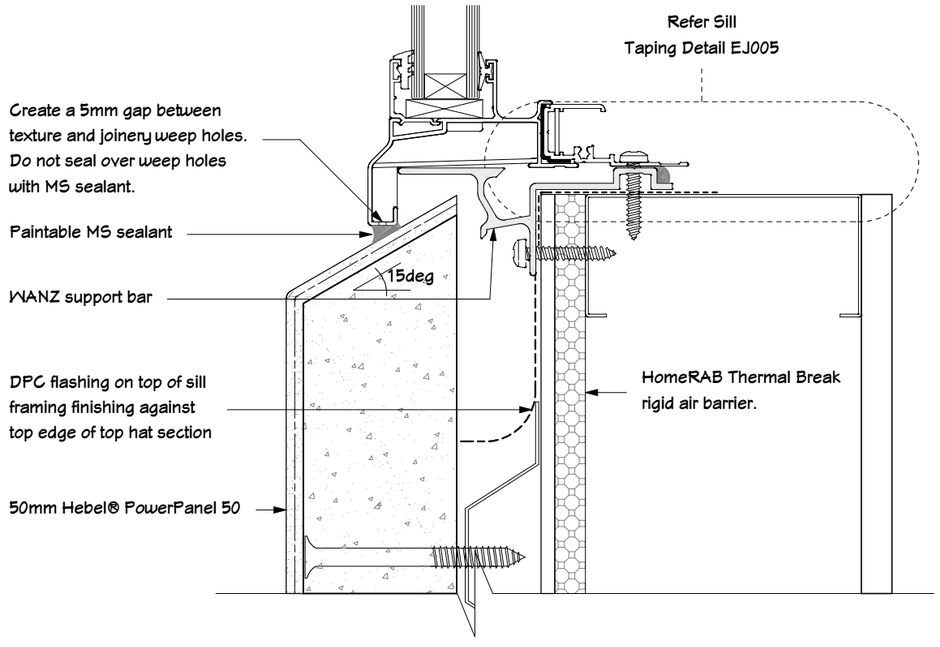
W:/DINEX.plan



CD 107 **Aluminium Joinery Sill at Conc Floor**

Hebel® PowerPanel 50

W:/DINEX.plan



CD 108 **Aluminium Joinery Sill at Frame**

Hebel® PowerPanel 50

W:/DINEX.plan

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GOLDEN HOMES™

CODEMARK™ CM70023

NOTES:

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

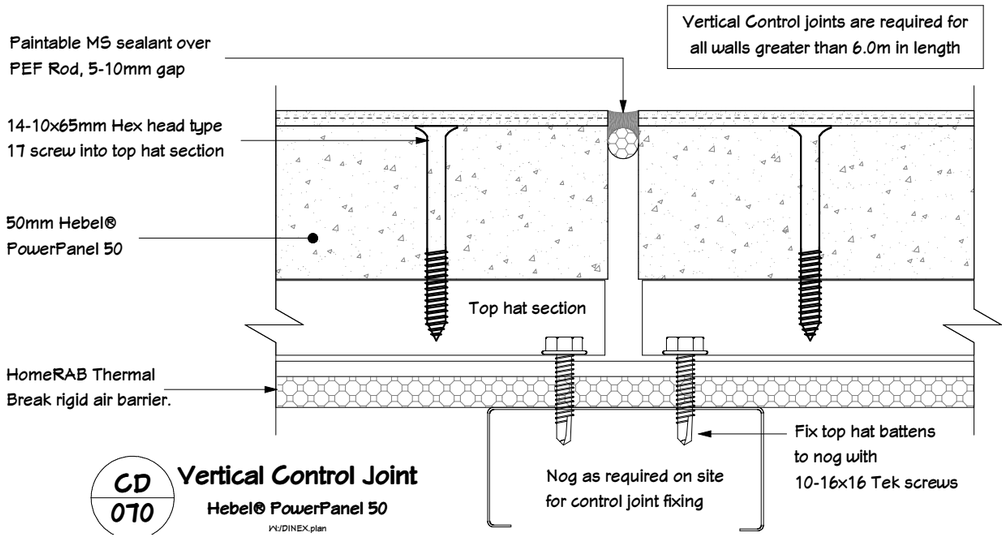
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

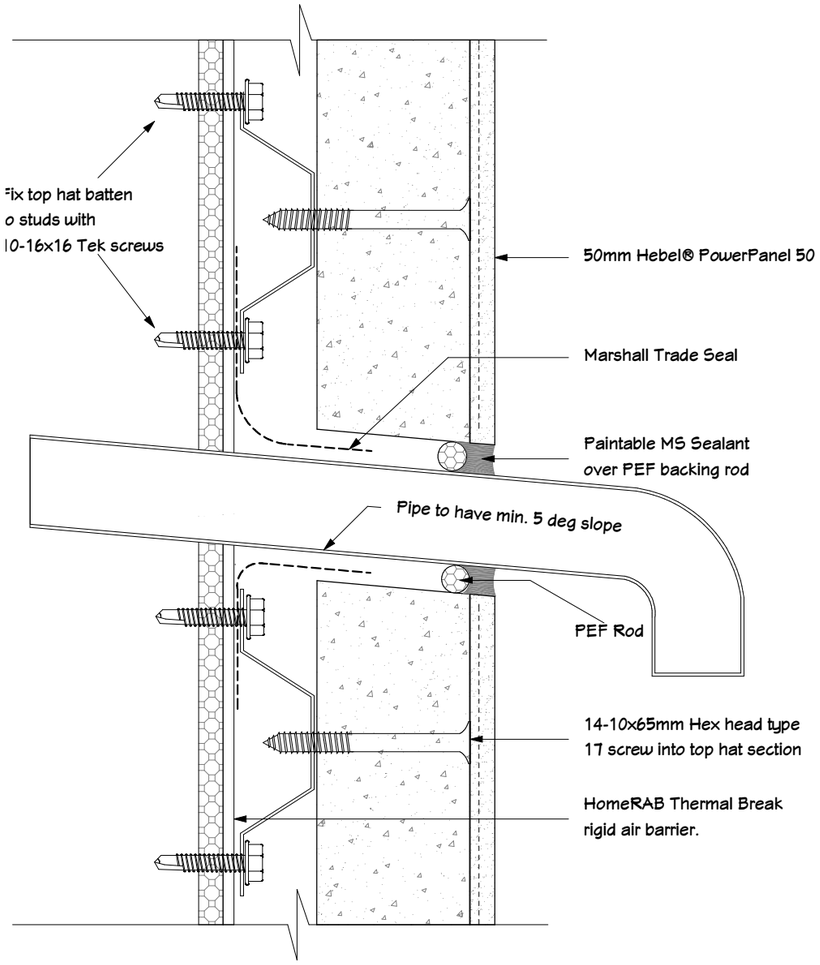
Cladding Details - Hebel 50 4

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE:	SHEET No. 30 OF 39

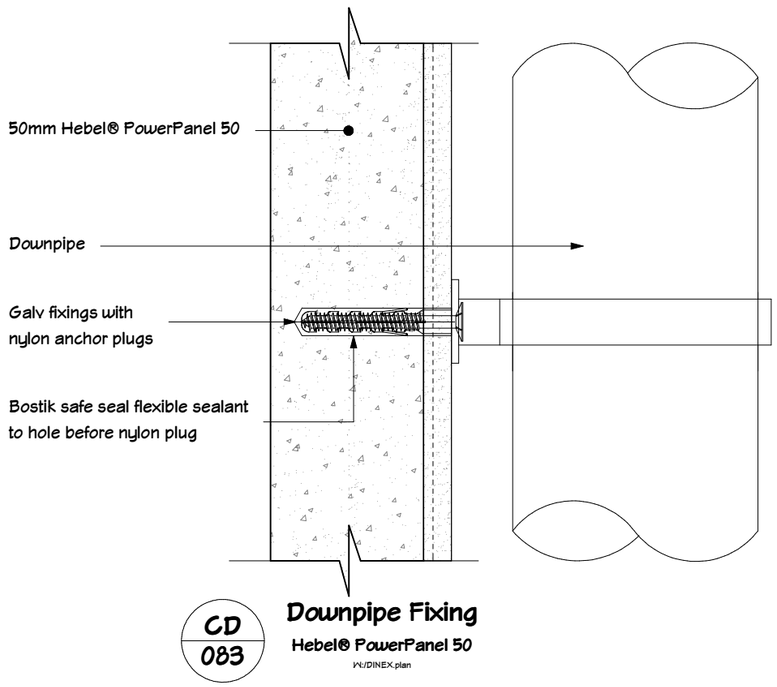
Tauranga City Council
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9/07/2020 bwoo



CD 070 **Vertical Control Joint**
Hebel® PowerPanel 50
W:\DINEX.plan



CD 085 **Pipe Penetration**
Hebel® PowerPanel 50
W:\DINEX.plan



CD 083 **Downpipe Fixing**
Hebel® PowerPanel 50
W:\DINEX.plan

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CODEMARK™ CM70023

NOTES:

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

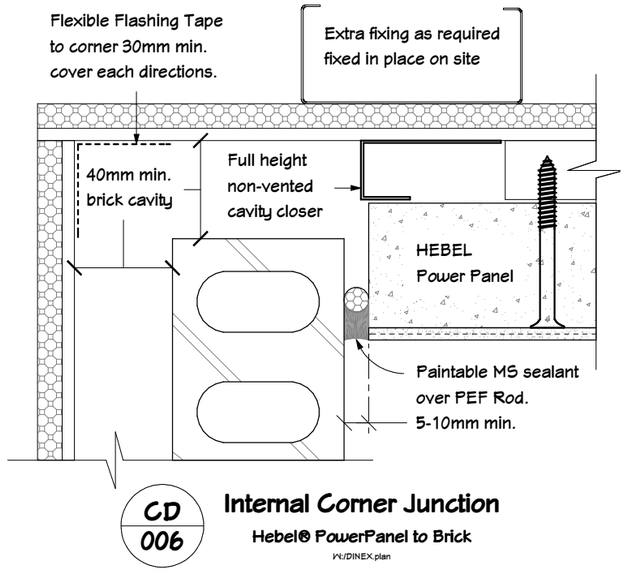
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Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Cladding Details - Hebel 50 6

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE:	SHEET No. 31 OF 39

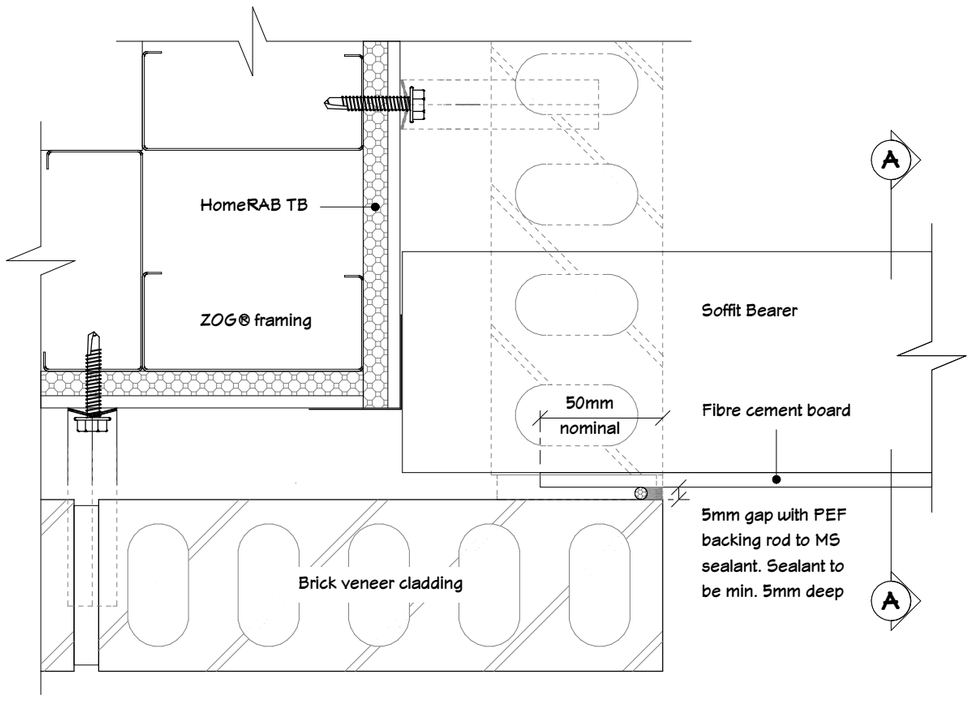
Tauranga City Council
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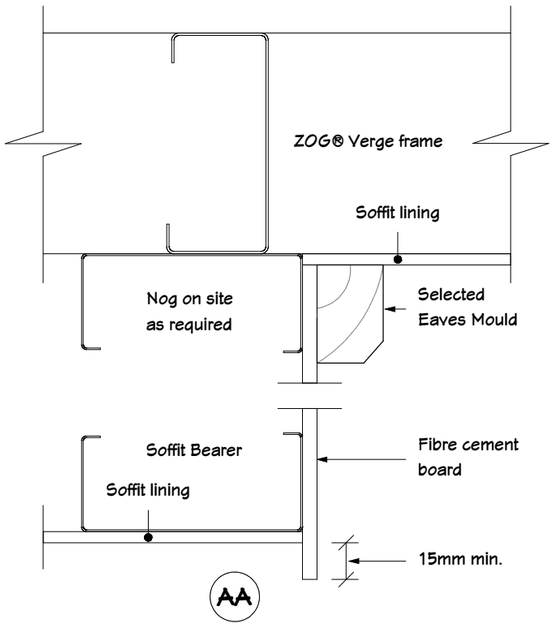


CD 006 **Internal Corner Junction**

Hebel® PowerPanel to Brick

W:/DINEX.plan





CD 021 **Gable Eaves Junction**

Fibre Cement Board to Brick

W:/DINEX.plan

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GOLDEN HOMES™

CODEMARK™ CM70023

NOTES:

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

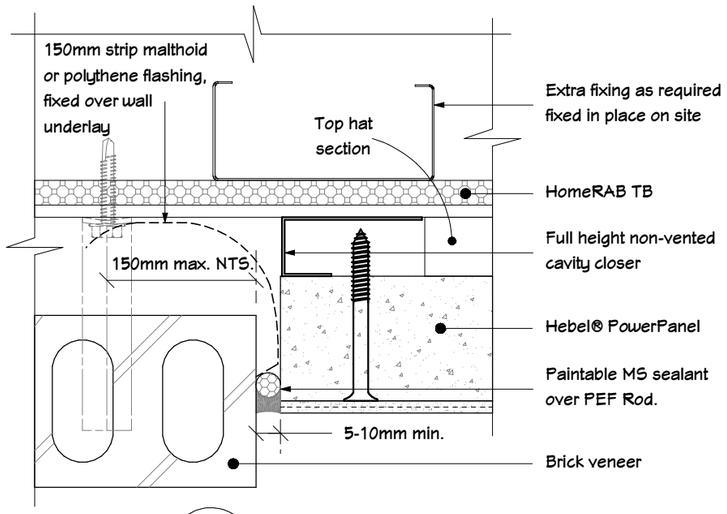
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

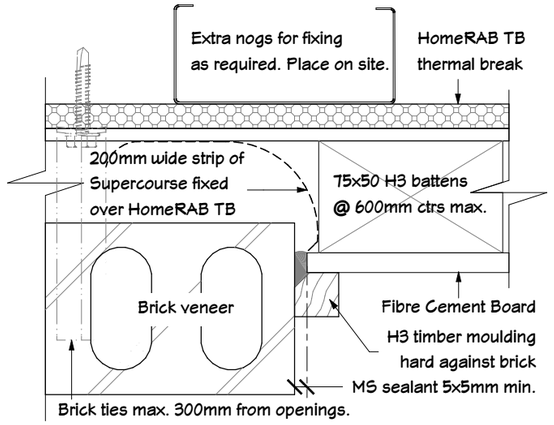
Cladding Details - Junctions 1

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	N.T.S.	SHEET No.	32 OF 39

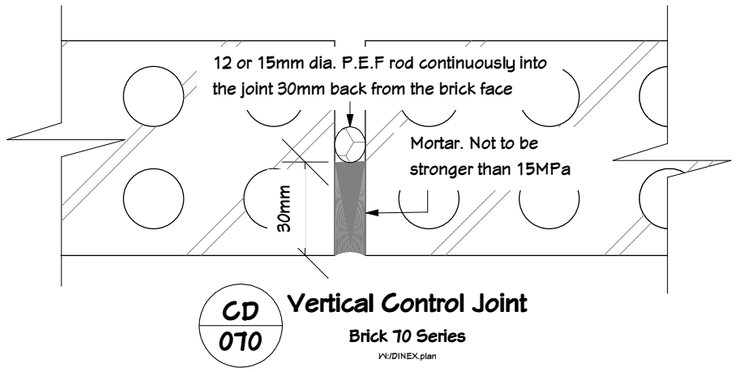
Tauranga City Council
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9/07/2020 bwoo



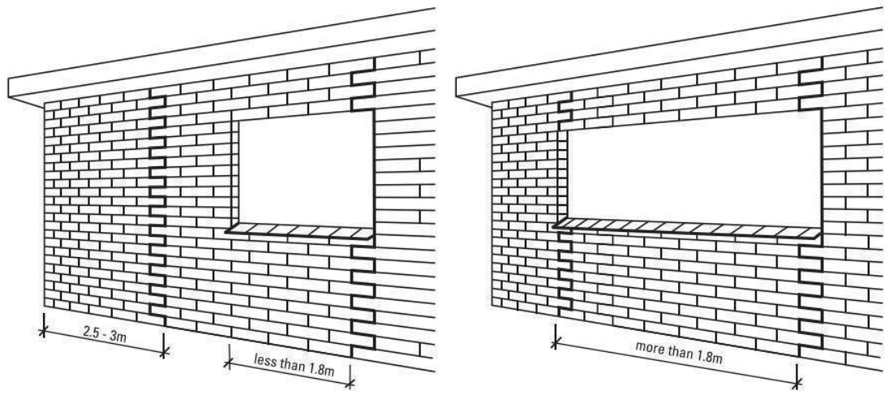
CD 069 **Vertical Junction**
Brick / HebelPowerPanel
W:/DINEX.plan



CD 069 **Window Head Vertical Junction**
Brick / Fibre Cement Board
W:/DINEX.plan



CD 070 **Vertical Control Joint**
Brick 70 Series
W:/DINEX.plan



OAKDALE - © GOLDEN HOMES HOLDINGS LTD

GOLDEN HOMES™

CODEMARK™ CM70023

NOTES:

Masonry Brick
Control Joint requirements

- max spacing of 6.0m
- within 0.6m of corners unless next control joint is within 3.2m.
- changes of wall height greater than 0.6m
- changes in wall thicknesses
- one side of all windows under 1.8m wide
- both sides of all windows 1.8m wide and over

Combination of Firth Rules(NZS 4210) and NZBC: E2

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

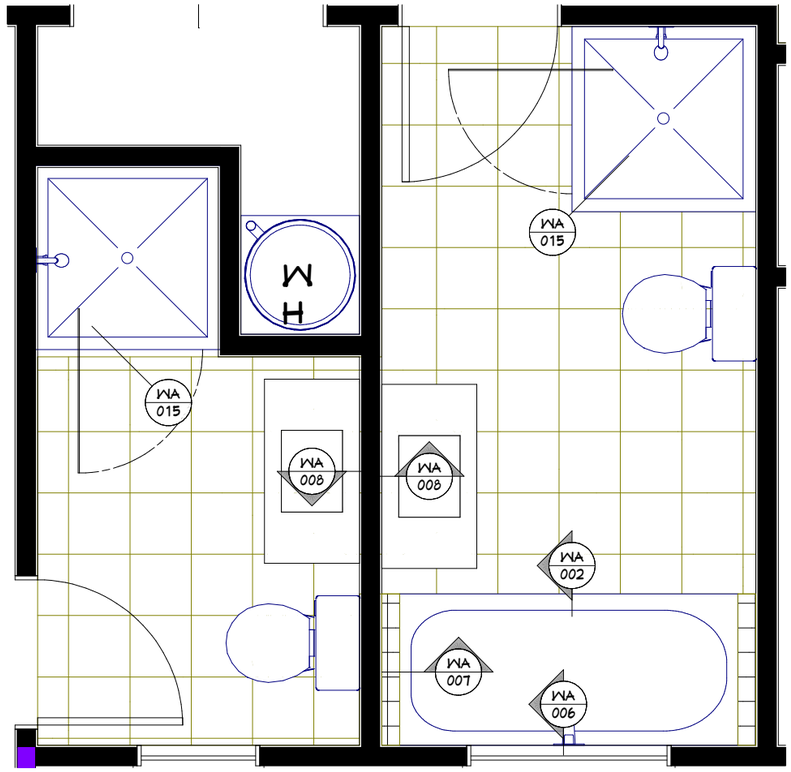
SITE DATA (for zones upto & including):

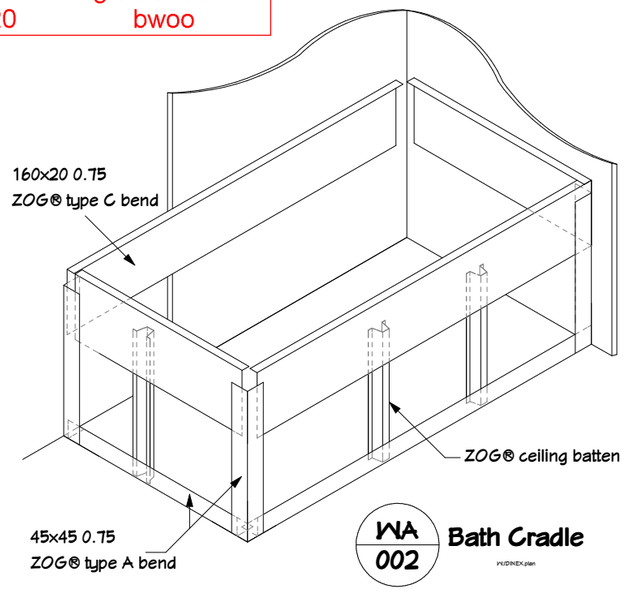
Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Cladding Details - Junctions 2

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	N.T.S.	SHEET No.	33 OF 39

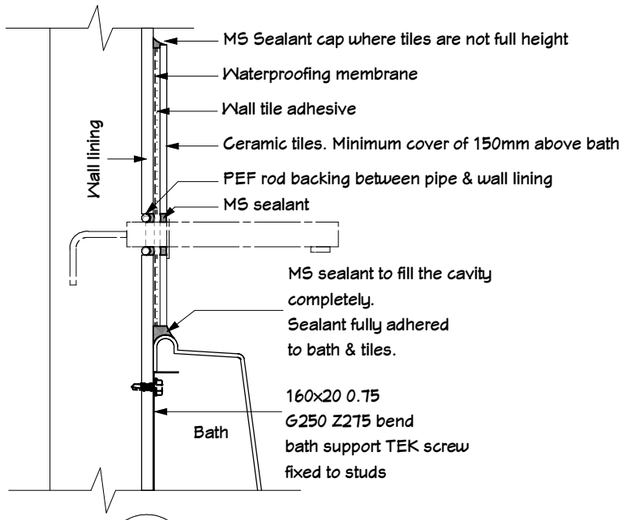
Tauranga City Council
Approved Building Consent Document
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9/07/2020 bwoo





WA 002 **Bath Cradle**

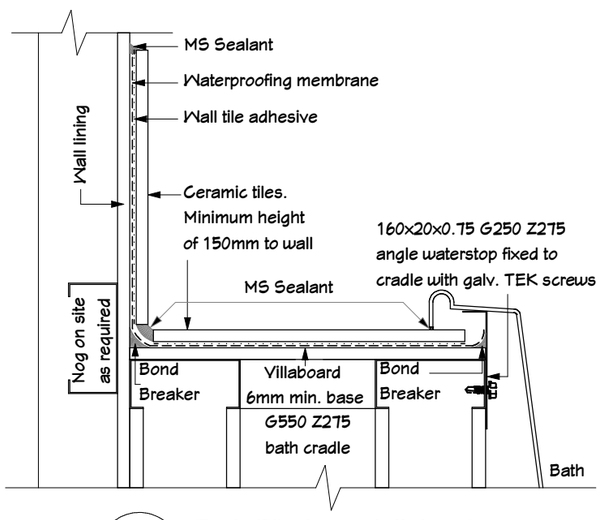
W:\DINEX.plan



WA 006 **Bath to Wall Junction**

Acrylic Bath / Tiled Wall

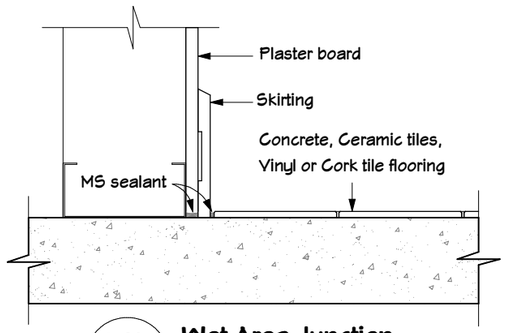
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WA 007 **Bath Plinth to Wall Junction**

Acrylic Bath / Tiled Plinth / Tiled Wall

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WA 004 **Wet Area Junction**

Floor - Wall

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CODEMARK™ CM70023

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NOTES:

Wet area / water splash floor & wall options

Due to the finish variations required by the owner from time to time, the list below is provided as suitable options for floor and wall coverings in watersplash areas.

- Tiled - Ceramic or stone tiles having 6% maximum water absorption, waterproof grouted joints, and bedded with an adhesive specified by the tile manufacturer as being suitable for the tiles, substrate material and the environment use.
- Cement based solid plaster or concrete having a steel trowel or polished finish, "semi-gloss" or "gloss" paint must be used if paint finish required.
- Timber or timber based products such as particleboard/plywood sealed with waterproof applied coatings.
- Sheet linings finished with vinyl coated wall paper, or semi-gloss or gloss coating. (wall only)
- Integrally waterproof sheet material (e.g. polyvinylchloride "vinyl") with sealed joints.
- Any other material that compiles with NZBC E3 clauses 3.1.1, 3.1.2 & D1 AS1/VM1

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

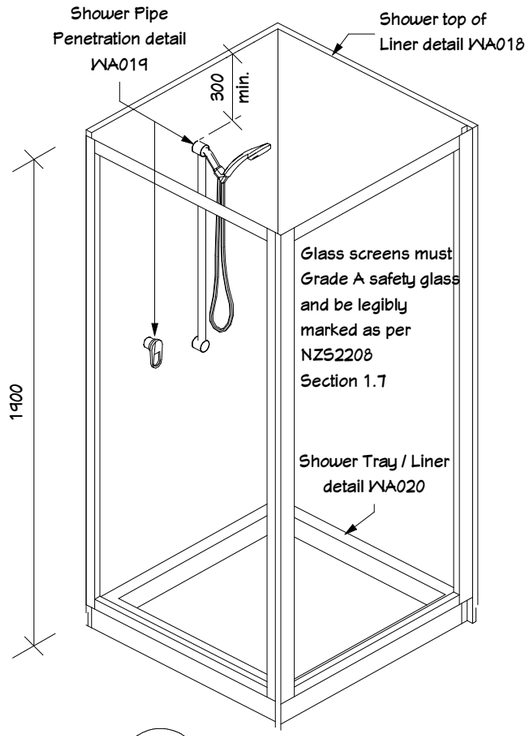
TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

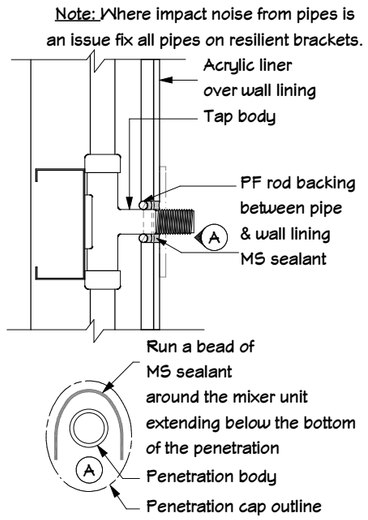
Wet Area Details 1

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE: N.T.S.	SHEET No. 34 OF 39



WA 015 **Shower Reference**

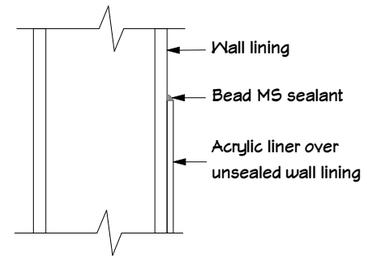
W:/DINEX.plan



WA 019 **Shower Penetration**

Acrylic Liner

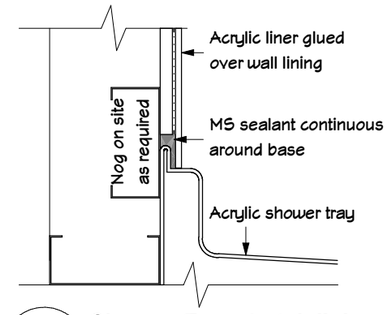
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WA 018 **Shower Top**

Acrylic Liner

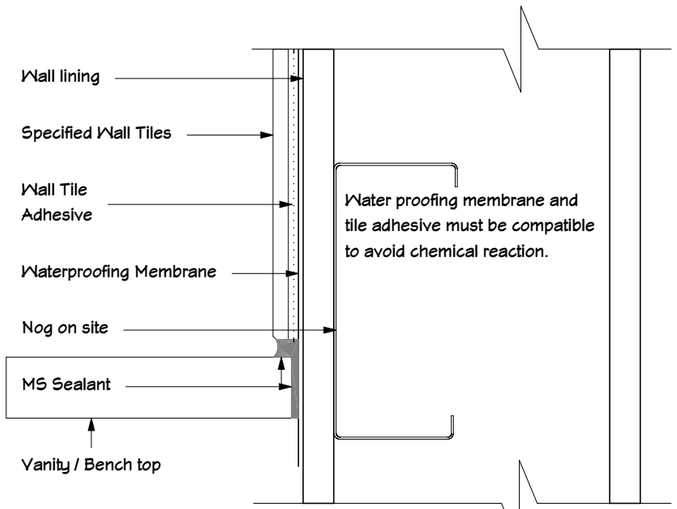
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WA 020 **Shower Base to Wall Junction**

Acrylic Liner / Acrylic Base

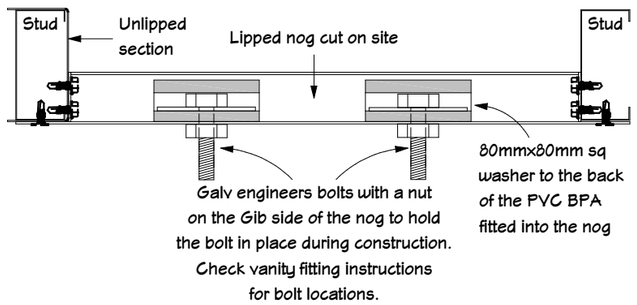
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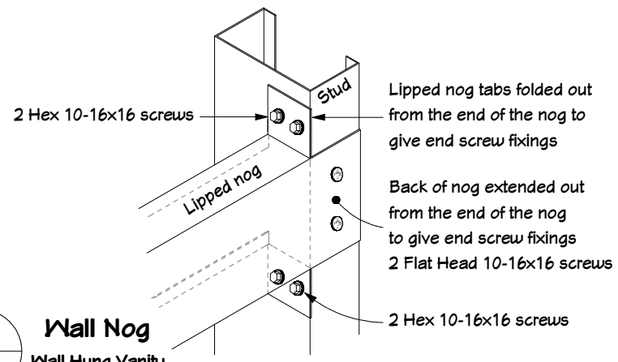


WA 008 **Vanity / Bench Top to Wall**

Tiled Upstand

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WF 028 **Wall Nog**

Wall Hung Vanity

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Tauranga City Council
Approved Building Consent Document
BC301286 - Pg 35 of 51
9/07/2020 bwoo

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CODEMARK™ CM70023

NOTES:

Wet area / water splash floor & wall options

Due to the finish variations required by the owner from time to time, the list below is provided as suitable options for floor and wall coverings in watersplash areas.

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- Sheet linings finished with vinyl coated wall paper, or semi-gloss or gloss coating. (wall only)
- Integrally waterproof sheet material (e.g. polyvinylchloride "vinyl") with sealed joints.
- Any other material that compiles with NZBC E3 clauses 3.1.1, 3.1.2 & D1 AS1/VM1

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

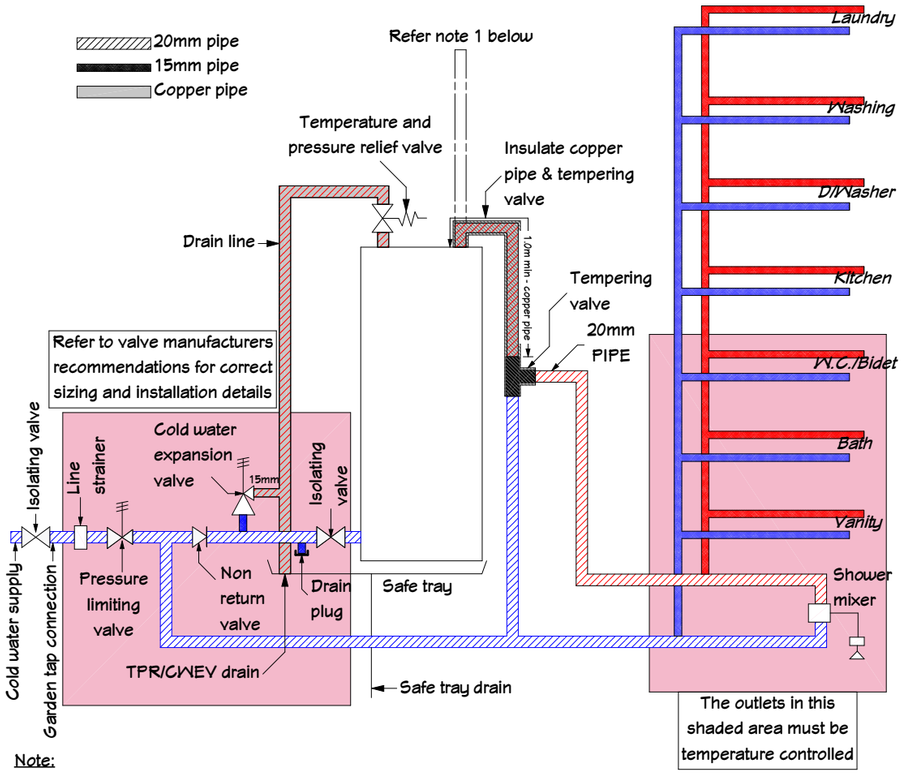
SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Wet Area Details 2

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	N.T.S.	SHEET No.	35 OF 39

Tauranga City Council
Approved Building Consent Document
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Note:

1) A mains pressure water heater can also be installed as an open vent or valve vented low pressure system
2) Combination valves (e.g. units incorporating isolating valve, strainer and pressure limiting valve) can be used to reduce the number of valves and simplify the installation

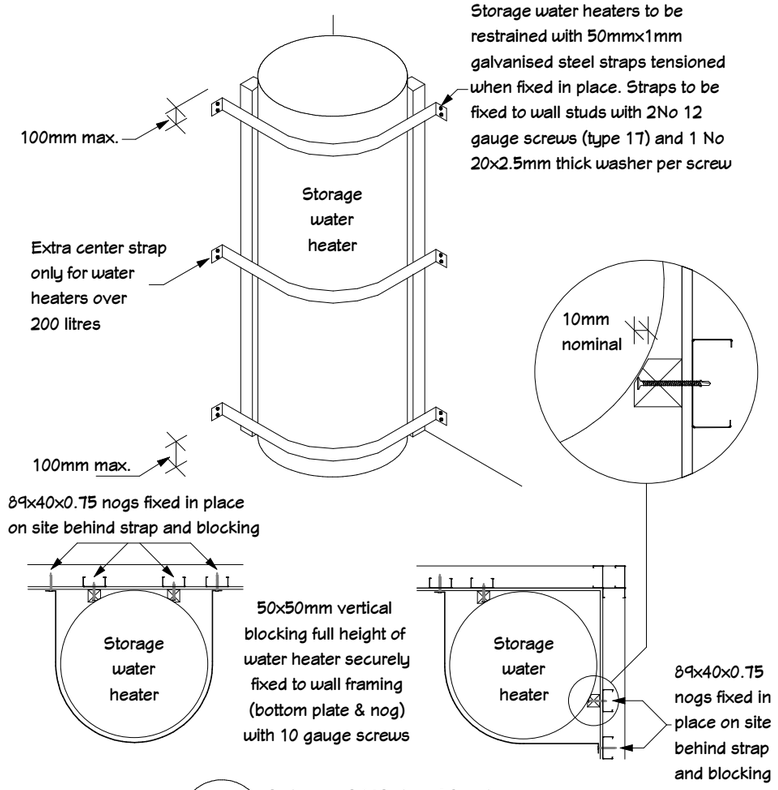
WH 001 **Mains Pressure HWC Installation**

Electrical

W:/DINEX.plan

Max developed pipe length

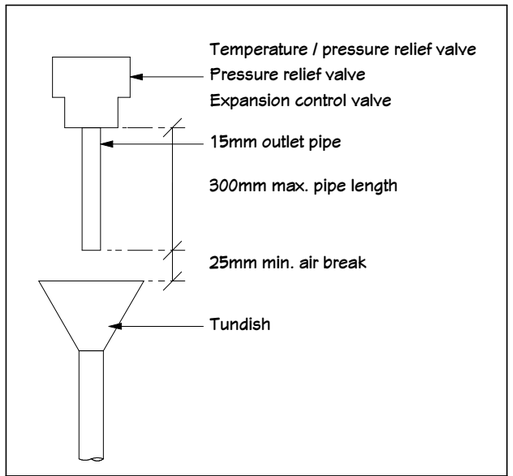
To comply with both H1 and G12, a 15mm pipe at 12m max developed pipe length from the HWC to the kitchen sink meets the requirements of the acceptable solutions. As an alternative solution, an increase of up to 50% (Total 18m) can be approved, provided the pipe is insulated over its full length from the HWC with preformed closed cell foam with 13mm wall thickness.
This generic alternative solution is considered to meet the requirements of both G12 and H1"



WH 010 **Internal Water Heater**

Seismic Constraint 90-360L

W:/DINEX.plan



WH 006 **Relief Valve**

Freezing Protection

W:/DINEX.plan

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NOTES:

- Water storage heater control thermostat shall be set at a temperature of not less than 60°C to prevent the growth of Legionella bacteria.
- Tempering Valve to be installed as per NZBC G12, to allow for a maximum of 55°C water to be delivered to sanitary fixtures.

Water efficiency measures(use the following)

- Showers using not more than 9 litres of water per minute.
- Tap equipment using not more than 9 litres of water per minute.
- Toilets using no more than 4 litres per flush.

CLIENT:

Creamer Residence
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Papamoa, Tauranga

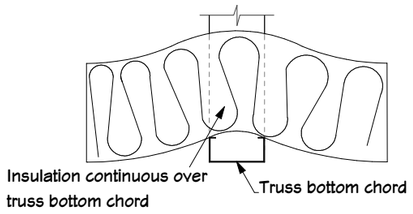
TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Water Heating Details

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE: N.T.S.	SHEET No. 36 OF 39

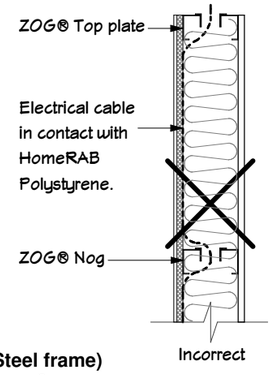


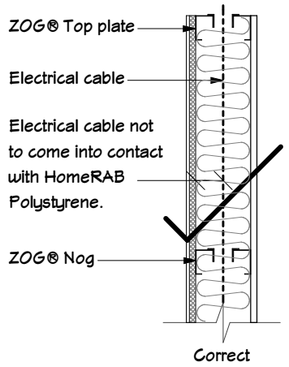
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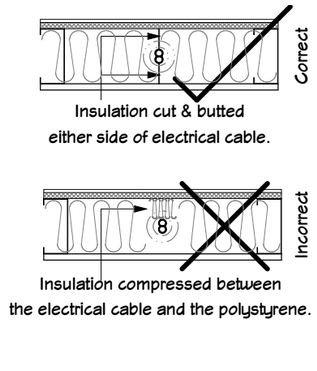
Insulation Detail

Lapping over Truss Bottom Chord

W:/DINEX.plan







INSULATION CALCULATION (Steel frame)

Climate zone : upto and including climate zone 3
as per NZBC - Clause H1, Energy Efficiency - third edition
and NZS:4218 2009, Energy Efficiency – small building envelope

BUILDING DESCRIPTION

All measurements are as per NZS 4218:2009 Appendix A

Building Thermal Envelope					
FLOORS	*Total Area*	*Total Perimeter*	*Ratio*	*Total Thermal Floor Area*	Actual R-value
Concrete floor	*126.70*	*51.42*	*2.46*	*95.59*	*1.30*
Suspended	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
WALLS	*Perimeter*	*Stud height*	*Area (ex. voids) (incl. glazing)*	*Glazed area*	
Wall # 1 - Interior wall (garage)	*8.92*	*2.42*	*21.59*	*0.00*	*1.60*
Wall # 2 - AAC Panels	*8.26*	*2.42*	*19.99*	*5.76*	*2.22*
Wall #2 - Intersections, 90mm voids (No. of)	0	*2.42*	*0.00*	*N/A*	*0.44*
Wall # 3 - 70 Series brick	*31.41*	*2.42*	*76.01*	*22.06*	*2.07*
Wall #3 - Intersections, 90mm voids (No. of)	0	*2.42*	*0.00*	*N/A*	*0.44*
Wall # 4 - W/board(16mm Fibre-cement)	*0.00*	*0.00*	*0.00*	*0.00*	*2.13*
Wall #4 - Intersections, 90mm voids (No. of)	0	*0.00*	*0.00*	*N/A*	*0.44*
Wall # 5 - W/board(7.5mm Fibre-cement)	*0.00*	*0.00*	*0.00*	*0.00*	*2.10*
Wall #5 - Intersections, 90mm voids (No. of)	0	*0.00*	*0.00*	*N/A*	*0.44*
Wall # 6 - ######	*0.00*	*0.00*	*0.00*	*0.00*	*2.08*
Wall #6 - Intersections, 90mm voids (No. of)	0	*0.00*	*0.00*	*N/A*	*0.44*
ROOFS	*Area*				
Trussed (excl. skylight area)	*95.59*				*3.61*
Raftered (excl. skylight area)	*0.00*				*0.00*
GLAZING	*Actual glazing*	*Max glazing @ 30%*	*Glazing over 30%*		
Glazing Weathertight	*27.82*				*0.26*
Glazing All Seasons	*0.00*				*0.35*
Glazing	*27.82*	*35.28*	*0.00*		*0.26*
Sky Lights	*0.00*				*0.26*

CALCULATION FOR - Average roof insulation R-value

	Total Area	*Area %*		Actual R-value
(a) Full height batts (hatched)	*85.06*	*89.0%*	*Actual system R-value (Ar) =*	*3.69*
(b) Chamfered batts (grey)	*10.53*	*11.0%*	*Actual system R-value (Br) =*	*3.09*
Total thermal roof area	*95.59*	*100.0%*	*Average system R-value =*	*3.61*

Example calculation: Average R-value = 1/((a%/Ar)+(b%/Br))

REFERENCE BUILDING HEAT LOSS

R-values as per NZS:4218 2009

Building Thermal Envelope	Area(sqM)	R-Value(min)	Heat loss(area/r-value)
Roof	95.59	3.30	29.0
Wall (set at 70%)	82.31	2.00	41.2
Floor	95.59	1.30	73.5
Glazing ≤ 30% (set at 30%)	35.28	0.26	135.7
Glazing > 30%	0.00	0.40	0.0
Sky Lights	0.00	3.30	0.0
Total Heat Loss of the Reference Building			279.3

PROPOSED BUILDING HEAT LOSS

R-values as per BRANZ INSULATION GUIDE - fourth edition & REDCO calculations

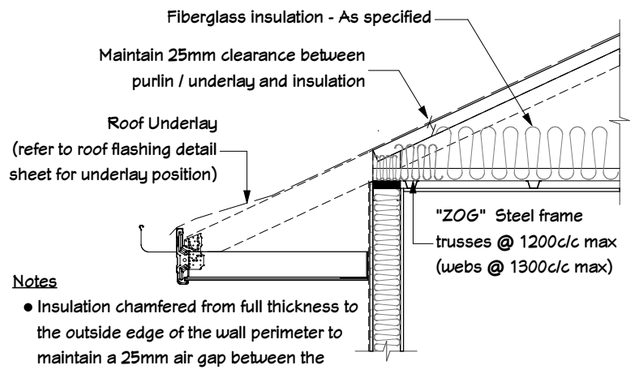
Building Thermal Envelope	Area (sqM)	R-Value	Heat loss (area/r-value)
Trussed (excl. skylight area)	95.59	3.61	26.5
Raftered (excl. skylight area)	0.00	0.00	0.0
Wall # 1 - Interior wall (garage)	21.59	1.60	13.5
Wall # 2 - AAC Panels	14.23	2.22	6.4
Wall # 3 - 70 Series brick	53.95	2.07	26.1
Wall # 4 - W/board(16mm Fibre-cement)	0.00	2.13	0.0
Wall # 5 - W/board(7.5mm Fibre-cement)	0.00	2.10	0.0
Wall # 6 - ######	0.00	2.08	0.0
Wall voids (total)	0.00	0.44	0.0
Concrete floor	95.59	1.30	73.5
Suspended	0.00	0.00	0.0
Glazing ≤ 30% *(double)*	27.82	0.26	107.0
Glazing > 30% *(double)*	0.00	0.26	0.0
Sky Lights	0.00	0.26	0.0
Total Heat Loss of the Proposed Building *(Must be less than or equal to the Reference Building)*			253.0

ID 003

Insulation Detail

Electrical Cable in Insulated Walls

W:/DINEX.plan



Notes

- Insulation chamfered from full thickness to the outside edge of the wall perimeter to maintain a 25mm air gap between the insulation and the roofing underlay / purlin.
- Insulation is to cover bottom chord of trusses.
- Insulation is to be installed in and around truss webs.

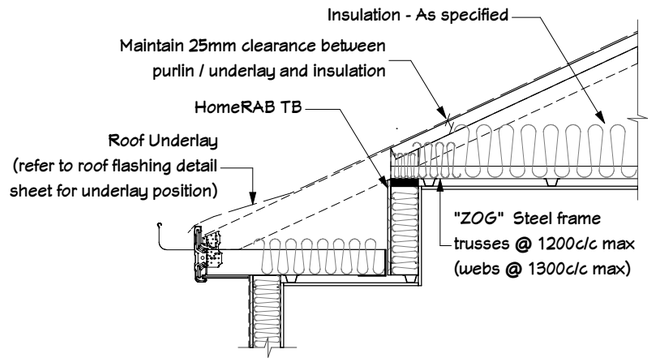
Insulated area *refer to plan*
Chamfered area

ID 001

Insulation Detail

Chamfered Edge at Truss Heel

W:/DINEX.plan



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ID 001

Insulation Detail

Pushout

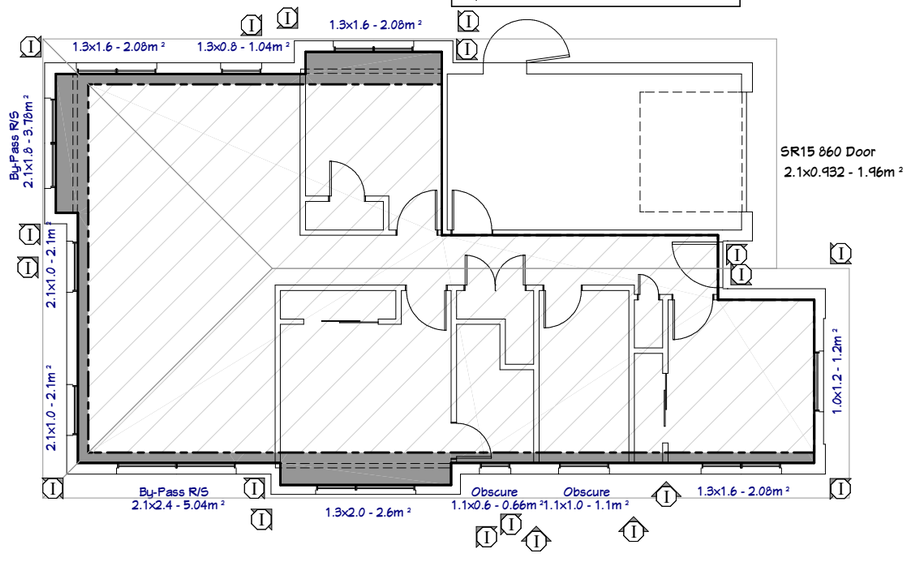
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Roof Areas -

(Line indicates max extent full height insulation)

(a) Full height batts (hatched)	= 85.06sqM
(b) Chamfered batts (grey)	= 10.53sqM
Total thermal roof area	= 95.59sqM

Wall intersection, 90mm void (R0.44)



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NOTES:

Edge of thermal roof area
Start of chamfered edge

THERMAL BREAKS:

Thermal breaks increase the performance of the steel & reduce the risk of internal condensation.

External walls:

Thermal break is achieved by first installing a 30mm PVC blocks under all connections between truss & wall top plates (ref NASH Building Envelope Solutions 2016 Section 11.2) and secondly by sheathing the external perimeter with HomeRAB Thermal.

Roof:

Thermal break is achieved by installing the insulation as a blanket type, over the bottom chords and in & around the truss webs. (ref NASH Building Envelope Solutions 2016 Section 11.5)

CLIENT:

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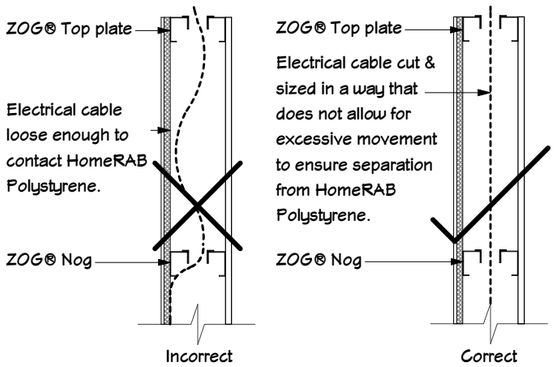
SITE DATA (for zones upto & including):

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Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
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Insulation Details

JOB No:	80966	SALES:	Darren
LBP:	C.Wearne 101178		
DRAWN:	Katherine	DATE:	09/06/2020
SCALE:	N.T.S.	SHEET No.	37 OF 39

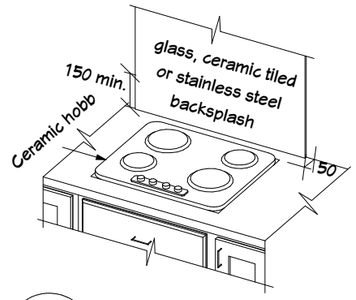
Tauranga City Council
Approved Building Consent Document
BC301286 - Pg 38 of 51
9/07/2020 bwoo



ED 003 **Electrical Detail**

Electrical Cable in Insulated Walls

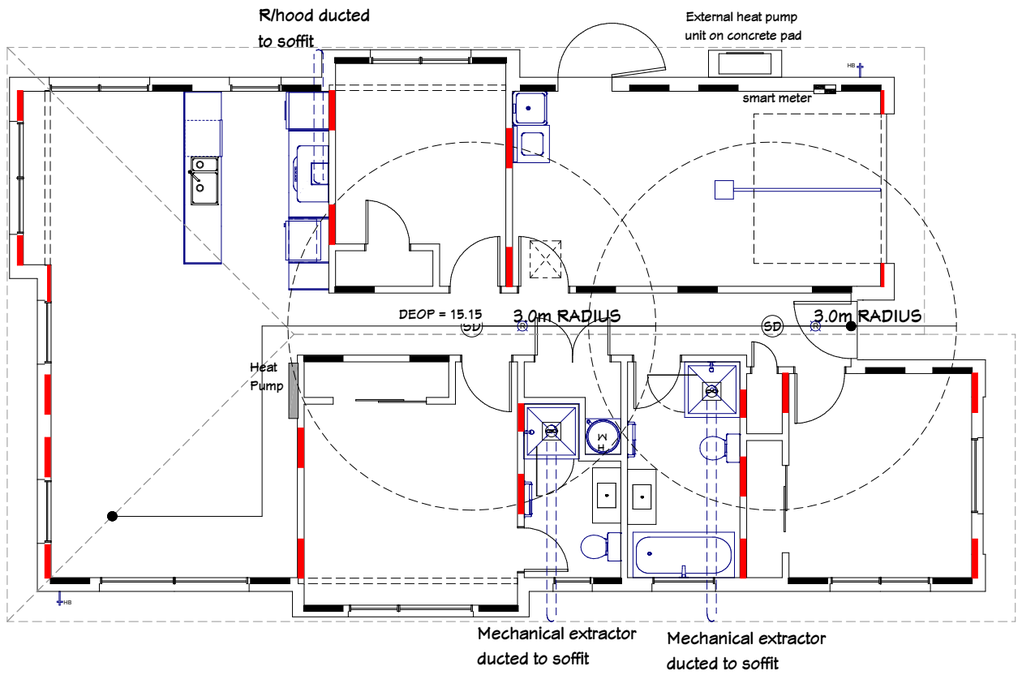
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WH 021 **Hobb Clearances**

Ceramic

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Electrical cables in contact with Black Pearl® thermal break must be of a type which utilise a PVC compound containing a non migratory plasticiser. When using cables without non migratory plasticiser, there must be no direct contact between the cable and the Black Pearl® thermal break. Separation can be achieved by installing in a suitable conduit, leaving an air gap, placing fibregass insulation between the cable and the Black Pearl® or using a polyethylene or polypropylene tape between the cable and the Black Pearl® thermal break.

ELECTRICAL KEY

	RECESSED LIGHTS
EF	EXTRACTOR FAN
	SINGLE P/POINT
	DOUBLE P/POINT
RCD	RCD POINT
TV	TV OUTLET
PH	TELEPHONE JACK
2W	2 WAY LIGHT CIRCUIT
RH	RANGEHOOD DUCTING
SD	SMOKE DETECTORS

- Artificial lighting to be installed in all access routes and shall provide a minimum 20 lux at floor level.

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NOTES:

Bracing Element Lines

- Holes or intrusions into the ZOG® frame bracing elements may require engineers specific design for remedial work. 'The designer' must be contacted for an alternative solution prior to any intrusions and/or modifications being made to bracing elements.
- Any switch mounted into plasterboard used as a component in the bracing element must be a minimum of 150mm from the element edge.
- Meter box to be 500mm max width.
- Positions of ventilation ducting is approximate only and to be confirmed by the installer.
- An audible smoke alarm must be positioned on all levels within 3.0m of the door of any sleeping space. Smoke alarms should preferably be fitted to the ceiling in a central position and must be at least 300mm away from any wall or light fitting. Smoke alarms shall be listed or approved by a recognised authority as complying with at least one of: UL 217, CAN/ULC S531, AS 3786, BS 5446: Part 1, ISO 12239, or BS RN14604.
- All recessed lights to be Type IC (Abutted & Covered)

CLIENT:

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TERRITORIAL AUTHORITY:
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Wairakei Residential Zone

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Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Electrical Plan

JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE: N.T.S.	SHEET No. 38 OF 39

EXTERIOR

Fascia
Dimond Fascia 185
External gutter
Rainaway Classic 125
Downpipes
FreeFlow 80mm round
Roofing
Metrotile Shake
Roof underlay
Fastwrap FlameSpec SS
Soffit cladding
4.5mm Hardisoffit™
Garage door jamb
AliJamb
Garage door head
HEBEL® PowerPanel 50 with Plaster System - Suspended
External joinery
Bradnams WeatherTight™
Wall underlay
HomeRAB Thermal
Flexible flashing tape
3M All Weather Flashing Tape 8067
Wall Cladding
Bowers Concrete Brick 70x220x150mm
HEBEL® PowerPanel 50 with Plaster System - Suspended
Window heads
James Hardie Smooth Weatherboard - 180
Eaves mould
No24A mould FJ H3 PP 18x18mm

KITCHEN
Bench top
Laminex
Sink
Ikon Cobalt
Splashback
Tiles
Cooktop
Electric

DRAINAGE
Stormwater pipes
Marley
Sewer pipes
Marley

INTERIOR
Ceiling insulation
Pink® Batts® Classic R3.6 Ceiling
Garage - None
Wall insulation
Pink® Batts® Steel R2.2 Wall
Garage - None
Ceiling lining
Gib® Standard 10mm - All rooms
Ceiling Finish
Resene SpaceCote paint - All rooms
Wall lining
Gib® Standard 10mm - All rooms
Wall Finish
Resene SpaceCote paint - All rooms
Wall angle trims
Gib® Goldline™ Square Corner Trim
Ceiling hatch
The Hatch 600x500mm
Cornice
Gib-Cove® Classic 55mm
Cornice cpds & closets
Square stopped
Skirting
No20 60x10mm Rad FJ Single Bevel
Architraves
No19 40x10mm Rad FJ Single Bevel
Door jambs
19mm Rad FJ Flat Jamb & Planted Stops
Doors
Flush PQ HC
Door furniture
Schlage Elan
Door finish
Resene Lustacryl Paint
Hot water heater
Rheem Mains Pressure Electric 180L 312 180 15
HWC Safe Tray
Metal Tray
Laundry tub
Robinhood Supertub ST7002

BATHROOM
Bath
Clearlite Pacific 1655x740mm
Surrounding
Tiles
Toilet
Stylus Venecia
Vanity
Clearlite Cashmere 900
Splashback
Tiles
Mirror
Organic-backed safety mirror (vinyl-backed)
Shower cubicle
Clearlite Sierra 900x900
Waterproofing membrane
Mapelastic Aquadefense Membrane
Tile Adhesive
Elastorapid Tile Adhesive
Heated towel rail
Heirloom Euro Std WE575

ENSUITE
Toilet
Stylus Venecia
Vanity
Clearlite Cashmere 900
Splashback
Tiles
Mirror
Organic-backed safety mirror (vinyl-backed)
Shower cubicle
Clearlite Sierra 900x900
Waterproofing membrane
Mapelastic Aquadefense Membrane
Tile Adhesive
Elastorapid Tile Adhesive
Heated towel rail
Heirloom Euro Std WE575

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OAKDALE - © GOLDEN HOMES HOLDINGS LTD

GOLDEN HOMES™

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NOTES:

CLIENT:
Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Product Schedule

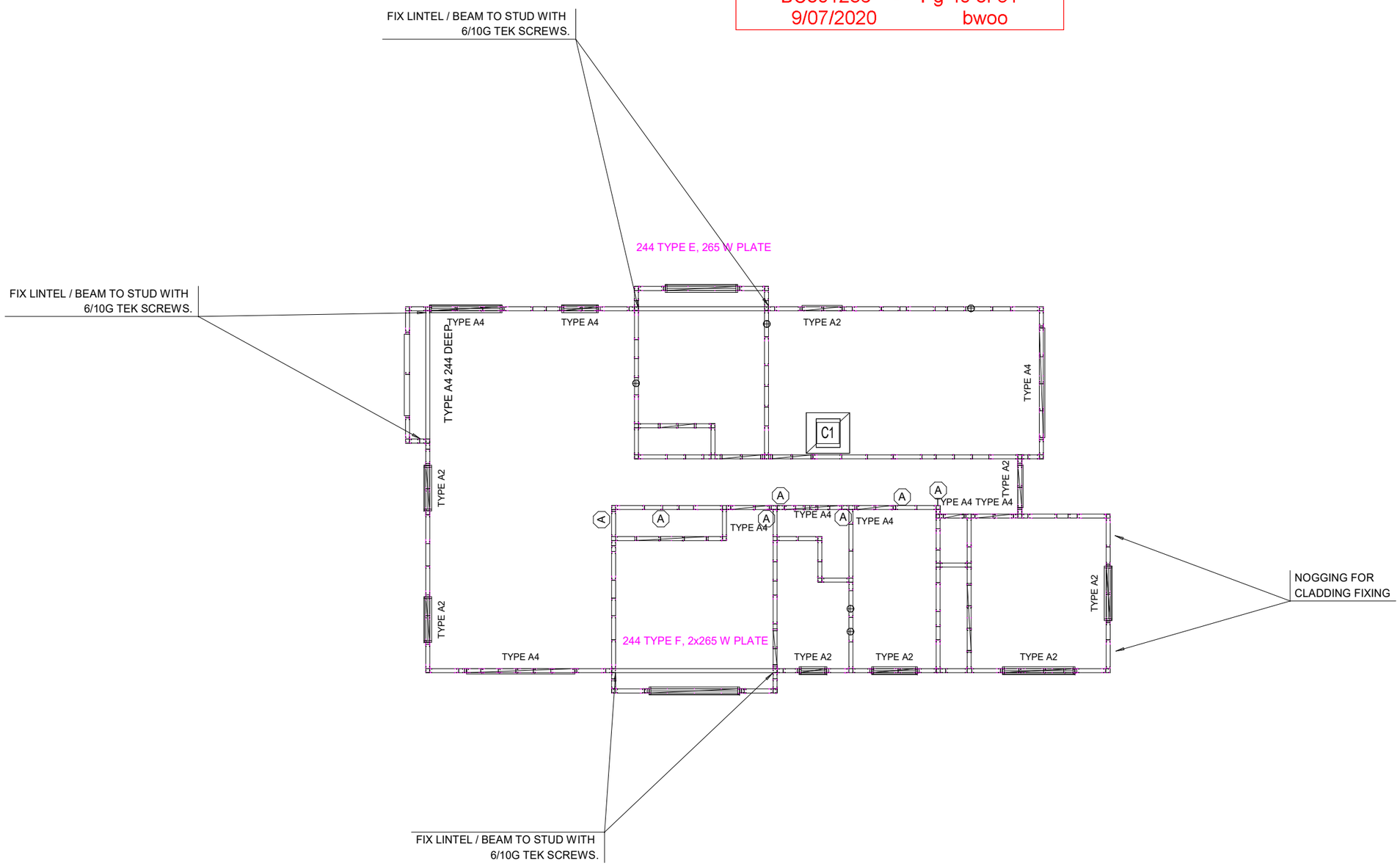
JOB No: 80966	SALES: Darren
LBP: C.Wearne 101178	
DRAWN: Katherine	DATE: 09/06/2020
SCALE:	SHEET No. 39 OF 39

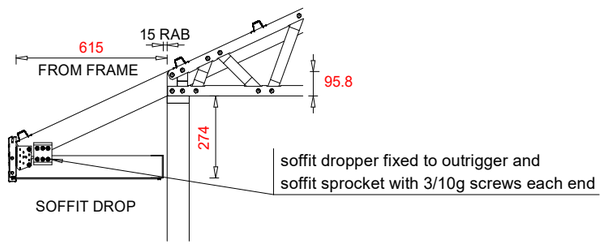
INTERNAL LINERS: 19mm TIMBER

20° - Roof Pitch
High - Wind Zone
0.15 kPa - Roof Dead Load
0.15 kPa - Ceiling Dead Load
0.25 kPa - Roof Live Load
0.0 kPa - Ground Snow Load

ALL FIXINGS AND HOLD DOWNS MUST BE COMPLETED BEFORE INSTALLING ROOF CLADDING

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NOTES

REFER TO THE FRAME PLACEMENT PAGE FOR STANDING FRAMES

REFER TO THE HOLD DOWN PAGE FOR HOLD DOWN TYPES
ADDITIONAL LINTEL HOLD DOWN TYPES NOTED LIKE SHOWN: (TYPE)

FORTYPE E/F PLATE DETAILS REFER TO THE CONSENT PLANS. THE E/F PLATES MUST EXTEND PAST THE BEAM/LINTEL ENDS AND BE FIXED TO THE FRAMING EITHER SIDE

LOAD BEARING WALLS ARE LABLED WITH AN "L"
NON LOAD BEARING WALLS ARE LABLED WITH AN "N"
THIS LAYOUT IS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL PLANS
ANY DISCREPANCIES TO BE REPORTED IMMEDIATELY TO ZOG MANUFACTURING

WALL FRAME LINTEL & FIXINGS

Frames by: zog® steel frames of the future today

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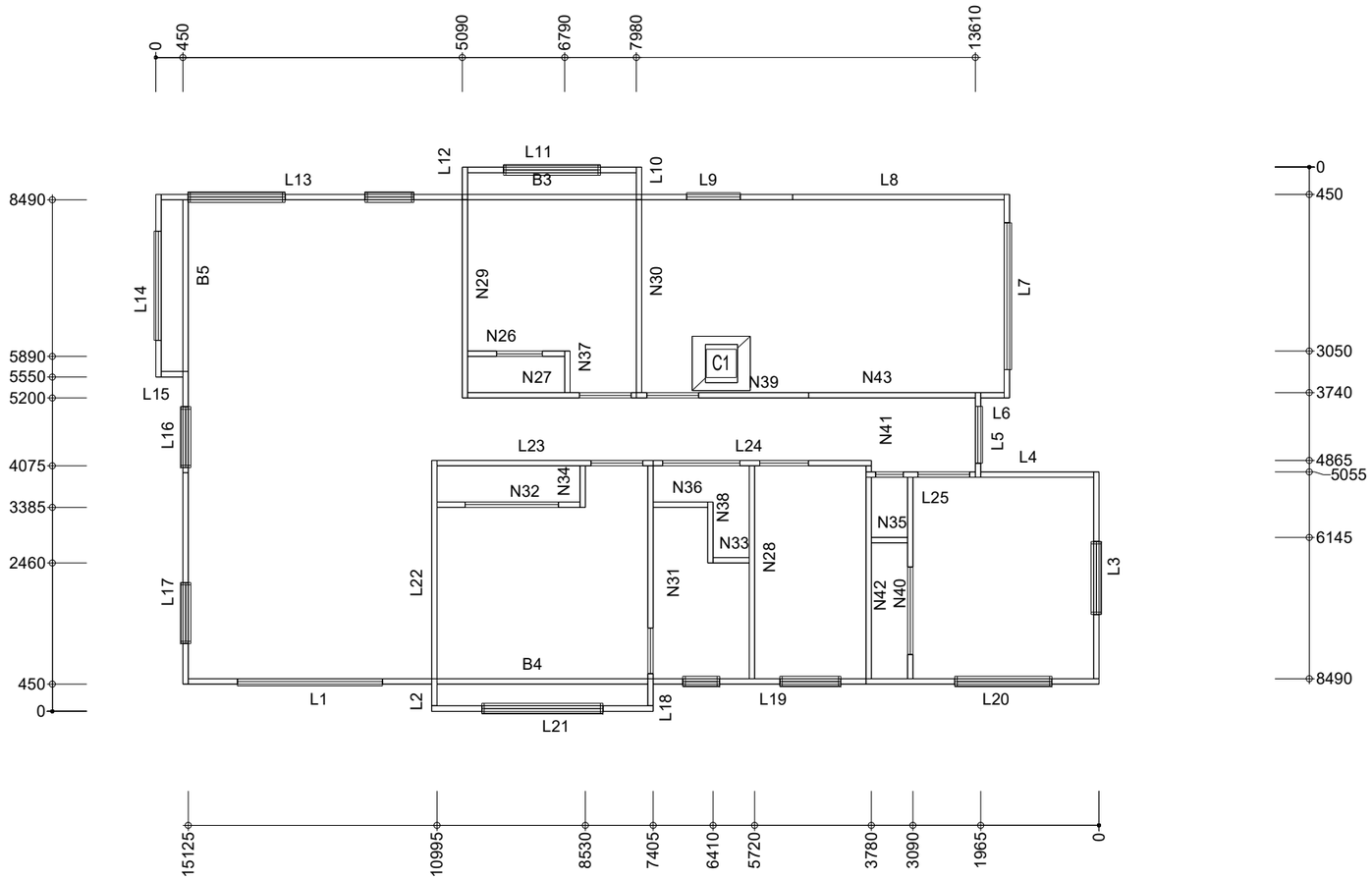
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09.06.2020	Kyle F	D01
	JOB 80966	SCALE 1:100

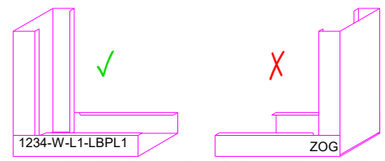
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NOTES

Cutting, Drilling, Rubbings
Cold galv paint must be applied on site by contractors in all situations where the galvanised protection has been compromised by rubbing, or by heat creating construction techniques such as, but not limited to, high speed drilling or high speed cutting.





LABEL TEXT SHOULD BE ALIGNED BOTTOM LEFT

THIS PAGE MUST ONLY BE USED FOR FRAME PLACEMENT
WALL TYPES: LOAD BEARING MARKED "L", NON-LOAD BEARING MARKED "N"

ORIENTATION OF FRAMES CAN BE DETERMINED USING BOTTOM PLATE LABELS
LABELS ON THIS PAGE SHOW DIRECTION THAT BOTTOM PLATE LABEL MUST FACE
IF BOTTOM PLATE "ZOG" MARK IS FACING PLAN LABEL THEN ORIENTATION IS WRONG

FRAME PLACEMENT

Frames by: zog® steel frames of the future today

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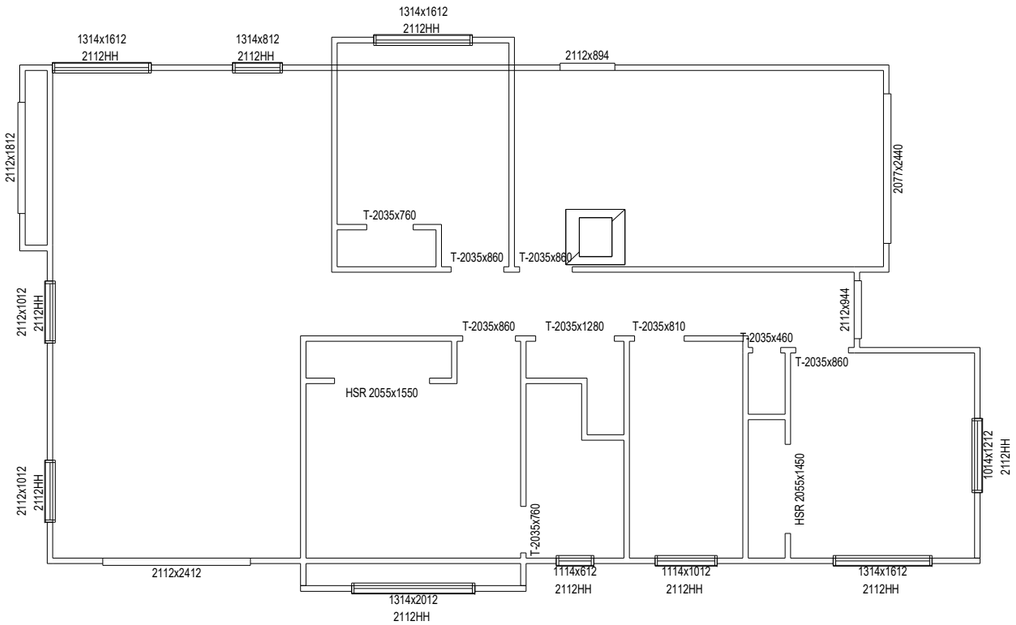
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	JOB 80966	SCALE 1:100

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OPENING TRIMS

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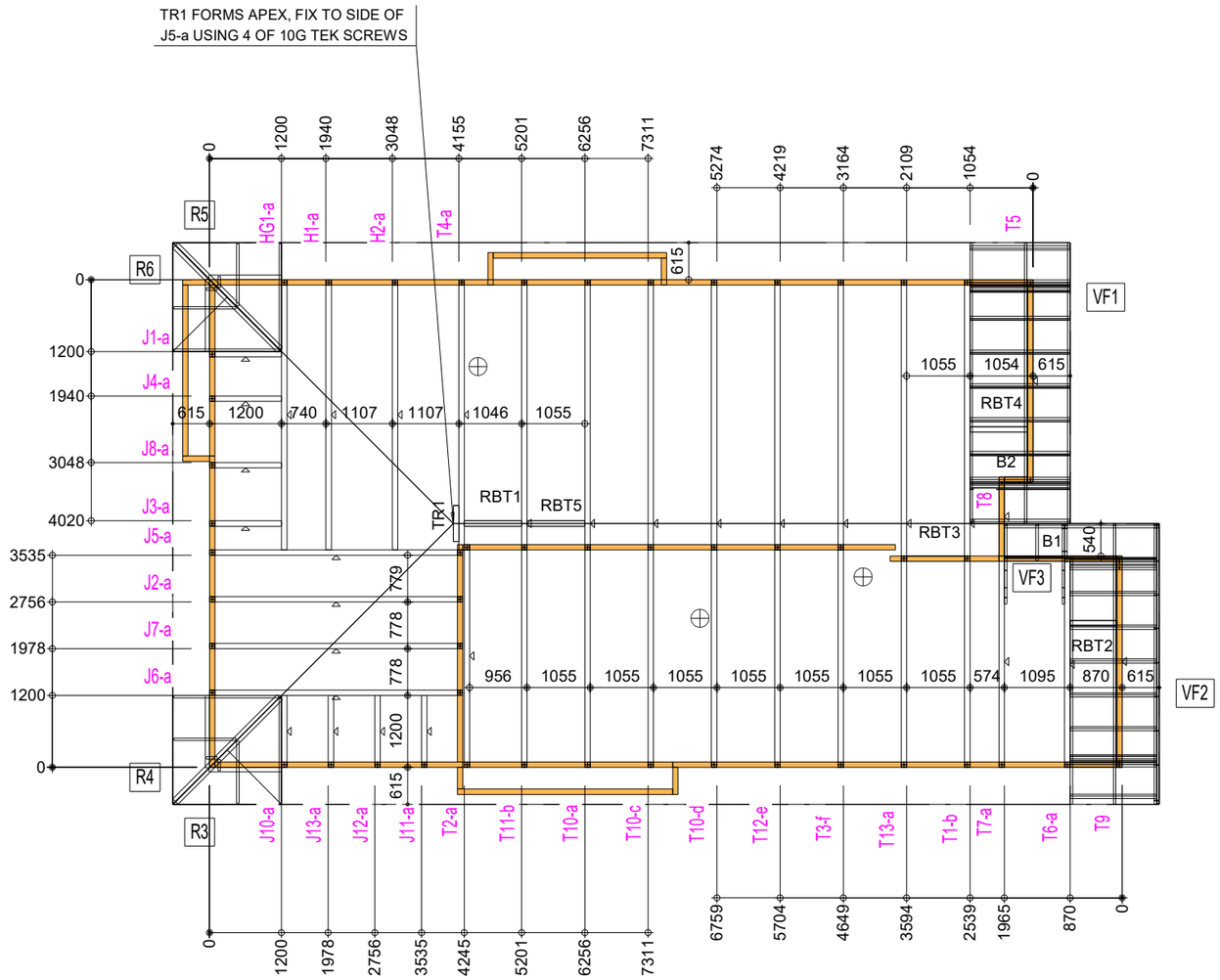
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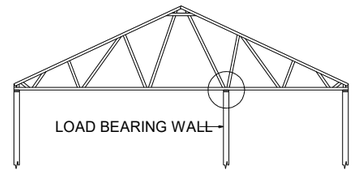
ALL FIXINGS AND HOLD DOWNS MUST BE COMPLETED BEFORE INSTALLING ROOF CLADDING

20° - Roof Pitch
High - Wind Zone
0.15 kPa - Roof Dead Load
0.15 kPa - Ceiling Dead Load
0.25 kPa - Roof Live Load
0.0 kPa - Ground Snow Load

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FACTORY CHECK:
LOADED: _ __ __ __ __ __ __ __ _
MADE BY: _ __ __ __ __ __ __ __ _
_ __ __ __ __ __ __ __ _
_ __ __ __ __ __ __ __ _
CHECKED: _ __ __ __ __ __ __ __ _
DRIVER CHECK: _ __ __ __ __ __ __ __ _



POSITION TRUSS SO THAT WEBS ARE ABOVE THE LOAD BEARING WALL

ROOF TRUSS SETOUT

Frames by: zog® steel frames of the future today

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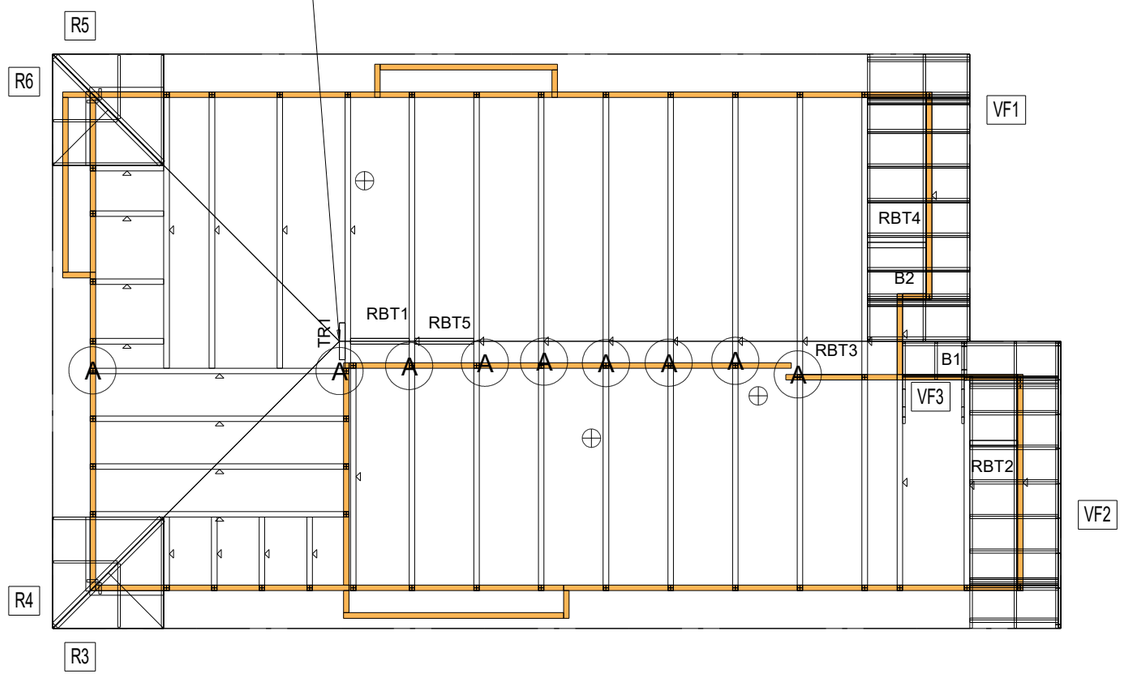
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TYPE	S	A	B	C	C2	D
ZOG BRACKET TO TRUSS - SCREWS	2	4	6	8	8	12
ZOG TRUSS TO TRUSS - SCREWS	2	4	6	8	8	12
ZOG BRACKET TO TOP PLATE - SCREWS	2	4	6	8	8	12
EXTRA STUD GROUP SCREWS AT TOP PLATE		1	2	4	4	8
EXTRA STUD GROUP SCREWS AT BOTTOM PLATE		1	2	4	4	8
8x75 ANCHOR SCREW BOLT & WASHER	1	1				
10x100 ANCHOR SCREW BOLT & WASHER			1		2	
16x150 ANCHOR SCREW BOLT & WASHER				1		2
ZOG BOTTOM PLATE ANCHOR	N/A	1	1	1	2	2

ANCHOR BOLTS MUST BE WITHIN 100mm FROM CENTRE OF STUD
ALL ONSITE SCREW CONNECTIONS ARE TO BE 10GX16TPI SCREWS

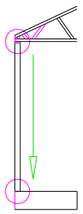
20° - Roof Pitch
High - Wind Zone
0.15 kPa - Roof Dead Load
0.15 kPa - Ceiling Dead Load
0.25 kPa - Roof Live Load
0.0 kPa - Ground Snow Load

TR1 FORMS APEX, FIX TO SIDE OF
J5-a USING 4 OF 10G TEK SCREWS



REFER TO THE LATEST ZOG MANUAL FOR ALL HOLD-DOWN AND TRUSS CONNECTION DETAILS

HOLD DOWN TYPES:



TRUSS HOLD DOWNS:
ALL FIXINGS ARE TYPE S UNLESS NOTED ON THIS PAGE

WALL BOTTOM PLATE HOLD DOWNS TO BE THE GREATER OF:
- STANDARD TYPE S HOLD DOWN
- TYPE TRANSFERRED DOWN FROM TRUSS TO SUPPORTING STUD
- BRACE WHERE REQUIRED (TYPE A INTERNAL, TYPE B EXTERNAL)
- IF DISPLAYED USE TYPES NOTED ON FLOOR FRAMING PAGE

NOTES
SCREWS MUST BE FIXED IN SHEAR FOR CORRECT KN

INTERNAL POINT LOADING PADS (OR EQUILIVENT) ARE REQUIRED IF MORE THAN 35.0m2 OF LOAD IS TRANSFERRED DOWN TO A SINGLE POINT OF A FOUNDATION SLAB



RBT

THE DETAIL TO THE LEFT INDICATES LOCATION OF LUMBERLOK STRIP BRACE WITH TENSIONERS (IN ACCORDANCE WITH NASH 3405:2006 Section 10.4)

DETAIL TO THE LEFT INDICATES LOCATION OF ROOF BRACE TRUSS. RBT TO BE FIXED TO INTERSECTING TRUSS WITH 2/10G SCREWS TO THE TOP AND BOTTOM.

ROOF TRUSS FIXING & BRACING

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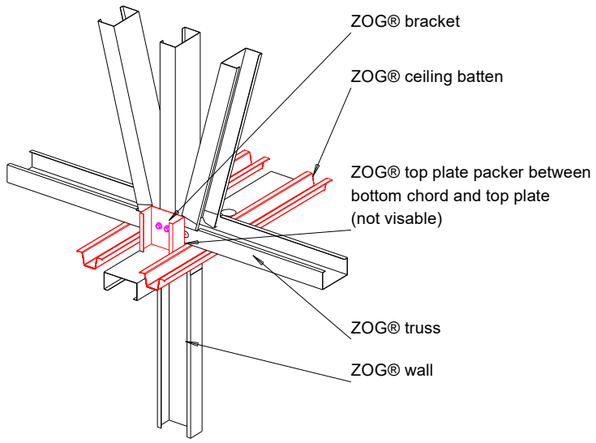
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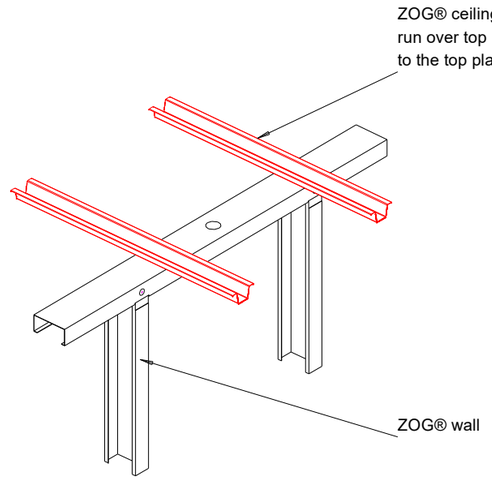
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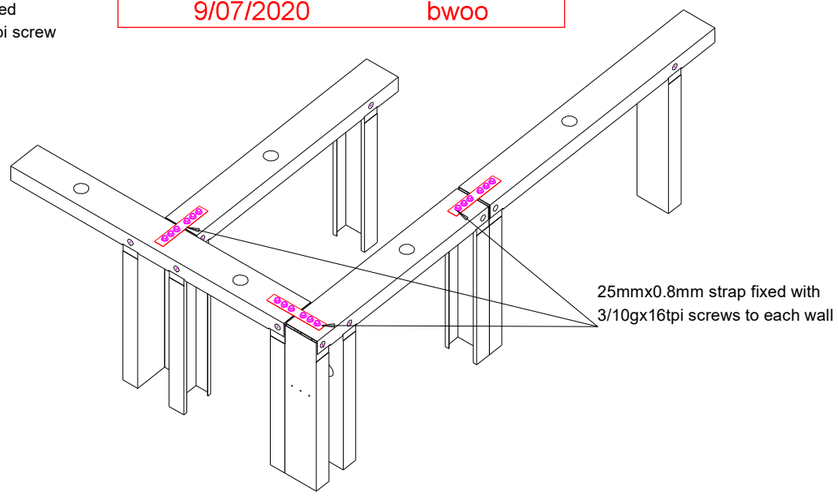
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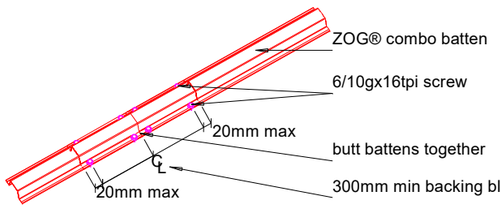
Top Plate System
Load-bearing Walls

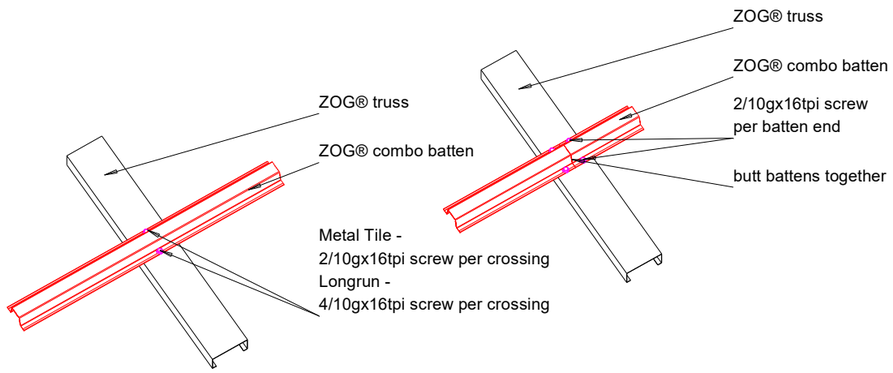


Top Plate System
Non Load-bearing Walls

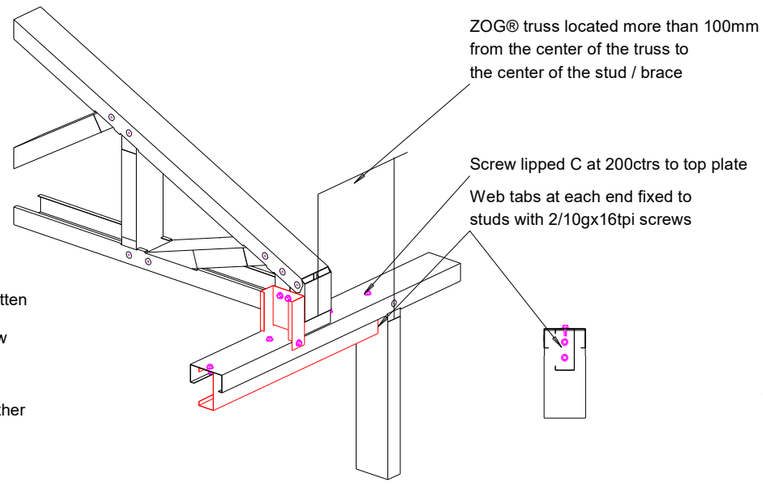


Top Plate System
Wall Intersection (6kN)





Ceiling / Roof Batten Connections



NOTE:
Top plate stiffeners are required for truss spans over 2.0m and if the truss is located further than 100mm from the center of the truss to the center of the stud / brace. A top plate stiffener isnt required if the top plate is boxed by ZOG manufacturing.

Top Plate Stiffener

Wall Frame Details - Top Plate

Frames by: zog® steel frames of the future today

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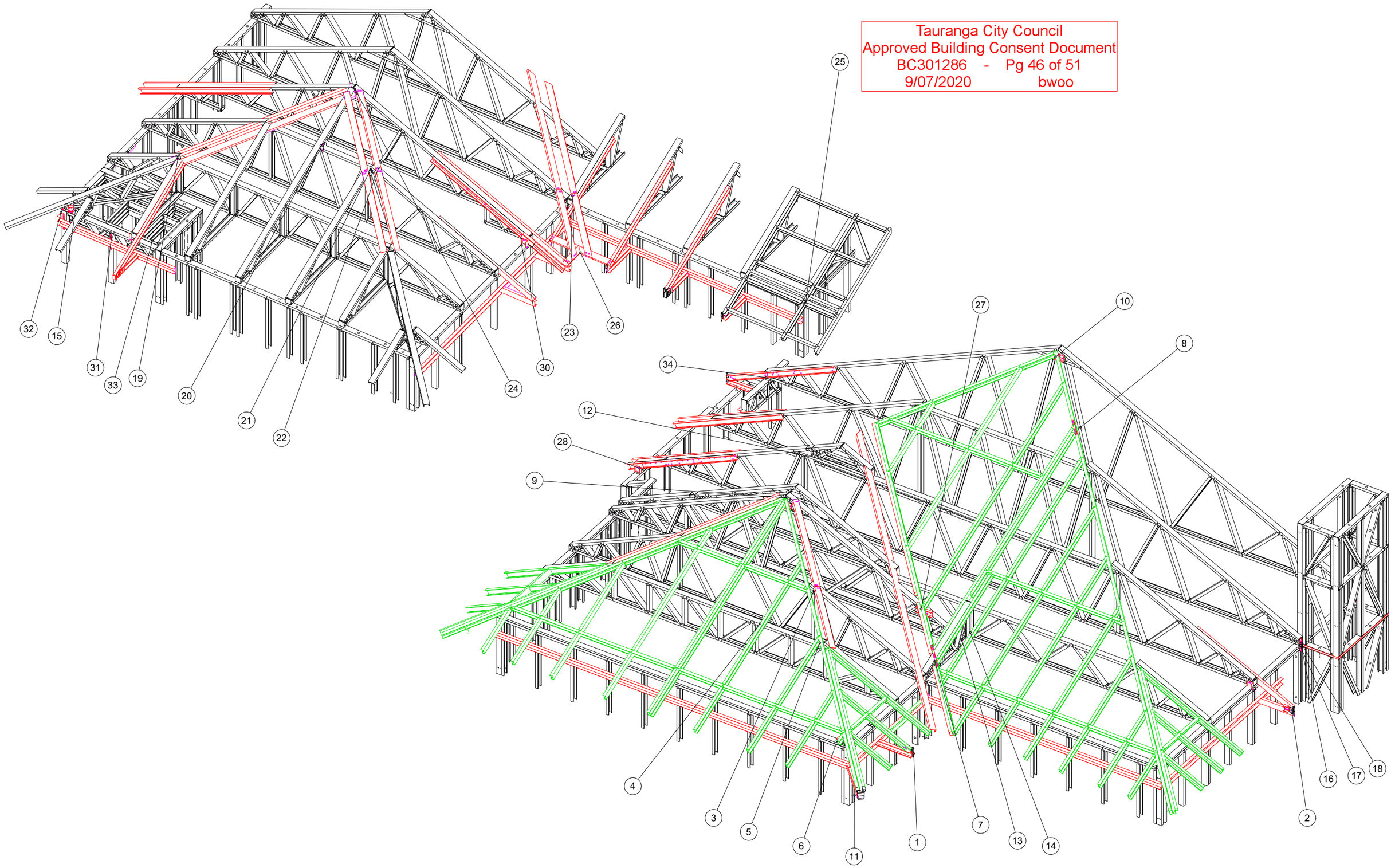
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Roof Frame Details Connection Ref 3D

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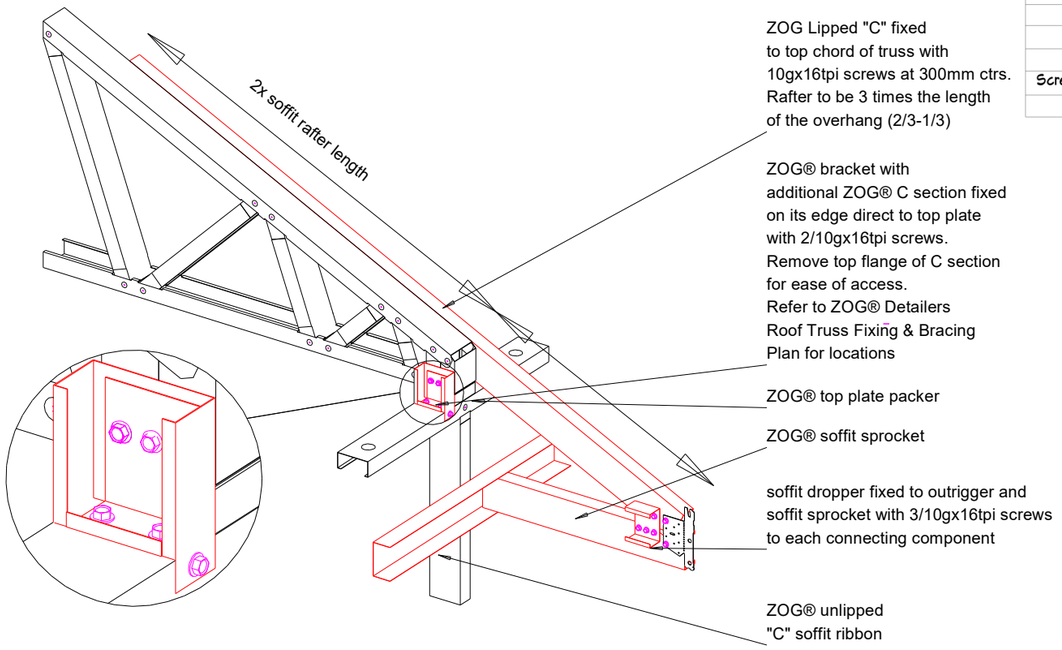
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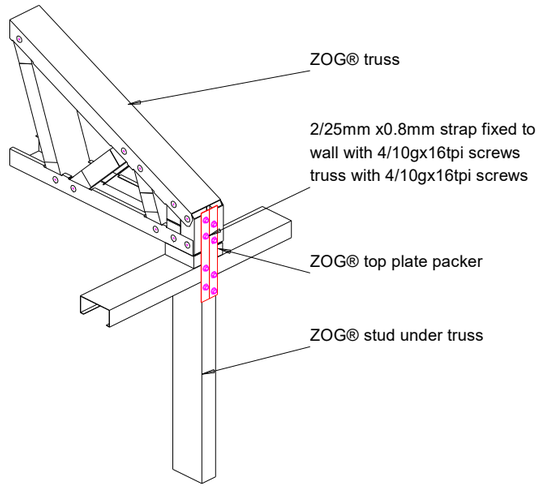
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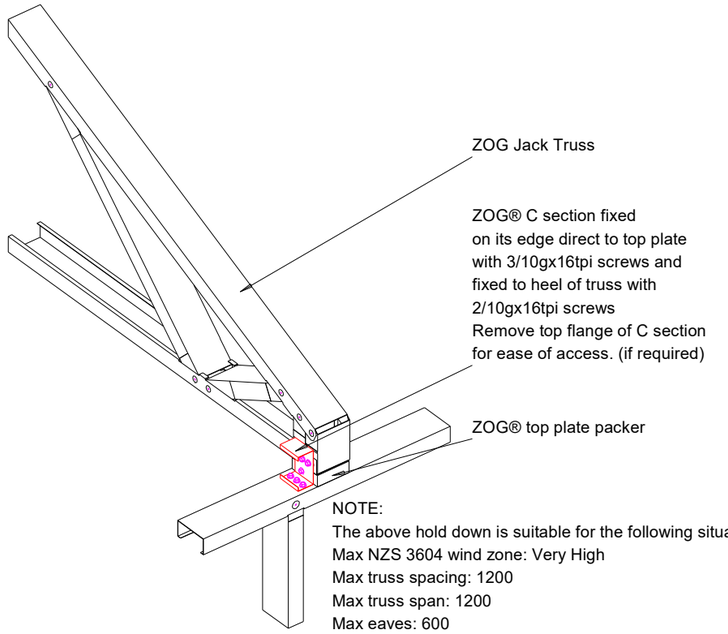
NOTE:
For the framing set-out of 601mm to 1200mm wide soffits and for Extra High wind zones ZOG® soffit sprockets are required at 600crs max

Detail 2
Soffit Method - Flat

	Sgl Bracket			Dbl Bracket	
Type	S	A	B	C	D
Rating	5kN	10kN	15kN	20kN	30kN
Screws to Truss	2	4	6	8	12
Screws to Top Plate (half each side)	2	4	6	8	12
Bottom Plate Hold Down Type	S	A	B	C	D

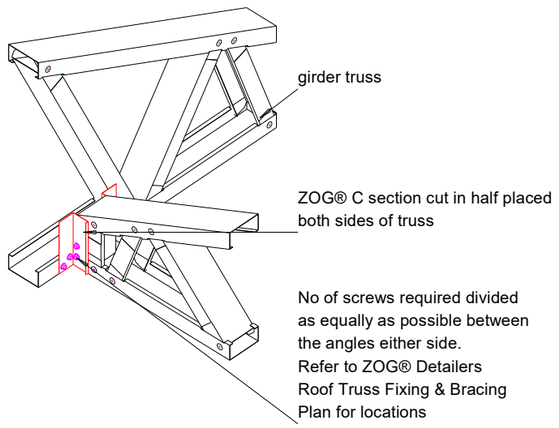


Detail 16
Alternative Truss To Top Plate Type A (10kN)

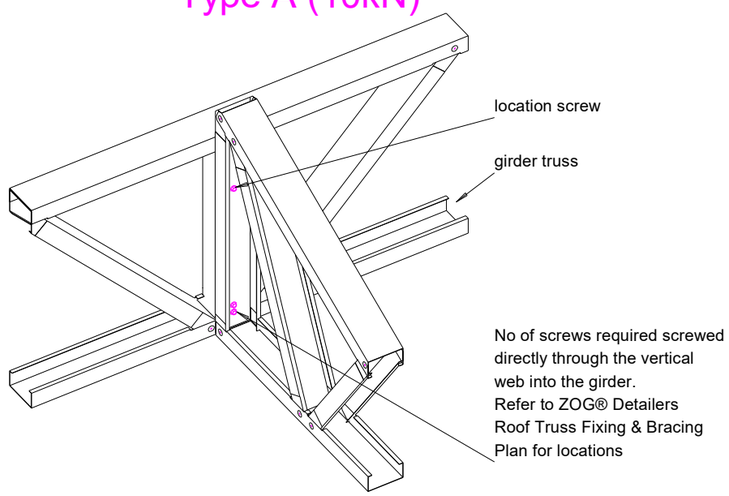


NOTE:
The above hold down is suitable for the following situation:
Max NZS 3604 wind zone: Very High
Max truss spacing: 1200
Max truss span: 1200
Max eaves: 600

Jack Truss Hold Down



Detail 13
Truss To Girder Truss - Option 1



Detail 14
Truss To Girder Truss - Option 2

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Roof Frame Details On Site 1

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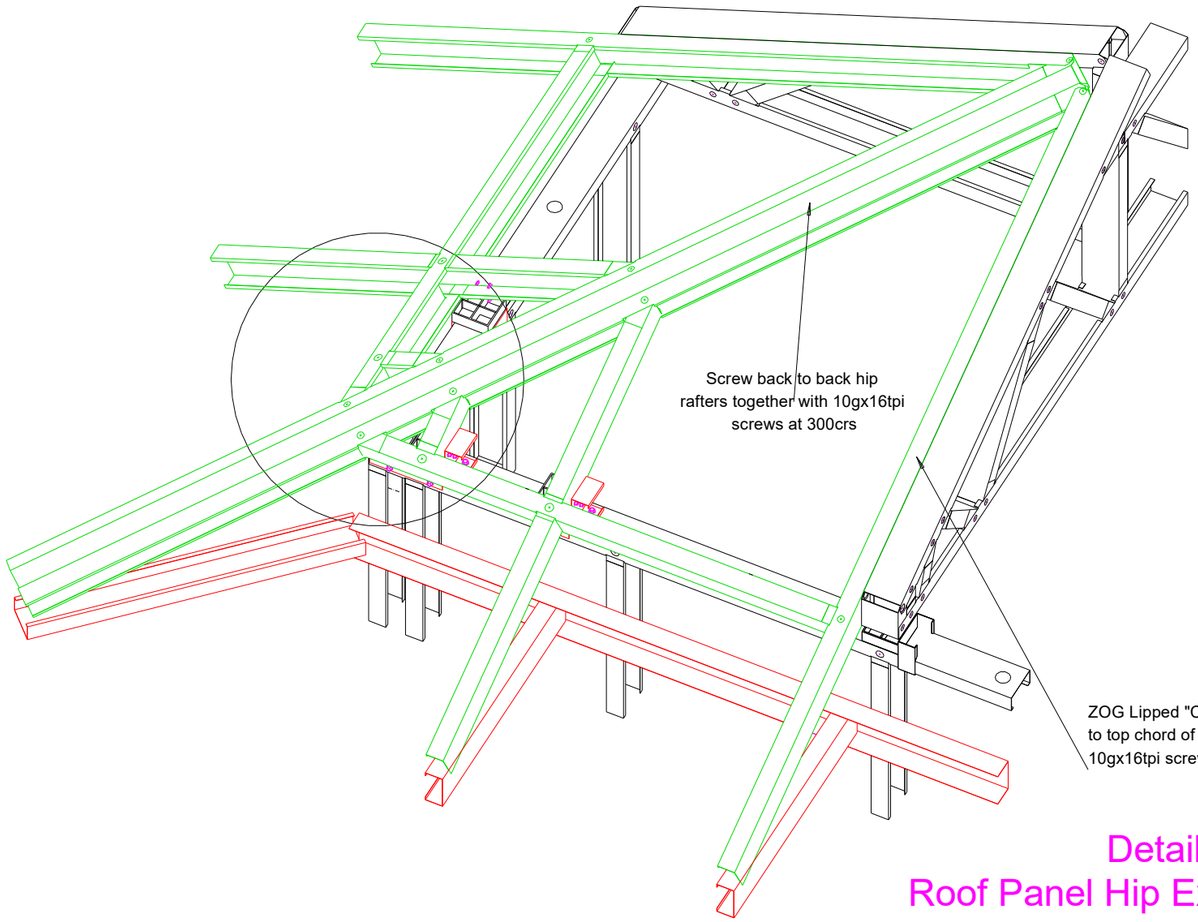
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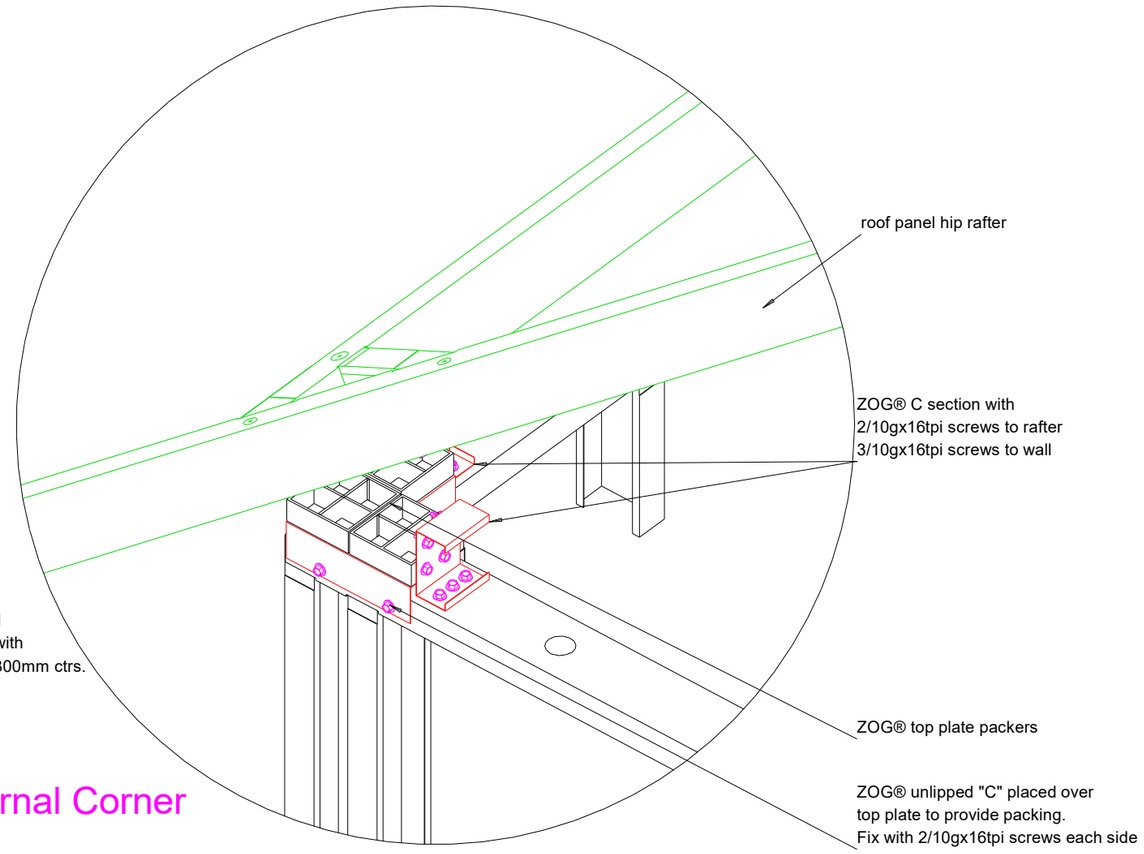
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Detail 6
Roof Panel Hip External Corner

Roof Frame Details On Site 2

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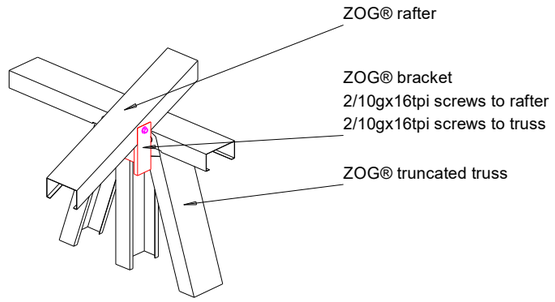
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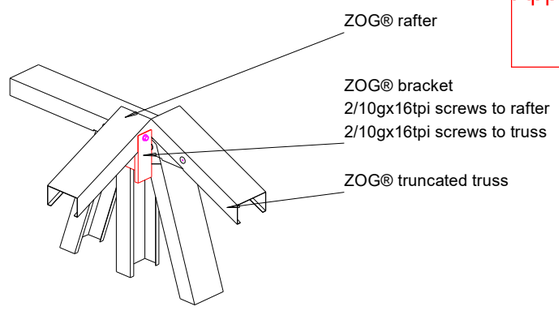
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Papamoa
Tauranga 3118

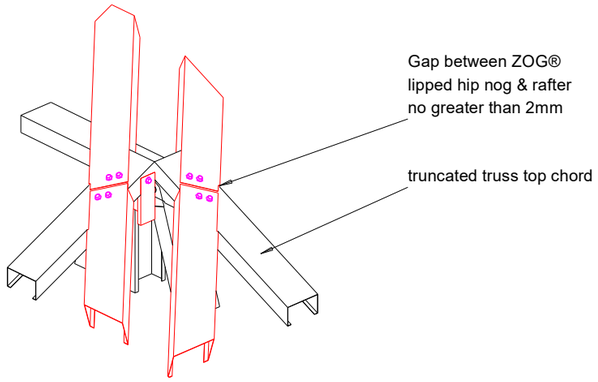
Tauranga City Council
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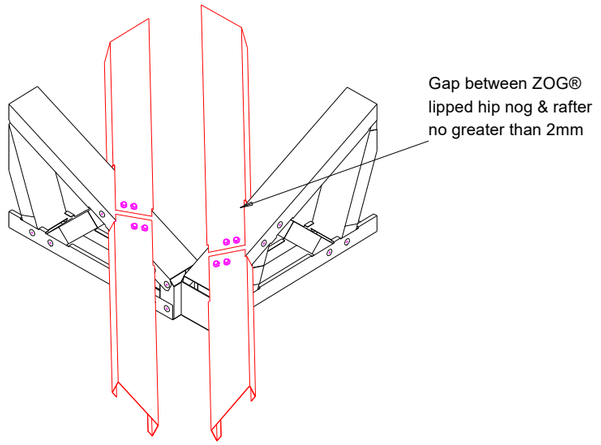
Detail 20
Rafter over Truncated Truss



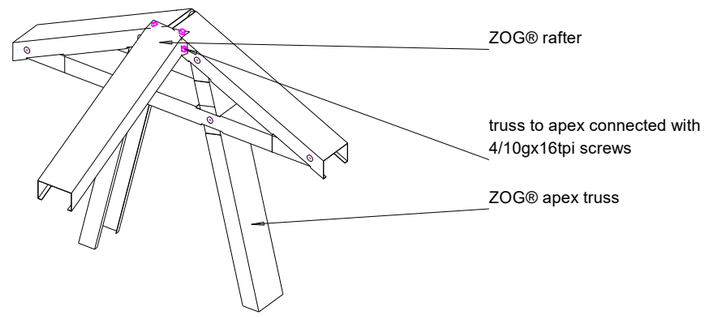
Detail 21
Rafter over Truncated Truss



Detail 22
Hip Nogs



Detail 23
Valley Nogs



Detail 24
Rafter to Hip Apex

Roof Frame Details On Site 3

Frames by: zog® steel frames of the future today

NO MODIFICATIONS TO WALL FRAMES OR ROOF TRUSSES ARE TO BE UNDERTAKEN WITHOUT OBTAINING WRITTEN INSTRUCTION FROM "ZOG" MANUFACTURING

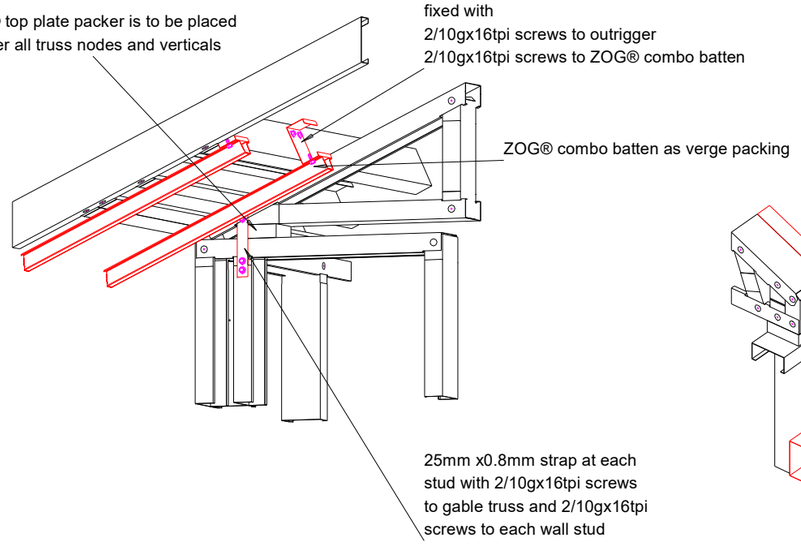
DINEX architectural designers

CODEMARK™ CM70023

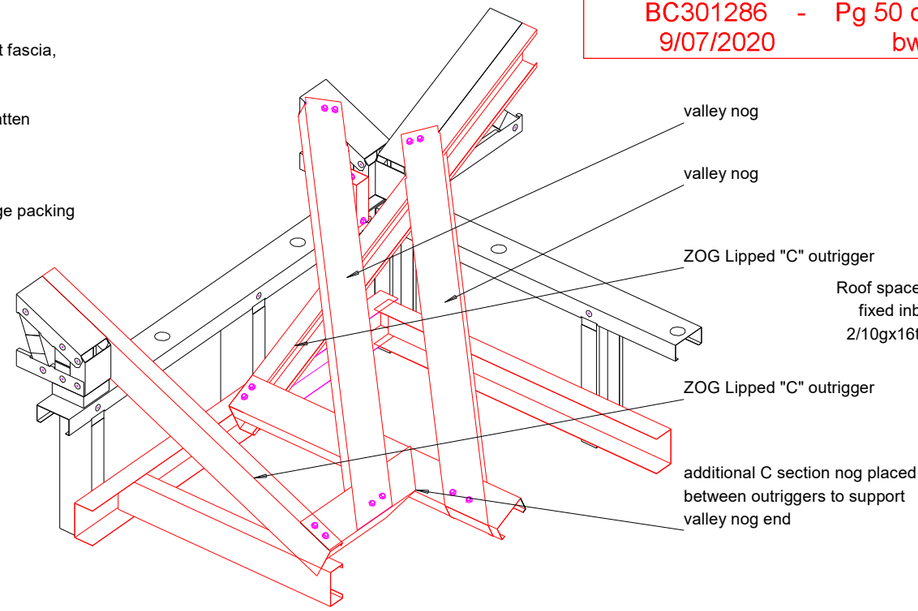
DATE DRAWN	DRAWN	SHEET NUMBER
09.06.2020	Kyle F	D10
	JOB 80966	SCALE N.T.S.

Lot 444 DP 530967
01 Te Wharo Drive
Papamoa
Tauranga 3118

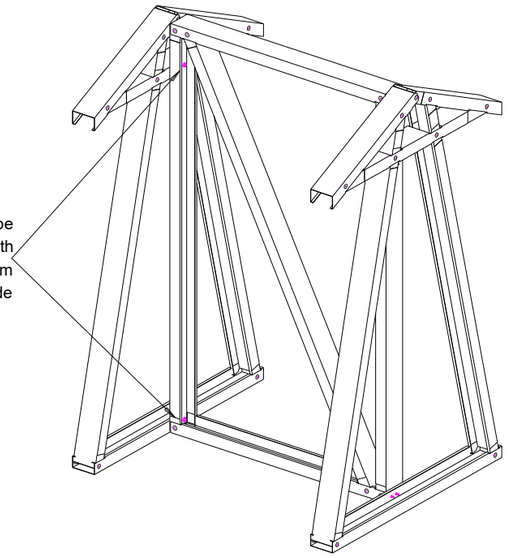
Tauranga City Council
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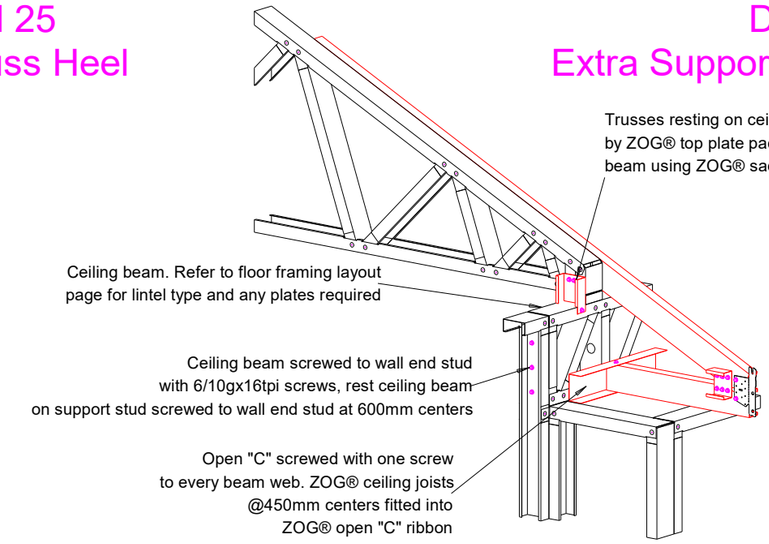
Detail 25
Gable Truss Heel



Detail 26
Extra Support for Valley Nogging



Detail 29
Roof Brace Truss



Detail 34
Soffit Beam

Roof Frame Details On Site 4

Frames by: zog® steel frames of the future today

NO MODIFICATIONS TO WALL FRAMES OR ROOF TRUSSES ARE TO BE UNDERTAKEN WITHOUT OBTAINING WRITTEN INSTRUCTION FROM "ZOG" MANUFACTURING

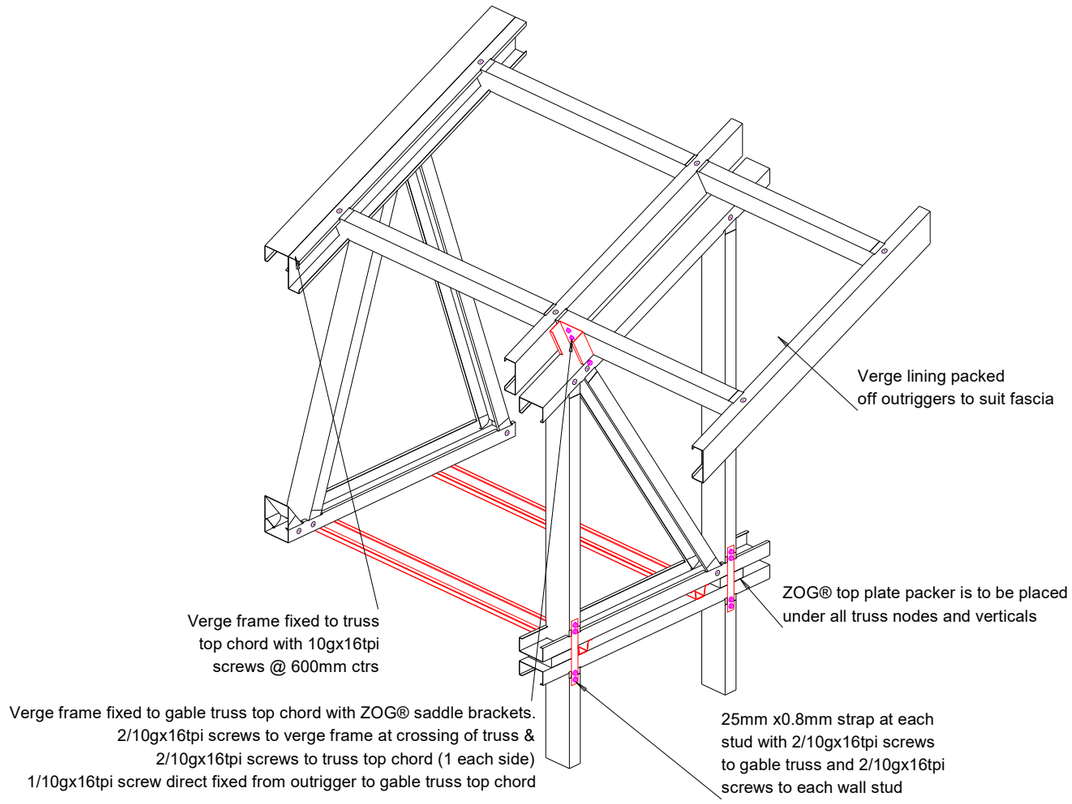
DINEX architectural designers

CODEMARK™ CM70023

DATE DRAWN	DRAWN	SHEET NUMBER
09.06.2020	Kyle F	D11
	JOB 80966	SCALE N.T.S.

Lot 444 DP 530967
01 Te Wharo Drive
Papamoa
Tauranga 3118

Tauranga City Council
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Gable and Verge

Truss Flush with Frame

Roof Frame Details Verge Frame 1

Frames by: zog® steel frames of the future today

NO MODIFICATIONS TO WALL FRAMES OR ROOF TRUSSES ARE TO BE UNDERTAKEN WITHOUT OBTAINING WRITTEN INSTRUCTION FROM "ZOG" MANUFACTURING

DINEX architectural designers

CODEMARK™ CM70023

DATE DRAWN	DRAWN	SHEET NUMBER
09.06.2020	Kyle F	D12
	JOB 80966	SCALE N.T.S.

Lot 444 DP 530967
01 Te Wharo Drive
Papamoa
Tauranga 3118

PRODUCT CERTIFICATE

This is to certify that

DINEX Building Design Method

Product description

The DINEX Building Design Method is a controlled design method for creating site-specific plans and specifications, as defined by S7 of the Building Act 2004, for building consent application, and post consent alterations.

Product Use and Scope

The DINEX Building Design Method is a controlled design method for creating site specific plans and specifications for building consent applications, and post consent alterations.
The DINEX Building Design Method may be applied to buildings of the following classified uses:

- Housing (Building Code Clauses A1 2.0.2, 2.0.3, 2.0.4)
- Communal Residential (Building Code Clause A1 3.0.2)
- Outbuildings (Building Code Clause A1 7.0.1) limited to garages, carports.
- Ancillary (Building Code Clause A1 8.0.1) limited to retaining walls, fences, free standing outdoor fireplace, and detached decking and pergolas

That meet all of the following requirements

- Building height less than 10m, design risk score <20 when calculated using the E2/AS1 risk matrix
- For all seismic, snow, wind and corrosion exposure zones, as defined in NZS3604:2011 Timber-framed buildings and all climate zones, as defined in NZS 4218:2009 Thermal insulation - Housing and small buildings

The DINEX Building Design Method may be applied to those Communal Residential buildings for which access and facilities for people with disabilities are required. Swimming pool design and fencing of a swimming pool are excluded from the CodeMark certificate.

Certificate Holder

DINEX Limited
63 Hewletts Road
Mount Maunganui, 3116
Ph: 021 730 400

CodeMark Product Certification Body

Bureau Veritas Australia Pty Ltd
3/435 Williamstown Road,
Port Melbourne VIC, 3207
Ph: 1800 855 190
www.bureauveritas.com.au

Sam Guindi
Product Certification Manager

For and on behalf of
Bureau Veritas Australia Pty Ltd

Complies with the New Zealand Building Code (NZBC):

When plans and specifications are prepared in accordance with the DINEX Building Design Method and the conditions of this certificate, compliance with the following NZBC clauses will be met where the building work is carried out in accordance with the documentation:

B1.3.1, B1.3.2,
B1.3.3 (a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r),
B1.3.4 (a, b, c, d, e), B1.3.6 (a, b), B1.3.7 (a, b, c)
B2.3.1 (a, b, c), B2.3.2 (a, b)
C2.2, C2.3
C3.4 (a, b, c), C3.6, C3.7 (a, c)
C4.3 (a, b, c), C4.5
C5.3 (a, b), C5.4, C5.5, C5.6 (a, b, c), C5.7 (a, b, c), C5.8
C6.2 (a)
D1.3.1 (a, b, c), D1.3.2 (a, b, c),
D1.3.3 (a, b, c, d, e, f, g, h, i, j, k, l, m),
D1.3.4 (a, b, c, d, e, f, g, h)
D2.3.1 (a, b, c, d, e, f), D2.3.2 (a, b, c),
D2.3.3 (a, b, c, d), D2.3.4 (a, b, c, d)
E1.3.1, E1.3.2, E1.3.3 (a, b, c, d, e, f)
E2.3.1, E2.3.2, E2.3.3, E2.3.4, E2.3.5, E2.3.6, E2.3.7 (a, b, c)
E3.3.1, E3.3.2, E3.3.3, E3.3.4, E3.3.5, E3.3.6
F2.3.1, F2.3.2, F2.3.3 (a, b, c)
F4.3.1, F4.3.4 (a, b, c, d, e, g, h)
F7.3.1, F7.3.2, F7.3.3
G1.3.1, G1.3.2 (a, b, c, d, e, f, g, h), G1.3.3, G1.3.4
G2.3.1, G2.3.2, G2.3.3
G3.3.1 (a, b, c, d), G3.3.2 (a, b, c), G3.3.3, G3.3.4, G3.3.5
G4.3.1, G4.3.3 (a, b, c, i), G4.3.4, G4.3.5
G5.3.1, G5.3.2, G5.3.3, G5.3.4
G6.3.1, G6.3.2
G7.3.1, G7.3.2
G8.3
G9.3.1 (a, b, c, d, e, f, g), G9.3.3, G9.3.4
G10.3.1 (a, b, c, d), G10.3.2, G10.3.3, G10.3.4, G10.3.5, G10.3.6
G11.3.1, G11.3.2, G11.3.3, G11.3.4, G11.3.5 (a, b, c), G11.3.6
G12.3.1, G12.3.2 (a, b, c), G12.3.3, G12.3.4, G12.3.5 (a, b), G12.3.6, G12.3.7 (a, b, c, d), G12.3.8 (a, b), G12.3.9, G12.3.10
G13.3.1 (a, b, c, d), G13.3.2 (a, b, c, d, e, f), G13.3.3, G13.3.4 (a, b, c, d, e, f, g, h, i, j, k),
H1.3.1 (a, b), H1.3.2E, H1.3.3 (a, b, c, d, e, f), H1.3.4 (a, b, c), H1.3.5 (a, b)

WWW.JAS-ANZ.ORG/REGISTER

Subject to the following conditions and limitations:

1. Each page of the plans and specifications produced under this certificate and submitted for building consent must bear the mark of conformity and certificate number, and the building consent application must include a signed and dated DINEX Design Summary/Declaration.
2. Each page of the plans and specifications produced under this certificate and submitted as a post-consent alteration must bear the mark of conformity and certificate number, and must include a signed and dated DINEX Design Summary/Declaration – Post Consent Alteration.
3. Compliance with Clauses E1.3.3 (e) and G13.3.3 is subject to the approvals of the relevant network utility operators for surface water drainage systems affecting an outfall, and connections to sewer.

24 September 2019
Date of issue

CM70023
Certificate Number

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

- This certificate is issued by an independent certification body accredited by JAS-ANZ, the product certification body appointed by the Chief Executive of the Ministry of Business, Innovation and Employment under the Building Act 2004. The Ministry does not in any way warrant, guarantee, or represent that the building method or product the subject of this certificates conforms with the New Zealand Building Code, nor accept any liability arising out of the use of the building method or product. The Ministry disclaims to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages, and costs arising as a result of the use of the building method(s) or product(s) referred to in this certificate.
- The certificate holder must maintain compliance with the conditions set out in section 15 of the Building (Product Certification) Regulations 2008.This certificate may only be reproduced in its entirety.
  It is advised to check that this certificate is currently valid and not withdrawn or suspended by referring to the Register of Product Certificates on the Building Performance website http://www.building.govt.nz.

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DINEX Design Summary/ Declaration

Project Creamer

Job code 80966

Job name Creamer

Address
Lot 444 DP 530967
1 Te Wharo Drive
Papamoa
Tauranga 3118

CODEMARK™
CM70023

The building falls within the following Classified Use:
Housing (detached dwellings)

The building height is less than 10m:	ACTUAL 4420
The risk E2/AS1 matrix is <20:	ACTUAL 7
RISK CATEGORY	
Wind Zone	High
Earthquake Zone	2
Exposure Zone	C
Climate Zone	3
Snowload	0.0kPa

The signatory of this declaration confirms that:

- the plans and specifications have been prepared in accordance with the DINEX Building Design Method; and

- there are no additional code obligations that are not covered by the Codemark Certificate CM70023.

Dated: 26 Jun 2020
Approved Signatory of DINEX Limited



CRAIG WEARNE

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Memorandum from licensed building practitioner: Certificate of design work

Section 45 and section 30C, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING			
Street address:	Lot 444 DP 530967 01 Te Wharo Drive		
Suburb:	Papamoa		
Town/City:	Tauranga	Postcode:	3118

THE OWNER(S)			
Name(s):	Paul Colin and Katie Creamer		
Mailing address:	51 Te Wharo Drive		
Suburb:	Papamoa	PO Box/Private Bag:	
Town/City:	Tauranga	Postcode:	3118
Phone number:	021920440	Email address:	pkcreamer@gmail.com

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BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the: Please tick the option that applies ✓

☐	**sole** designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design work myself – no other person will be providing any additional memoranda for the project
☐	**lead** designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and **no other** person will be providing any additional memoranda for the project
☑	**lead** designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the **other** designers will provide their own memorandum relating to their specific RBW design
☐	**specialist** designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK (RBW)

I *Craig Wearne* carried out / supervised the following design work that is restricted building work

PRIMARY STRUCTURE: B1

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ☒ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
All RBW design work relating to B1 ☐ ☒		○ Carried out ☐ Supervised	
Foundations and subfloor framing ☐ ☒		○ Carried out ☐ Supervised	

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Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Walls ☐ ☒		○ Carried out ☐ Supervised	
Roof ☐ ☒		☐ Carried out ☐ Supervised	
Columns and beams ☐ ☒		○ Carried out ☐ Supervised	
Bracing ☑ ☐	Roof Bracing	○ Carried out ☑ Supervised	Refer to Roof Truss Fixing and Bracing (D03)
Other ☐ ☒		○ Carried out ☐ Supervised	

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Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2			
All RBW design work relating to E2 ☐ ☒		○ Carried out ☐ Supervised	
Damp proofing ☑ ☐	Damp proof membrane to underside of floor slab	○ Carried out ☑ Supervised	Refer to Foundation Details page
Roof cladding or roof cladding system ☑ ☐	Pressed Metal Tile Roofing on underlay	☐ Carried out ☑ Supervised	Refer to Elevations, Cross Section and Roof Cladding Details pages
Ventilation system (for example, subfloor or cavity) ☑ ☐	Cavity to Wall Cladding	○ Carried out ☑ Supervised	Refer to Cross Section and Cladding Details pages
Wall cladding or wall cladding system ☑ ☐	Brick Veneer AAC Panel	○ Carried out ☑ Supervised	Refer to Cross Section and Wall Cladding Details pages
Waterproofing ☐ ☒	N/A	○ Carried out ☐ Supervised	
Other ☐ ☒	N/A	☐ Carried out ☐ Supervised	

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Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
FIRE SAFETY SYSTEMS: C1 - C6			
☑ Emergency warning systems ☐	Domestic Smoke Detectors	☐ Carried Out ☑ Supervised	Refer Electrical Plan
☑ Evacuation and fire service operation systems ☐	Domestic Escape Path <25m	☐ Carried Out ☑ Supervised	Refer Electrical Plan
☐ Suppression or control systems ☒		☐ Carried Out ☐ Supervised	
☐ Other ☒	N/A	☐ Carried Out ☐ Supervised	

Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.

WAIVERS AND MODIFICATIONS

Waivers or modifications of the Building Code are required. ☐ Yes ☑ No

If Yes, provide details of the waivers or modifications below:

Clause	Waiver/modification required
List relevant clause numbers of building code	Specify nature of waiver or modification of building code required

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ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work.

Name: **Craig Wearne**	LBP or Registration number: **BP101178**
The practitioner is a: ☑ Design LBP ○ Registered architect ☐ Chartered professional engineer	
Design Entity or Company (optional): **RCDC Limited**	
Mailing address (if different from below): **P.O Box 4411**	
Street address/Registered office: **63 Hewletts Road**	
Suburb: **Mount Maunganui**	Town/City: **Tauranga**
PO Box/Private Bag: **4411**	Postcode: **3149**
Phone number: **07 574 2340**	Mobile:
After hours:	Fax: **07 574 9537**
Email address: **tauranga@zog.co.nz**	Website: **N/A**

DECLARATION

I ***Craig Wearne*** LBP, state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code, or
- ~~Complies with the building code subject to any waiver or modification of the building code recorded on this form~~

Signature: 

Date: 12/06/2020

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Memorandum from licensed building practitioner: Certificate of design work

Section 45 and section 30C, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING			
Street address:	Lot 444 DP 530967 01 Te Wharo Drive		
Suburb:	Papamoa		
Town/City:	Tauranga	Postcode:	3118

THE OWNER(S)			
Name(s):	Paul Colin and Katie Creamer		
Mailing address:	51 Te Wharo Drive		
Suburb:	Papamoa	PO Box/Private Bag:	
Town/City:	Tauranga	Postcode:	3118
Phone number:	021920440	Email address:	pkcreamer@gmail.com

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BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the: Please tick the option that applies ✓

☐	**sole** designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design work myself – no other person will be providing any additional memoranda for the project
☐	**lead** designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and **no other** person will be providing any additional memoranda for the project
☐	**lead** designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the **other** designers will provide their own memorandum relating to their specific RBW design
☑	**specialist** designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK (RBW)

I Hamish Pearse-Danker carried out / supervised the following design work that is restricted building work

PRIMARY STRUCTURE: B1

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
All RBW design work relating to B1 [r]		☐ Carried out ☐ Supervised	
Foundations and subfloor framing [a]	Foundations, and waffle slab	☑ Carried out ☑ Supervised	Golden Homes job no. 80966 plans and specifications

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Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Walls [a]	Cold formed steel wall framing	☐ Carried out ☑ Supervised	Golden Homes job no. 80966 plans and specifications
Roof [a]	Cold formed steel roof and ceiling framing	☐ Carried out ☑ Supervised	Golden Homes job no. 80966 plans and specifications
Columns and beams [a]	Steel lintels, beams and columns	☐ Carried out ☑ Supervised	Golden Homes job no. 80966 plans and specifications
Bracing [a]	Bracing	☐ Carried out ☑ Supervised	Golden Homes job no. 80966 plans and specifications
Other [r]		☐ Carried out ☐ Supervised	

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Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2			
All RBW design work relating to E2 r		☐ Carried out ☐ Supervised	
Damp proofing r		☐ Carried out ☐ Supervised	
Roof cladding or roof cladding system r		☐ Carried out ☐ Supervised	
Ventilation system (for example, subfloor or cavity) r		☐ Carried out ☐ Supervised	
Wall cladding or wall cladding system r		☐ Carried out ☐ Supervised	
Waterproofing r		☐ Carried out ☐ Supervised	
Other r		☐ Carried out ☐ Supervised	

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Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
FIRE SAFETY SYSTEMS: C1 - C6			
Emergency warning systems Evacuation and fire service operation systems ☐r Suppression or control systems Other		☐ Carried out ☐ Supervised	

Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.

WAIVERS AND MODIFICATIONS

Waivers or modifications of the Building Code are required. ☐ Yes ☑ No

If Yes, provide details of the waivers or modifications below:

Clause	Waiver/modification required
List relevant clause numbers of building code	Specify nature of waiver or modification of building code required

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ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work.

Name: Hamish Pearse-Danker	LBP or Registration number: 1011810
The practitioner is a: ☐ Design LBP ☐ Registered architect ☑ Chartered professional engineer	
Design Entity or Company (optional): e3 Consultants NZ Ltd	
Mailing address (if different from below):	
Street address/Registered office: 100 Spring Street	
Suburb: CBD	Town/City: Tauranga
PO Box/Private Bag: 13207	Postcode: 3141
Phone number: 07 577 9757	Mobile: 0226085734
After hours:	Fax:
Email address: hamish@e3c.co.nz	Website: www.e3c.co.nz

DECLARATION

I Hamish Pearse-Danker LBP, state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code, or
- ~~Complies with the building code subject to any waiver or modification of the building code recorded on this form~~

Signature: 

Date: 11/06/2020

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Construction Monitoring Schedule

We recommend e3 Consultants carry out construction monitoring level CM2 on the following elements:

- Foundation and slab reinforcement

Number of inspections depends on number of concrete pours and builders construction sequence

We recommend the Building Consent Authority carry out inspections of the following elements:

- Cold formed steel framing

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Terrace Views Subdivision, Parton Road, Tauranga

Stage 3D-3E Geotechnical Completion Report

Zariba Properties Limited

Reference: 247593-320

Revision: 3

8 March 2019

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Document control record

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0	1 February 2019	First Issue	M Buob	R Griffiths		R Griffiths
1	5 February 2019	Update to include BRL discussion and confirm finished ground levels (as opposed to engineered fill level)	M Buob	R Griffiths	R Griffiths	B O'Loughlin
2	13 February 2019	Update to Appendix D to include Final Logs	M Buob	R Griffiths	R Griffiths	B O'Loughlin
3	8 March 2019	Update Section 5.4.5 On site stormwater disposal to include Lots 475-479 and updated discussion on minimum building platform level as per RC26514	M Buob		R Griffiths	B O'Loughlin
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Approval			
Author signature		Approver signature	
Name	Miles Buob	Name	Ben O'Loughlin
Title	Geotechnical Engineer	Title	Technical Director, TCC Category 1 Geo-professional

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1 Introduction

Zariba Properties Limited (Zariba, the client) has commissioned Aurecon New Zealand Ltd (Aurecon) to prepare a Geotechnical Completion Report (GCR) for Stage 3D and 3E of the Terrace Views Subdivision development. Terrace Views Subdivision is a multistage residential subdivision planned to be developed in four stages. This report is limited to Stage 3D and 3E (the 'Site') which collectively comprise a total of 64 residential lots.

The Terrace Views Subdivision site was originally investigated by Aurecon in 2011 as part of an initial geotechnical assessment to support commercial and light industrial land development. Since preparing the 2011 report, the original development proposal was revised to residential land use under a Special Housing Accord resource consent application. To support the new resource consent application for residential subdivision, additional geotechnical investigations and reporting was completed by Aurecon in 2016. Following this, Aurecon have provided further geotechnical investigations, design, and construction observations for our client through all stages of development.

The following reports were prepared by Aurecon which are relevant to the Site:

- Geotechnical Suitability of Land for Development Papamoa East Block, Parton Road Papamoa. Reference 220166-001, Revision 1, dated 06 September 2011.
- Geotechnical review of landform design and suitability for residential subdivision, Reference 247593-Geotechnical Review Parton Road Subdivision, Revision 1, dated 29 January 2016
- Geotechnical suitability for residential subdivision of Stages 1D, 3A and 3B of the Parton Road Subdivision, Papamoa, dated 15 March 2016

The reader is referred to the above reports for background to the geotechnical investigations carried out at the Site, interpretation and assessment of soil conditions and requirements for development.

This Geotechnical Completion Report (GCR) relates only to the residential Lots 391 to 400 (inclusive) and 439 to 493 (inclusive) within Stage 3D and 3E of the subdivision. The GCR presents discussion on:

- Earthworks and compliance testing
- Geotechnical investigations of each individual residential lot to determine suitability for building
- Specific requirements for building development on each residential lot

Data is provided within the report appendices that support the comments, conclusions and recommendations given in this report. A statement of professional opinion as to the suitability of land for building is provided in Appendix A. This report forms part of the s224 application to Tauranga City Council.

2 Site location and description

The Terrace Views Subdivision is located at 162 Parton Road, Papamoa and measures an area of approximately 10 hectares. The original land title was defined by the legal property boundary for Lot 1 and 2 of DP 429801, Lot 1 and 2 of DP 325745, Lot 1, 2 and 3 of DP 82613, as well as land to the north-east formerly owned by Tauranga City Council. The property is roughly triangular in shape and is located between Parton Road and the Tauranga Eastern Link corridors.

Stages 3D and 3E are located within the central-western portion of the Terrace Views Subdivision, to the west of the Te Okuroa Drive extension. Stage 3D and 3E is bordered by Garrison Road to the east, a Garden Nursery to the south, and Fetlock way to the west. The overall Terrace Views Subdivision layout and Stage 3D and 3E location is shown on the subdivision masterplan included in Appendix B along with the following Stage 3D and 3E drawings:

- The pre-development landform - 247593-320-DRG-GG-0001-A
- The cut to fill earthworks and compliance test location plan - 247593-320-DRG-GG-0002-A
- The as built subgrade landform and lot by lot test location plan - 247593-320-DRG-GG-0003-A

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3 Proposed subdivision development

Stage 3D and 3E of the development comprises a total of 64 residential lots. It is anticipated that dwellings within each of the lots developed within Stage 3D and 3E will be shallow founded at the designed platform level, designated to be at or above a minimum elevation of +5.1 mRL, as specified by Tauranga City Council Resource Consent RC26514.

It is our understanding that the proposed residential buildings will be one or two storey residential structures designed in accordance with the requirements of NZS 3604:2011 *Timber Framed Buildings*. All lots will be serviced with wastewater and town water supply at each lot boundary. Stormwater from residential lots will be disposed of via on-site ground soakage within each lot. Stormwater from the internal road network will be reticulated and discharged into a swale drain which flows to a wetland storm water pond on the southern boundary of the Terrace Views subdivision.

4 Geotechnical considerations

4.1 Pre-development geotechnical assessment

The geotechnical requirements for development of the Site are outlined in the "Suitability for Subdivision" reports dated 15 March. The key geotechnical requirements and conclusions from these reports were consistent, and are summarised as follows:

4.1.1 Peat

Where exposed in the natural foundation subgrade, Aurecon advised the undercut and removal of peat and replacement with engineered fill.

"The peat undercut and replacement is expected to largely remove the risk of settlement (both primary and secondary creep consolidation) affecting the development. As discussed in our previous reports, settlement of the underlying loose sands and firm sandy silt layers may occur as a result of replacing the peat with denser engineered fill in combination with raising site levels with engineered fill."

4.1.2 Settlement

"The magnitude of settlement due to fill placement is likely to vary based on a number of factors including the fill thickness, groundwater levels and nature of the underlying sediments below the peat."

"Considering the sandy nature of the underlying soils, fill induced settlements are expected to occur rapidly during construction. Settlement monitoring is proposed as part of the earthworks contract. The settlement data will be reviewed by a TCC Category 1 geo-professional to confirm timing for building development."

4.1.3 Groundwater level

"Groundwater was encountered within the test pits excavated within peat areas. Groundwater was generally encountered approximately 1.0m below ground level (~+2.7mRL)."

4.1.4 Liquefaction

"For elevated areas of the site, liquefaction may occur below the groundwater table which, following earthworks, is expected to be around 2.4-3.5m below finished ground levels. Given the assumed thickness of the non-liquefiable crust (ranging between 2.4 and 5.0m), the likely effects of liquefaction for surface foundations are anticipated to meet the requirements of the NZ Building Code which states that buildings must remain serviceable following a SLS event with only minor repair. During a ULS event buildings must retain their structural integrity such that they can be safely evacuated, however the resulting damage may require significant repair and/or rebuild. With this in mind, raft foundations for future residential buildings are recommended for the purpose of residential building construction."

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4.1.5 Foundations

"We understand that the subdivision will comprise residential buildings that include materials composition and dimensional characteristics as defined by NZS 3604:2011. Given that the site is located within an area of moderate liquefaction potential we recommend the specification of engineer designed or proprietary raft foundations for each residential building."

"It is our expectation that following earthworks cuts and filling, all structures can be shallow founded in accordance with the provisions of the Standard. Each building structure shall be supported on a shallow founded engineer designed or proprietary raft foundation (i.e. TC2 Rib-Raft or equivalent)".

"Final foundation recommendations and bearing capacities shall be confirmed as part of the geotechnical completion report for each stage of development following lot by lot testing and certification of the fill."

4.1.6 Stormwater and effluent disposal

"Stormwater from roads will be collected and disposed of into the proposed subdivision stormwater swales and ponds. It is proposed to dispose of storm water from individual lots via in-ground soakage." "We recommend soakage percolation testing is carried out following filling to confirm the viability of onsite soakage systems and to provide parameters for design".

4.2 Site earthworks

The earthworks covering Stage 3D and 3E were completed between October 2017 and January 2019 by JMC. Pre-development, final development and cut to fill drawings are included in Appendix B.

The original landform within Stage 3D and 3E comprised a combination of elevated dunes covering the northern boundary of Stage 3D and lower lying areas capped with a layer of peat, approximately 1.5 to 2.0 metres in thickness).

To achieve the design landform, cut and fill earthworks were required within the Site to strip topsoil and excavate underlying peat to expose a natural dune sand subgrade at ~ 1 m RL. The excavations were then replaced with site-won engineered sand fill up to ~+2.7 mRL using site-won dune sand. Pumice sand imported from Paengaroa Sands, Marsh Street, and Marbles Quarry was then placed on the dune sand and generally above groundwater level, up to the final design subgrade level.

The earthworks equipment comprised mainly excavators to carry out localised undercuts, and motor scrapers to transport and compact the fill. Throughout the earthworks operation JMC controlled groundwater using large pumps installed in deep subsoil trenches in the western, southern and south-eastern areas of the site. These pumps effectively dewatered the entire excavation allowing bulk filling to proceed without the need for underwater filling.

4.3 Earthworks subgrade inspection and compliance testing

4.3.1 Subgrade observations

Aurecon carried out regular geotechnical subgrade inspections following topsoil stripping and peat undercutting. Instruction to commence earthworks filling was only provided following certification of the subgrade by one of Aurecon's Geotechnical Engineers.

4.3.2 Earthworks compliance testing specification

Fill compliance testing was undertaken during earthworks construction. Compliance testing was carried out in accordance with the contract earthworks specification (refer to 152870 - Zariba Stage 2 Earthworks Scope and Specification dated 17 February 2017). The specification provided requirements for subgrade inspection, laboratory and field density testing, and compaction criteria. The specification required all engineered fill to be tested in accordance with NZS4431:1989 Code for *earth fill for residential development* as required under the Tauranga City Council Infrastructure Development Code (2017). All laboratory testing was specified to be

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carried out by an independent IANZ-accredited laboratory. The testing schedule specified for Stage 3D and 3E, as per the requirements of the contract specification, is presented in Table 1.

Table 1: Testing schedule for engineered sand fill

Soil Classification & Specific Gravity	Standard Compaction Test	In-situ Density Test (NDM)	DCP Tests Cohesionless Soils (sands / gravels)
4 specific gravity tests per soil type (all soils). 4 PSD grading curves per representative soil type (granular soils)	Four compaction tests per representative soil type. NZS 4402, Test 4.1.1. Minimum of 5 points shall be determined. Lab shear vanes for each point (for cohesive soils only). Material description to be recorded in accordance with NZGS guidelines	Minimum of 1 NDM test per 500 m^3 of filling placed evenly distributed over the extent filling. Testing at every 750 mm lift (or part thereof). 1x oven corrected moisture content per NDM test	1 test per in-situ density test. DCP tests to be to depth of not less than 0.9m.

As the source fill material tested comprised predominantly sand, percentage compaction was used to determine fill compliance. Due to a lack of site-won sand for the earthworks, Paengaroa, Marsh, and Marbles pumice sand was selected as the other source of fill material. Target maximum dry density was selected from the field Plateau Testing undertaken as part of the earthworks.

The acceptance criteria for the fill and pumice sand compaction was:

- DCP: Minimum 5 blows per 100mm
- NDM: Minimum 95% Maximum Dry Density

4.3.3 Results of testing

The total volume of fill is approximately 45,500m^3 based on the as-built cut-fill plan provided by Lysaght Consultants Ltd (LCL). Based on this volume 92 NDMs and DCP tests were required to meet the specification.

Nuclear Densometer testing (NDM) were undertaken at 121 locations with accompanying DCP tests conducted at 110 of those locations. Based on this number and distribution of testing, Aurecon was satisfied with compliance testing in relation to the earthworks specification.

The targets for the fill material were initially based upon maximum dry density curves. On 27 November 2018 three plateau tests were conducted on fill material from Paengaroa Quarry, Marbles Quarry, and reworked Paengaroa material to adjust the target maximum dry density. All NDM tests targets were adjusted and reissued based upon these targets and the type of material placed. All NDM compliance tests were carried out by Fulton Hogan at their IANZ-accredited Tauranga laboratory.

A summary of the results of NDM testing are presented in Table 2. Test locations for all compliance testing are shown on the Cut/Fill drawing in Appendix B, and the laboratory reports are included in Appendix C.

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Table 2: Summary of nuclear densometer testing (conducted by Fulton Hogan)

Test Number	Material	Oven adjusted dry density[1] (t/m³)	Oven corrected moisture content (%)	Target Maximum dry density (t/m³)[4]	Compaction[2] (%)
245	Paengaroa Rhyolite Pumice Sand	1.36	24.3	1.22	111%
246	Paengaroa Rhyolite Pumice Sand	1.28	25.7	1.22	105%
247	Paengaroa Rhyolite Pumice Sand	1.35	24.2	1.22	111%
248RT2[3]	Paengaroa Rhyolite Pumice Sand	1.47	15.5	1.22	120%
249	Paengaroa Rhyolite Pumice Sand	1.37	25.1	1.22	112%
250RT	Paengaroa Rhyolite Pumice Sand	1.41	17.4	1.22	116%
251	Paengaroa Rhyolite Pumice Sand	1.33	26.4	1.22	109%
252	Paengaroa Rhyolite Pumice Sand	1.35	27.1	1.22	111%
253	Paengaroa Rhyolite Pumice Sand	1.34	23.6	1.22	110%
254	Paengaroa Rhyolite Pumice Sand	1.35	24.8	1.22	111%
275	Marbles/Paengaroa (70/30 blend)	1.51	19	1.27	119%
277	Marbles/Paengaroa (70/30 blend)	1.54	16.7	1.27	121%
279	Marbles/Paengaroa (70/30 blend)	1.52	15.9	1.27	120%
286	Marbles/Paengaroa (70/30 blend)	1.42	17.1	1.27	112%
287	Marbles/Paengaroa (70/30 blend)	1.45	19.9	1.27	114%
288RT	Paengaroa Rhyolite Pumice Sand	1.36	24.4	1.22	111%
295	Marbles/Paengaroa (70/30 blend)	1.37	21.1	1.27	108%
296	Paengaroa Rhyolite Pumice Sand	1.4	19.3	1.22	115%
297	Marbles/Paengaroa (70/30 blend)	1.37	18.4	1.27	108%
298	Paengaroa Rhyolite Pumice Sand	1.54	16.3	1.22	126%
299	Paengaroa Rhyolite Pumice Sand	1.4	21.3	1.22	115%
300RT	Paengaroa Rhyolite Pumice Sand	1.46	21.6	1.22	120%
301	Paengaroa Rhyolite Pumice Sand	1.42	19.6	1.22	116%
302	Marsh Pit Pumice Sand	0.78	73.9	0.82	95%
303RT	Marsh Pit Pumice Sand	1.07	34.6	0.82	130%
315	Paengaroa Rhyolite Pumice Sand	1.38	23.2	1.22	113%
316	Paengaroa Rhyolite Pumice Sand	1.39	26.7	1.22	114%
317	Paengaroa Rhyolite Pumice Sand	1.4	24.2	1.22	115%
318	Paengaroa Rhyolite Pumice Sand	1.45	23.3	1.22	119%
319	Paengaroa Rhyolite Pumice Sand	1.47	22.8	1.22	120%
320	Paengaroa Rhyolite Pumice Sand	1.41	26	1.22	116%
321	Paengaroa Rhyolite Pumice Sand	1.46	23	1.22	120%
322	Paengaroa Rhyolite Pumice Sand	1.37	25.3	1.22	112%
324	Paengaroa Rhyolite Pumice Sand	1.42	21.6	1.22	116%
337	Paengaroa Rhyolite Pumice Sand	1.42	19.1	1.22	116%
338	Paengaroa Rhyolite Pumice Sand	1.54	17.6	1.22	126%
339	Paengaroa Rhyolite Pumice Sand	1.4	23.7	1.22	115%
340	Paengaroa Rhyolite Pumice Sand	1.44	18.5	1.22	118%

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Test Number	Material	Oven adjusted dry density[1] (t/m³)	Oven corrected moisture content (%)	Target Maximum dry density (t/m³)[4]	Compaction[2] (%)
341	Paengaroa Rhyolite Pumice Sand	1.48	21	1.22	121%
342	Paengaroa Rhyolite Pumice Sand	1.47	17	1.22	120%
343	Paengaroa Rhyolite Pumice Sand	1.47	20.7	1.22	120%
344	Paengaroa Rhyolite Pumice Sand	1.42	25.9	1.22	116%
345RT	Paengaroa Rhyolite Pumice Sand	1.38	23.1	1.22	113%
346	Paengaroa Rhyolite Pumice Sand	1.41	23.7	1.22	116%
347RT	Paengaroa Rhyolite Pumice Sand	1.42	23.1	1.22	116%
348	Paengaroa Rhyolite Pumice Sand	1.45	20.5	1.22	119%
349	Paengaroa Rhyolite Pumice Sand	1.52	17.7	1.22	125%
350RT	Paengaroa Rhyolite Pumice Sand	1.39	24.2	1.22	114%
351	Paengaroa Rhyolite Pumice Sand	1.4	23.4	1.22	115%
366	Paengaroa Rhyolite Pumice Sand	1.41	28.7	1.22	116%
367	Paengaroa Rhyolite Pumice Sand	1.37	24.9	1.22	112%
368	Paengaroa Rhyolite Pumice Sand	1.5	17.2	1.22	123%
369	Paengaroa Rhyolite Pumice Sand	1.45	26	1.22	119%
370	Paengaroa Rhyolite Pumice Sand	1.36	21	1.22	111%
371	Paengaroa Rhyolite Pumice Sand	1.34	21.2	1.22	110%
372	Paengaroa Rhyolite Pumice Sand	1.32	24.6	1.22	108%
373	Paengaroa Rhyolite Pumice Sand	1.29	22.5	1.22	106%
374	Paengaroa Rhyolite Pumice Sand	1.35	23.7	1.22	111%
375	Paengaroa Rhyolite Pumice Sand	1.35	21.9	1.22	111%
376	Marbles/Paengaroa (70/30 blend)	1.2	29.9	1.27	94%
380	Paengaroa Rhyolite Pumice Sand	1.25	34.5	1.22	102%
381	Paengaroa Rhyolite Pumice Sand	1.46	21.9	1.22	120%
382	Paengaroa Rhyolite Pumice Sand	1.27	30.9	1.22	104%
383	Paengaroa Rhyolite Pumice Sand	1.36	28	1.22	111%
384	Paengaroa Rhyolite Pumice Sand	1.37	28	1.22	112%
390	Paengaroa Rhyolite Pumice Sand	1.23	26	1.22	101%
391	Paengaroa Rhyolite Pumice Sand	1.15	33.7	1.22	94%
392	Paengaroa Rhyolite Pumice Sand	1.5	15.5	1.22	123%
393	Paengaroa Rhyolite Pumice Sand	1.36	28.1	1.22	111%
394	Paengaroa Rhyolite Pumice Sand	1.32	23.2	1.22	108%
395	Paengaroa Rhyolite Pumice Sand	1.44	23.7	1.22	118%
396	Paengaroa Rhyolite Pumice Sand	1.43	19.4	1.22	117%
397	Paengaroa Rhyolite Pumice Sand	1.55	10.2	1.22	127%
398	Paengaroa Rhyolite Pumice Sand	1.24	27.2	1.22	102%
399	Paengaroa Rhyolite Pumice Sand	1.36	22.8	1.22	111%
404	Marbles/Paengaroa (50/50 blend)	1.24	25.7	1.26	98%
405	Marbles/Paengaroa (50/50 blend)	1.29	27.8	1.26	102%

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Test Number	Material	Oven adjusted dry density[1] (t/m³)	Oven corrected moisture content (%)	Target Maximum dry density (t/m³)[4]	Compaction[2] (%)
406	Marbles/Paengaroa (70/30 blend)	1.47	19.5	1.27	116%
407	Marbles/Paengaroa (50/50 blend)	1.47	18.9	1.26	117%
408	Marbles/Paengaroa (50/50 blend)	1.25	21.7	1.26	99%
409	Marbles/Paengaroa (50/50 blend)	1.19	31.8	1.26	94%
411	Marbles/Paengaroa (50/50 blend)	1.21	33.1	1.26	96%
413	Marbles/Paengaroa (50/50 blend)	1.23	30.8	1.26	98%
414	Marbles/Paengaroa (70/30 blend)	1.26	27	1.27	99%
415	Marbles/Paengaroa (70/30 blend)	1.23	26.4	1.27	97%
416	Marbles/Paengaroa (70/30 blend)	1.3	24..2	1.27	102%
417	Marbles/Paengaroa (70/30 blend)	1.3	21.9	1.27	102%
426	Paengaroa Rhyolite Pumice Sand	1.5	19.5	1.22	123%
427	Paengaroa Rhyolite Pumice Sand	1.14	40.5	1.22	93%
428	Marbles/Paengaroa (50/50 blend)	1.23	25.8	1.26	98%
429	Marbles/Paengaroa (50/50 blend)	1.26	30.7	1.26	100%
430	Marbles/Paengaroa (50/50 blend)	1.31	27.7	1.26	104%
431	Marbles/Paengaroa (50/50 blend)	1.3	22.5	1.26	103%
432	Paengaroa Rhyolite Pumice Sand	1.29	23.7	1.22	106%
433	Paengaroa Rhyolite Pumice Sand	1.31	25.4	1.22	107%
434RT	Marbles/Paengaroa (50/50 blend)	1.3	24.1	1.26	103%
435	Marbles Pumice Sand	1.28	30.1	1.29	99%
436	Marbles Pumice Sand	1.32	24.3	1.29	102%
437	Marbles Pumice Sand	1.27	26.4	1.29	98%
438	Marbles Pumice Sand	1.27	26.5	1.29	98%
439	Marbles Pumice Sand	1.34	16.8	1.29	104%
440RT	Marbles Pumice Sand	1.3	21.3	1.29	101%
441	Marbles Pumice Sand	1.33	27.9	1.29	103%
442	Marbles Pumice Sand	1.31	17.7	1.29	102%
443	Marbles Pumice Sand	1.33	19.7	1.29	103%
444	Marbles Pumice Sand	1.31	19.5	1.29	102%
445	Marbles Pumice Sand	1.37	19	1.29	106%
446	Paengaroa Rhyolite Pumice Sand	1.25	30.8	1.22	102%
447	Paengaroa Rhyolite Pumice Sand	1.27	27.3	1.22	104%
448	Paengaroa Rhyolite Pumice Sand	1.22	28.5	1.22	100%
449	Marbles Pumice Sand	1.22	36.4	1.29	95%
450	Marbles Pumice Sand	1.25	30.7	1.29	97%
451	Marbles Pumice Sand	1.27	30.4	1.29	98%
452	Marbles Pumice Sand	1.41	16.3	1.29	109%
453	Marbles Pumice Sand	1.35	16.1	1.29	105%
454	Marbles Pumice Sand	1.28	26.4	1.29	99%

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Test Number	Material	Oven adjusted dry density[1] (t/m³)	Oven corrected moisture content (%)	Target Maximum dry density (t/m³)[4]	Compaction[2] (%)
455	Marbles Pumice Sand	1.27	26.7	1.29	98%
456	Marbles Pumice Sand	1.32	23.7	1.29	102%
458	Marbles Pumice Sand	1.3	22.9	1.29	101%
459	Marbles Pumice Sand	1.28	24.8	1.29	99%
460	Marbles Pumice Sand	1.28	26.2	1.29	99%

1) Dry density measured in the field by Nuclear Density Meter (NDM) and adjusted following laboratory measurement of water content.

2) Ratio of oven adjusted dry density to maximum dry density expressed as a percentage.

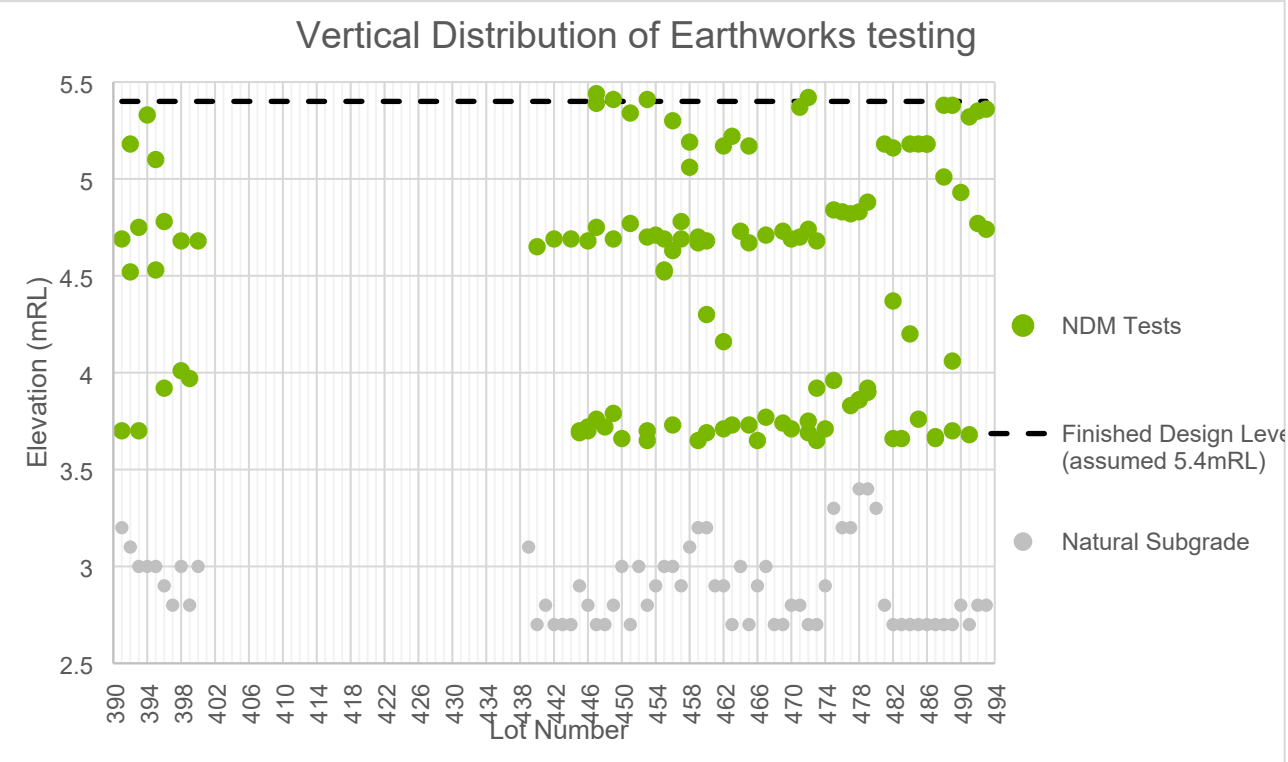
3) Test results denoted with RT indicate a re-test of the original compliance test where it did not originally pass.

4) Targets were adjusted based on three plateau tests conducted on fill material from Paengaroa Quarry, Marbles Quarry, and reworked Paengaroa fill material. Targets are adjusted with a weighted average when material was blended.

The NDM test sheets shown in Appendix C list the target maximum dry density prior to the Plateau tests that were undertaken. These targets were adjusted to the Plateau test targets by Aurecon given the high sensitivity of the material to compaction. Note we have not included the DCP results in Table 2 above however we confirm that all DCP compliance tests met or exceeded the specification requirement of minimum 5 blows per 100mm.

Figure 1 shows the vertical distribution of Nuclear Density testing that was done across the lots. The finished level and subgrade elevations were taken as the approximate value within the centre of the lot. Site won sand was mined and reused to an elevation of at least ~ 2.7 m R.L. Based on the reported results we confirm that all of the compliance testing (NDM) met or exceeded the minimum acceptance criteria for the fill compaction as outlined in the technical earthworks specification.

Figure 1: Vertical distribution of Nuclear Density Testing conducted over the 64 lots.



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4.4 Ground conditions

The geological model for the site was developed from Cone Penetration Tests (CPT) and test pitting carried out during the investigations for the Suitability for Subdivision report dated 15 March 2016.

The central half of 3D originally comprised elevated dune ridges (above +4.0mRL) comprising dune sands. Lower lying areas (under +4.0mRL) within the eastern and western part of Stage 3D and all of stage 3E was originally capped by a layer of peat ranging in thickness between 1.2m and 2.0m. It was inferred from the results of the predevelopment CPT that the peat is underlain by sand which are typically in the order of 13m to 15m thick but locally up to 19m in the elevated areas.

The dune sands were broadly separated into an upper 4m to 5m thick layer of loose to medium dense sand, underlain by medium dense to dense sands. The dune sands are underlain by a variable sequence of alluvial deposits comprising interbedded firm to stiff sandy silts and loose to medium dense sands, and dense sands down to the maximum investigation depth (20m below the original ground surface). The groundwater elevation was measured to be approximately +2.7mRL.

Bulk earthworks and movement of the motor scrapers across all areas of the Site are expected to have resulted in the densification of the upper 2 to 3m of the site surface, as evidenced by the subsequent lot by lot verification testing. Finished platform ground levels for the subject lots range between +4.9mRL and +5.6mRL.

4.5 Liquefaction

A liquefaction assessment using parameters derived from NZS 1170.0 and NZS1170.5 was carried out based on the method of Tokimatsu and Seed was included in the Suitability for Subdivision report dated 29 August 2011. The reported analysis predicted that, during a ULS earthquake event, up to 200 mm of settlement could occur. Updated liquefaction assessment guidelines are now available using the methods outlined in Module 3 of *MBIE's Earthquake Geotechnical Engineering Practice Guidelines*[1].

The post-construction liquefaction risk has been re-evaluated using updated CPT data from Stage 3C and following analytical methods prescribed within the Module 3 of the MBIE guidelines. The method of Boulanger and Idriss (2014) was used in our updated analysis of the Site's liquefaction potential.

The results of this additional analysis generally agree with the earlier liquefaction analysis findings, with no settlement predicted in a SLS design event, and moderate levels (94 mm to 150mm) of liquefaction induced settlement was predicted to occur following an intermediate level 1/200 year earthquake event, and more significant settlement in a ULS design event (up to 205mm). In accordance with Table 5.1 of the MBIE Module 3 guideline, the site effects from excess pore water pressure and liquefaction under intermediate case is assessed to be L1 to L2 (Mild to Moderate), and under ULS to be L3 (High). Foundation recommendations with regards to liquefaction mitigation are discussed in Section 5.4.1.

5 Requirements for building development

5.1 General

64 residential lots have been considered within Stage 3D and 3E, which comprise Lots 391 to 400 (inclusive) and 439 to 493 (inclusive).

This section of the report deals with:

a) The suitability of the created residential lots for building complying with the characteristics of NZS 3604:2011: Timber Framed Buildings

b) Specific requirements for residential construction on the lots

[1] New Zealand Geotechnical Society (NZGS) and Ministry of Business Innovation & Employment (MBIE) guidelines for Earthquake Geotechnical Practice in New Zealand; Module 3: Identification, assessment and mitigation of liquefaction hazards, Revision 0, May 2016.

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c) General recommendations for the building development on the lots

d) Advisory notes to owners and lot developers

The specific requirements should be read in conjunction with the general recommendations for building and the advisory notes contained in this section of the report.

5.2 Lot by lot investigations

5.2.1 Testing

Each residential lot has been individually investigated by one hand auger borehole completed within the centre of the lot, which extended to 2.0 m below the finished ground surface. In addition, two dynamic cone penetrometer (DCP) tests were conducted within each lot to a maximum depth of 1.95m or prior refusal (>20 blows per 100mm) to verify compaction compliance and foundation requirements. Lot by lot DCP testing was completed by Aurecon on 19 December 2018 and 18 January 2019 within Lots 391, 445-447 (inclusive), 458, 459, and 472-474 (inclusive). Testing within the remaining lots and hand augers were completed by Geotechnics Ltd between 10 December and 11 January 2018. The locations of the hand auger/DCP tests are shown on Drawing 247593-0320-DRG-GG-0003, Appendix B. Geotechnical logs for the hand auger boreholes and DCP tests are included in Appendix D.

5.2.2 Topsoil depth

Hand auger testing indicates that the depth of topsoil generally ranges from 0mm to 500 mm from finished ground surface level at the specific locations investigated. The depth of topsoil is shown on the individual hand auger logs included in Appendix D. Refer to Section 5.6.1 for further recommendations regarding topsoil thickness. Compacted sand fill and site-won dune sands were encountered below the topsoil in some of the locations investigated, however most of the investigations revealed over 2.0 m of engineered fill.

5.2.3 Test results

The DCP test results report values of between 5 and 30 blows per 100 mm across Stage 3D and 3E. DCP test results indicated generally dense engineered sand fill in the upper 1 m, with between 10 and 15 blows per 100mm and 6 and 30 blows per 100 mm below 1m to the maximum depth tested.

5.3 Suitability of lots for building

Based on the post earthworks verification testing, all lots (comprise Lots 391 to 400 (inclusive) and 439 to 493 (inclusive)) within Stage 3D and 3E are considered suitable on which to construct residential dwellings that comply with the characteristics defined by NZS3604:2011 *Timber framed buildings*. There are specific requirements that relate to the lots as given in Section 5.4, and summarised in the lot summary sheets included in Appendix A. The suitability of lots for building is contingent on the specific requirements being included in the planning, design and construction of dwellings and any other structure requiring a building consent under the Building Act 2004.

5.4 Specific requirements for building

The following paragraphs outline the specific requirements for building on the subject lots within Stage 3D and 3E of the subdivision. The reader is also referred to the General Recommendations (Section 5.5) and the Advisory Notes (Section 5.6) when assessing the implications of these requirements.

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5.4.1 Building foundations - Lots 391 to 400 (inclusive) and 445 to 493 (inclusive)

MBIE Guidelines 'TC2' building foundations

The subject lots are founded on engineered fill, natural ground, or a combination of both. Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011.

In accordance with Table 5.1 within Module 3 of the MBIE guidelines the site effects from excess pore water pressure and liquefaction is assessed to be 'L3 - High' under ULS conditions. The ULS liquefaction induced settlements are predicted to range up to 205mm.

In accordance with Module 4 of the MBIE guidelines[2], for cases where the predicted effects are deemed to be intolerable (L3 or higher), it is necessary to consider options for either ground improvement or the use of robust raft foundations, or deep foundations. We consider that the most practicable solution for this site is to specify robust raft foundations.

We have assessed the type of raft foundation system using the general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes[3]. In consideration of the predicted liquefaction settlement and thickness of the non-liquefiable crust, we classify the site as Technical Category 2 (TC2) in accordance with this guideline.

Specific engineered design of a MBIE 'TC2' foundation is required for all residential buildings constructed on the subject lots with Stage 3D and 3E. Section 5.5.1 provides further discussions of TC2 foundation options/types.

Foundation bearing capacity

An ultimate rupture bearing capacity of 300kPa may be used for the design of foundations for these lots within Stage 3D and 3E. The above ultimate bearing capacities should be used in conjunction with the following reduction factors:

- SLS loading: 0.33
- ULS loading: 0.5
- Earthquake Loading: 0.7

Foundation requirements and inspections

Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents.

As the site is not considered "good ground" as specified under NZS3604, the foundation formation is to be inspected by a suitably qualified and experienced geotechnical engineer prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building.

5.4.2 Building foundations – Lots 439 to 444 (inclusive)

Specific Investigation and Design

The subject lots are founded on engineered fill, cut down natural ground, or a combination of both. It is our opinion that these lots are suitable for residential building development. Due to the presence of sloping ground

[2] New Zealand Geotechnical Society (NZGS) and Ministry of Business Innovation & Employment (MBIE), Earthquake geotechnical engineering practice; Module 4; Earthquake resistant foundation design; Revision 0 November 2016

[3] MBIE, Repairing and rebuilding houses affected by the Canterbury earthquakes; Version 3, December 2012

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specific investigation and design of foundations is recommended for these lots by a TCC Category 1 Geo-Professional to support a future building consent application.

We make the following general recommendations to inform the specific investigation and design:

- Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011.
- The specific foundation should consider Table 5.1 within Module 3 of the MBIE guidelines for site effects from excess pore water pressure and liquefaction.
- The specific foundation should be assessed against general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes[4].
- Shallow or deep foundations should consider the finished landform and implications of the proposed building development in context to the proximity to the western boundary slope and the associated risk of instability under both static and seismic conditions.

5.4.3 Building Restriction Lines (Lots 475 – 479 inclusive, and 481- 492 inclusive)

Aurecon has reviewed the as-built landform as part of our assessment to confirm the final positions of building restriction lines (BRLs) within the development area related to setbacks from slope batters which vary in height between 1.5 to 2.0 m and a ~1V:3H slope.

BRLs mitigate building foundations against slope instability risk and the areas between lot boundaries and BRLs are defined as 'building exclusion zones'. These zones have been identified as areas of potential instability, or areas where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development.

Any structure requiring a building consent as defined by the Building Act 2004,[23] any landscaping fills, retaining structures of any proportion, and any excavations that alter the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional.

5.4.4 Minimum building platform and finished floor levels (all lots)

The minimum building platform level for any structure requiring a building consent in accordance with RC26514 is set at +5.1mRL (Moturiki Datum). The finished ground level (which equates to the building platform level) on all subject lots varies between +5.10mRL and +6.0 mRL based on the as-built finished landform survey provided by Lysaght.

Where topsoil is encountered during construction, undercut and replacement with engineered fill will be required to achieve the minimum finished floor level. Please refer to Section 6.2 for details on floor levels required to mitigate flood hazard.

5.4.5 On-site disposal of stormwater

The stormwater collected on all lots (excluding Lots 475-479) is to be disposed of via in-ground soakage. Lots 475 to 479 inclusive will have stormwater reticulated via a TCC pipe network.

The ground comprises predominantly pumice sand, fine to medium grained dune site-won sand fill, and natural cut sands. Stormwater disposed of via in-ground soakage will be reticulated within the natural dune sand material. Soakage testing was carried out by Aurecon for Stage 3D and 3E to determine the permeability of the ground to derive recommended design soakage rates.

[4] MBIE, Repairing and rebuilding houses affected by the Canterbury earthquakes; Version 3, December 2012

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The soakage test assessment report prepared by Aurecon is included with the Civil Asset Completion Report prepared by Lysaghts. Specific requirements for the design and construction of the soakage system are provided by Lysaght in the Terrace Views Subdivision Stage 3D-3E Civil Asset Completion Report.

The distance of foundation construction to the soak hole rings or ATLANTIS® FLO-TANK® crate system is dependent on the depth of the soak holes. The following formula should be used to determine the building foundation offset distance:

Offset distance = $D \div \sqrt{3}$, where D is the depth to base of the soakage measured from ground level.

5.4.6 Effluent disposal

Effluent disposal from all lots is to be piped via the established reticulation system provided at the boundary of each lot. On-site disposal of effluent is not permitted.

5.5 General recommendations for building

These recommendations are given so that owners and lot developers apply good construction practice to lot development to avoid costly and time-consuming delays. There may be other practices that equally achieve good outcomes and therefore these recommendations are not conditions placed on lots but are given as general advice.

5.5.1 TC2 foundation types

Foundation systems compliant with the TC2 Category of the MBIE guidelines are available in several types and options. Types include shallow pile and piles with perimeter footings (Types A and B) and concrete slab on grade (Type C). Based on current construction practice in the Papamoa area, Type C foundations are considered likely to be used in new residential construction. A Type C, Option 4 design (Waffle slab over existing soil, Section 5.3.1 of the MBIE guidelines) is a commonly adopted TC2 solution for foundation design in Papamoa and is considered to be an appropriate option for the Site.

5.5.2 Placement of fill inside perimeter foundations

Where additional fill is placed inside the perimeter foundation walls to support a ground-bearing slab, it should be limited to 1.2 m deep including the slab thickness and be made of imported granular fill placed in accordance with NZS4431:1989 and the Tauranga City Council Infrastructure Development Code. Where infill beneath building foundations is greater than 0.6m deep it is recommended that a TCC Category 2 Geo-Professional be engaged by the lot developer to oversee and certify the earthworks. It is recommended that fill be placed to achieve DCP test results of at least 5 blows per 100mm.

5.6 Advisory notes

5.6.1 Topsoil thickness

The thickness of topsoil has been determined from hand auger logs in the lot by lot testing. The placement of topsoil by motor scraper does result in varying thicknesses across the subdivision. The thickness of topsoil is 0 to 0.5m based upon the results of the lot by lot testing. The results of the lot by lot testing are found in the hand auger borehole logs included in Appendix D.

Problems may arise when foundations are excavated to find that they need to be deepened because the thickness of topsoil is greater than 0.3m. This can be largely overcome at the time of planning the building development, when local spade excavations are conducted on the lines of the foundations to determine: the depth of topsoil, the amount of under slab fill to make up for topsoil removal, and any requirement to deepen foundations or raise the site to the underside of the foundation with engineering fill. No guarantee is given or implied that the topsoil depth on any lot created by this subdivision is between 0 and 0.5m.

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5.6.2 Natural soil layering

Excavations for building platforms and/or foundations may intersect soil layers of loose sands with greater compressibility. The quality, strength and density of naturally occurring sands varies across the Site and where loose sand is encountered in excavations then foundation deepening, broadening or both may be necessary.

6 Natural hazard completion report

6.1 General

All of the subject units are suitable for building development with respect to natural hazards without the need to issue building consents pursuant to s72 of the Building Act. Please refer to Table 3 for a summary review of natural hazards, and Section 6.2 for further discussion of flood hazard.

Table 3: Natural hazards

Natural hazard	Applicable to Site?	Mitigation (if required)
Land below Tauranga City Council's minimum building platform level	N	The minimum building platform level set by Tauranga City Council for the subject lots is +5.1mRL (Moturiki Datum). Final landform of the lots consented under RC26514 is between +5.10mRL and +6.0mRL.
Specific design for stormwater disposal	Y	Stormwater is disposed of via on-site soakage pits or other approved options. Soakage disposal shall be in accordance with the recommendations of the Civil Asset Completion Report.
Coastal flooding	N	–
Coastal erosion	N	–
Harbour inundation	N	–
Flood prone land	N	The subdivision is not located in an area considered to be of flood risk according to the Tauranga City Council online flood maps (accessed 27/09/2016). Refer Section 6.2 for more details on mitigation of flood hazard.
Stormwater sensitive	N	–
Overland flows	N	–
Slope instability	Y	Building Restriction Lines have been designated on all lots with slope instability risk. The building restriction lines are based upon slope stability assessment models. Lots requiring building on sloping ground have been designated Specific Investigation and Design.
Differential Settlement	N	Non-liquefaction related differential settlement is not predicted to occur within the subdivision.
Liquefaction of submerged sand layer	Y	The probability of damage to residential NZS3604 type buildings is considered to be low during Serviceability Limit State conditions. There is a risk of liquefaction induced ground damage as a result of an Ultimate Limit State event with up to approximately 205mm of settlement predicted to occur. Lateral spread is considered to be unlikely. The effects of liquefaction are expected to be mitigated by construction of a TC2 foundation system as described in Section 5.4.
Seismic shaking	Y	The effect to residential NZS3604 type buildings from seismic shaking can be influenced by sound construction methods and materials composition (lightweight and ductile roofing and cladding). Shaking hazards are enhanced by the use of construction products such as masonry cladding and concrete/tile roofing.

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6.2 Flood hazard

The mitigation of flood hazard to buildings is managed through addressing four key criteria, as summarised in Table 4.

Table 4 Summary of flood hazard criteria

Criteria	Reference	Discussion
Lot levels	Tauranga City Council Resource Consent RC26514	Condition 17 of Resource Consent #26514 states that: *"all residential lots have a minimum building platform level of RL+5.1 m Moturiki Datum and that is 500 millimetres above a maximum ponding level of a 100 year (1% AEP) rainfall event as calculated by a Chartered Professional Engineer".* The as-built finished ground level plans show that final constructed lot levels range between +5.10mRL and +6.0mRL. A detailed freeboard assessment completed by Lysaghts Consultants Limited (LCL) confirms that the formation level exceeds RL +5.1, which is 500 mm above a 100-year rainfall event. Site grading activities must not: ■ Lower the elevation of residential lot levels below that reported in Section 5.4.4. ■ Create areas of localised ponding ■ Direct stormwater run-off to adjacent residential properties or buildings For further information, please refer to LCL Stage 3D-E Development Completion Report (Revision 0, Reference 152870, 01 February 2019)
Localised Ponding	New Zealand Building Code (NZBC), Clause E1 (Stormwater) Tauranga City Council Infrastructure Development Code, Design Standard DS-5 (Stormwater)	The lots covered by this report are not subject to localised ponding. A detailed freeboard assessment completed by Lysaghts Consultants Limited (LCL) confirms that the formation level exceeds RL +5.10, which is 500 mm above a 100 year rainfall event. The as-built finished ground level plans show that final constructed lot levels range between +5.10mRL and +6.0mRL. The LCL report confirms that finished lot levels achieve a minimum freeboard in excess of 500 mm where overland flows are deeper than 100 mm. Site grading activities must not: ■ Lower the elevation of residential lot levels below that reported in Section 5.4.4. ■ Create areas of localised ponding ■ Direct stormwater run-off to adjacent residential properties or buildings For further information, please refer to LCL Stage 3D-E Development Completion Report (Revision 0, Reference 152870, 01 February 2019)
Site Drainage	New Zealand Building Code (NZBC), Clause E1 (Surface water)	The site surface shall be graded such that all excess surface water run-off is diverted away from adjacent residential properties or building structures. Clause E1/AS1 of the building code establishes the minimum acceptable floor level above any stormwater associated with site drainage. Suspended floors and slabs on ground shall be at least 150 mm above the finished level of the surrounding ground, and: ■ For finished lots level with or above the level of the adjacent road or accessway, the floor level shall be "*no less than 150 mm above the road crown on at least one section through the building*". ■ For finished lots below the road, the floor level shall be "*no less than 150 mm above the lowest point on the site boundary*".
Ground Clearance	NZS3604:2011	The finished building design within each of the shall meet the requirements of NZ3604 and the building code.

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7 Limitations

All assessments made in this report are based on the ground conditions indicated from published sources, site inspection and hand auger boreholes. Variations in ground conditions may occur between the investigation locations. In addition, there may be special conditions pertaining to the Site which have not been revealed by the investigation and which have not therefore been taken into account in the report. No warranty (either expressed or implied) that the actual conditions will conform exactly to the assessments contained in this report, is included.

This report does not remove the responsibility of the Owner / Builder / Building Certifier to satisfy themselves of foundation depth and suitability at the finally selected house location and to ensure foundation conditions are not allowed to deteriorate due to saturation or other causes.

Where data supplied by the developer or other external sources, including previous site inspection data, has been used, it has been assumed that the information is correct unless otherwise stated. No responsibility can be accepted by Aurecon Ltd for inaccuracies within the data supplied by others.

Any comments on groundwater conditions are based on observations made at the time of investigation unless otherwise stated. It should be noted that groundwater levels vary as a result of seasonal or other effects.

This report has been prepared to be read in full, including all appendices. No responsibility can be accepted by Aurecon Ltd for parties' relying on partial information from an incomplete report

This report is provided for sole use by the client and subsequent lot owners. It shall not be used, reproduced or interpreted for any purpose other than is specifically set out in the text of this report.

8 References

220166 – Geotechnical Suitability Report, Papamoa East Block, Revision 0 dated 09 September 2011, Aurecon.

247593 - Geotechnical review of landform design and suitability for residential subdivision, Revision 1, dated 29th January 2016

247593 - Geotechnical suitability for residential subdivision of Stages 1D, 3A and 3B of the Parton Road Subdivision, Papamoa, dated 15 March 2016

MBIE, Repairing and rebuilding houses affected by the Canterbury earthquakes; Version 3, December 2012

NZGS, 2005. Guidelines for the Classification and Field Description of Soils and Rocks in Engineering. NZ Geotechnical Society Inc., Wellington, New Zealand

Department of Building and Housing, 2011.Compliance Document for New Zealand Building Code, Clause B1, Structures.

NZS3604:2011. *New Zealand Standard, Timber framed buildings.* Standards New Zealand, Wellington, New Zealand

Tauranga City Council 2017 Infrastructure Development Code, *Design Standard DS-10 Natural Hazards and Earthworks*

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A

Statement of Professional Opinion and Lot Summary Sheets

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Appendix A

Statement of Professional Opinion and Lot Summary Sheets

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aurecon

Statement of professional opinion as to the geotechnical suitability of the land for building

Development:	Terrace Views Subdivision, Parton Road, Papamoa
Engineer Responsible for investigation:	Richard Griffiths
Qualifications:	BSc(Hons); CGeol; TCC Category 1 Geo-Professional

I, *Richard Griffiths,* an employee of Aurecon NZ Limited

Hereby confirm that I am an accredited Category 1 Engineering Geologist appropriately qualified with experience in geotechnical engineering to ascertain the suitability of the land for building development and was retained as the soils engineer to the above development.

1) An appropriate level of site investigation and construction supervision has been carried out under my direction and as described in our Geotechnical Completion Report reference 247593-Stage 3D-E-GCR Rev 3 dated 8 March 2019.

2) In my professional opinion, not to be construed as a guarantee of certainty or completeness, I consider that;

   i. All residential subject lots within Stage 3D and E of the development (Lots 391 to 400(inclusive), Lot 439 to 492 (inclusive) are suitable on which to erect dwellings that comply with NZS 3604:2011 Timber Framed Buildings subject to the specific requirements of the Geotechnical Completion Report reference reference 247593-Stage 3D-E-GCR Rev 3 dated 8 March 2019 being met.

   ii. Each lot is suitable for building development without the need to issue a building consent pursuant to s72 of the Building Act.

This opinion is given on the condition that:

   iii. The content of the Geotechnical Completion Report reference reference 247593-Stage 3D-E-GCR Rev 3 dated 8 March 2019 is made available to each lot owner and that the specific requirements for building development set out in Section 5.4 of this report as they apply to each lot are followed.

   iv. The general recommendations and advisory notes (Sections 5.5 and 5.6) should be read and understood by lot owners and builders prior to building development.

3) This professional opinion is furnished to Tauranga City Council and Zariba Properties Limited, the developer, for their purpose alone, on the express condition that it will not be relied upon by any other person and does not relieve lot owners, their advisers, or the Territorial Authority from their respective responsibilities and does not remove the necessity for normal inspection of foundation conditions at the time of erection for any dwelling.

Signed: for and on behalf of Aurecon NZ Limited

Richard Griffiths

Richard Griffiths
Tauranga City Council Category 1 Geo-Professional

Date
08/03/19

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP Blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
391	15 (0.2)	Y	2.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP Blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
392	16 (0.2)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP Blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
393	12 (0.2)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP Blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
394	11 (0.3)	Y	2.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP Blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
395	12 (0.3)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP Blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
396	8 (0.05)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP Blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
397	10 (0.2)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP Blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
398	13 (0.3)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP Blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
399	14 (0.3)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP Blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
400	5 (0.45)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP Blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
439	14 (0.4)	Y	3.0	N	N	N/A	Y	N	**Specific Investigation and Design** This lot is founded on engineered fill, cut down natural ground, or a combination of both. It is our opinion that these lots are suitable for residential building development. Due to the presence of sloping ground specific investigation and design of foundations is recommended for these lots by a TCC Category 1 Geo-Professional to support a future building consent application. We make the following general recommendations to inform the specific investigation and design: ■ Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. ■ The specific foundation should consider Table 5.1 within Module 3 of the MBIE guidelines for site effects from excess pore water pressure and liquefaction. ■ The specific foundation should be assessed against general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes1. ■ Shallow or deep foundations should consider the finished landform and position to the western boundary. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

[1] MBIE, Repairing and rebuilding houses affected by the Canterbury earthquakes; Version 3, December 2012

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
440	12 (0.5)	Y	3.0	N	N	N/A	Y	N	**Specific Investigation and Design** This lot is founded on engineered fill, cut down natural ground, or a combination of both. It is our opinion that these lots are suitable for residential building development. Due to the presence of sloping ground specific investigation and design of foundations is recommended for these lots by a TCC Category 1 Geo-Professional to support a future building consent application. We make the following general recommendations to inform the specific investigation and design: ■ Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. ■ The specific foundation should consider Table 5.1 within Module 3 of the MBIE guidelines for site effects from excess pore water pressure and liquefaction. ■ The specific foundation should be assessed against general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes2. ■ Shallow or deep foundations should consider the finished landform and position to the western boundary. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

[2] MBIE, Repairing and rebuilding houses affected by the Canterbury earthquakes; Version 3, December 2012

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
441	14 (0.5)	Y	3.0	N	N	N/A	Y	N	**Specific Investigation and Design** This lot is founded on engineered fill, cut down natural ground, or a combination of both. It is our opinion that these lots are suitable for residential building development. Due to the presence of sloping ground specific investigation and design of foundations is recommended for these lots by a TCC Category 1 Geo-Professional to support a future building consent application. We make the following general recommendations to inform the specific investigation and design: ■ Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. ■ The specific foundation should consider Table 5.1 within Module 3 of the MBIE guidelines for site effects from excess pore water pressure and liquefaction. ■ The specific foundation should be assessed against general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes3. ■ Shallow or deep foundations should consider the finished landform and position to the western boundary. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

[3] MBIE, Repairing and rebuilding houses affected by the Canterbury earthquakes; Version 3, December 2012

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
442	15 (0.3)	Y	3.0	N	N	N/A	Y	N	**Specific Investigation and Design** This lot is founded on engineered fill, cut down natural ground, or a combination of both. It is our opinion that these lots are suitable for residential building development. Due to the presence of sloping ground specific investigation and design of foundations is recommended for these lots by a TCC Category 1 Geo-Professional to support a future building consent application. We make the following general recommendations to inform the specific investigation and design: ■ Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. ■ The specific foundation should consider Table 5.1 within Module 3 of the MBIE guidelines for site effects from excess pore water pressure and liquefaction. ■ The specific foundation should be assessed against general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes4. ■ Shallow or deep foundations should consider the finished landform and position to the western boundary. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

[4] MBIE, Repairing and rebuilding houses affected by the Canterbury earthquakes; Version 3, December 2012

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
443	8 (0.25)	Y	3.0	N	N	N/A	Y	N	**Specific Investigation and Design** This lot is founded on engineered fill, cut down natural ground, or a combination of both. It is our opinion that these lots are suitable for residential building development. Due to the presence of sloping ground specific investigation and design of foundations is recommended for these lots by a TCC Category 1 Geo-Professional to support a future building consent application. We make the following general recommendations to inform the specific investigation and design: ■ Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. ■ The specific foundation should consider Table 5.1 within Module 3 of the MBIE guidelines for site effects from excess pore water pressure and liquefaction. ■ The specific foundation should be assessed against general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes5. ■ Shallow or deep foundations should consider the finished landform and position to the western boundary. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

[5] MBIE, Repairing and rebuilding houses affected by the Canterbury earthquakes; Version 3, December 2012

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
444	6 (0.25)	Y	3.0	N	N	N/A	Y	N	**Specific Investigation and Design** This lot is founded on engineered fill, cut down natural ground, or a combination of both. It is our opinion that these lots are suitable for residential building development. Due to the presence of sloping ground specific investigation and design of foundations is recommended for these lots by a TCC Category 1 Geo-Professional to support a future building consent application. We make the following general recommendations to inform the specific investigation and design: ■ Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. ■ The specific foundation should consider Table 5.1 within Module 3 of the MBIE guidelines for site effects from excess pore water pressure and liquefaction. ■ The specific foundation should be assessed against general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes6. ■ Shallow or deep foundations should consider the finished landform and position to the western boundary. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond. .

[6] MBIE, Repairing and rebuilding houses affected by the Canterbury earthquakes; Version 3, December 2012

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
445	6 (0.3)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
446	10 (0.35)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
447	10 (0.3)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
448	9 (0.4)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
449	10 (0.5)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
450	15 (0.35)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
451	6 (0)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
452	6 (0)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
453	5 (0)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
454	10 (0)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
455	5 (0)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
456	8 (0)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
457	9 (0)	Y	1.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
458	5 (0.3)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
459	6 (0.3)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
460	6 (0.3)	Y	0.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
461	9 (0.25)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
462	10 (0.4)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
463	6 (0.35)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
464	9 (0.35)	Y	1.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
465	9 (0.4)	Y	1.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
466	7 (0.3)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
467	6 (0.3)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
468	8 (0.35)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
469	6 (0.45)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
470	10 (0.3)	Y	3.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
471	7 (0.3)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
472	10 (0.35)	Y	3.0	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
473	11 (0.3)	Y	3.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
474	11 (0.35)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
475	7 (0.3)	Y	3.0	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level of +5.1 mRL. This lot was consented prior to the Wairakei residential designation and updated floor levels. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via the Tauranga City Council stormwater pipe network. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
476	5 (0.3)	Y	3.5	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level of +5.1 mRL. This lot was consented prior to the Wairakei residential designation and updated floor levels. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via the Tauranga City Council stormwater pipe network. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
477	18 (0.3)	Y	3.0	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level of +5.1 mRL. This lot was consented prior to the Wairakei residential designation and updated floor levels. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via the Tauranga City Council stormwater pipe network. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
478	6 (0.3)	Y	3.0	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level of +5.1 mRL. This lot was consented prior to the Wairakei residential designation and updated floor levels. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via the Tauranga City Council stormwater pipe network. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
479	11 (0.5)	Y	3.0	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level of +5.1 mRL. This lot was consented prior to the Wairakei residential designation and updated floor levels. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via the Tauranga City Council stormwater pipe network. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
480	9 (0.3)	Y	2.5	N	N	N/A	N	N	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
481	5 (0.35)	Y	3.0	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
482	5 (0.2)	Y	3.5	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
483	5 (0.35)	Y	3.5	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
484	16 (0.35)	Y	4.0	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
485	9 (0.3)	Y	4.0	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
486	7 (0.25)	Y	4.0	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
487	9 (0.2)	Y	4.0	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
488	13 (0.35)	Y	4.0	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
489	11 (0.3)	Y	3.5	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
490	12 (0.3)	Y	3.0	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
491	7 (0.3)	Y	2.5	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

Subdivision: Terrace Views Subdivision Stage 3D – 3E

Lot No.	Subsurface Data							Building Restriction Line	Recommendations and Restrictions
	DCP blows per 100mm (min) (0.3m or below)	Subdivision Filling		Natural Topography Unworked	Natural Topography Cut		Specific Design?		
		Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N	Y/N	
492	9 (0.4)	Y	2.0	N	N	N/A	N	Y	**Building Foundations** The subject lot is founded on engineered fill, cut down natural ground, or a combination of both. Due to the liquefaction settlements predicted to occur within this lot it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011. A MBIE 'TC2' foundation is required for this lot (refer Section 5.5.1 for further discussion of TC2 foundation options/types). An ultimate rupture bearing capacity of 300 kPa may be used for the design of foundations. This should be used in conjunction with the following reduction factors: ■ SLS loading: 0.33 ■ ULS loading: 0.5 ■ Earthquake Loading: 0.7 Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents. The foundation formation is to be inspected by a Territorial Authority accredited building inspector prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building. **Minimum Building Platform Level** Minimum Building Platform Levels for all buildings constructed on these lots are required to achieve the minimum level set by Tauranga City Council of +5.1mRL. Where excessive topsoil thickness is encountered during construction, undercut and replacement with engineered fill may be required to achieve the minimum Building Platform Level. **Building Restriction Line (BRL)** This lot is situated above sloping ground. The area contained by the site boundary and the nominated BRL is defined as a 'building exclusion zone'. This zone has been identified as an area of potential instability, or an area where the required factor of safety against instability is less than that normally applied to residential subdivision. Land contained by the slope BRL which define the building exclusion zone may experience instability and slips over the lifetime of the development. Any structure requiring a building consent as defined by the Building Act 2004, any landscaping fills, retaining structures of any proportion and excavation to alter the slope of the topography are not to extend over the BRL into the 'building exclusion zone' without specific investigation, assessment and design by a Tauranga City Council Category 1 Geo-professional. **Stormwater and effluent disposal** Stormwater from this lot is to be disposed of via on site soakage. Specific requirements for construction of stormwater soakholes are addressed in a separate Civil Asset Completion Report. On site effluent disposal is not permitted. All effluent is to be reticulated to public services provided at lot boundaries and eventually to the stormwater pond.

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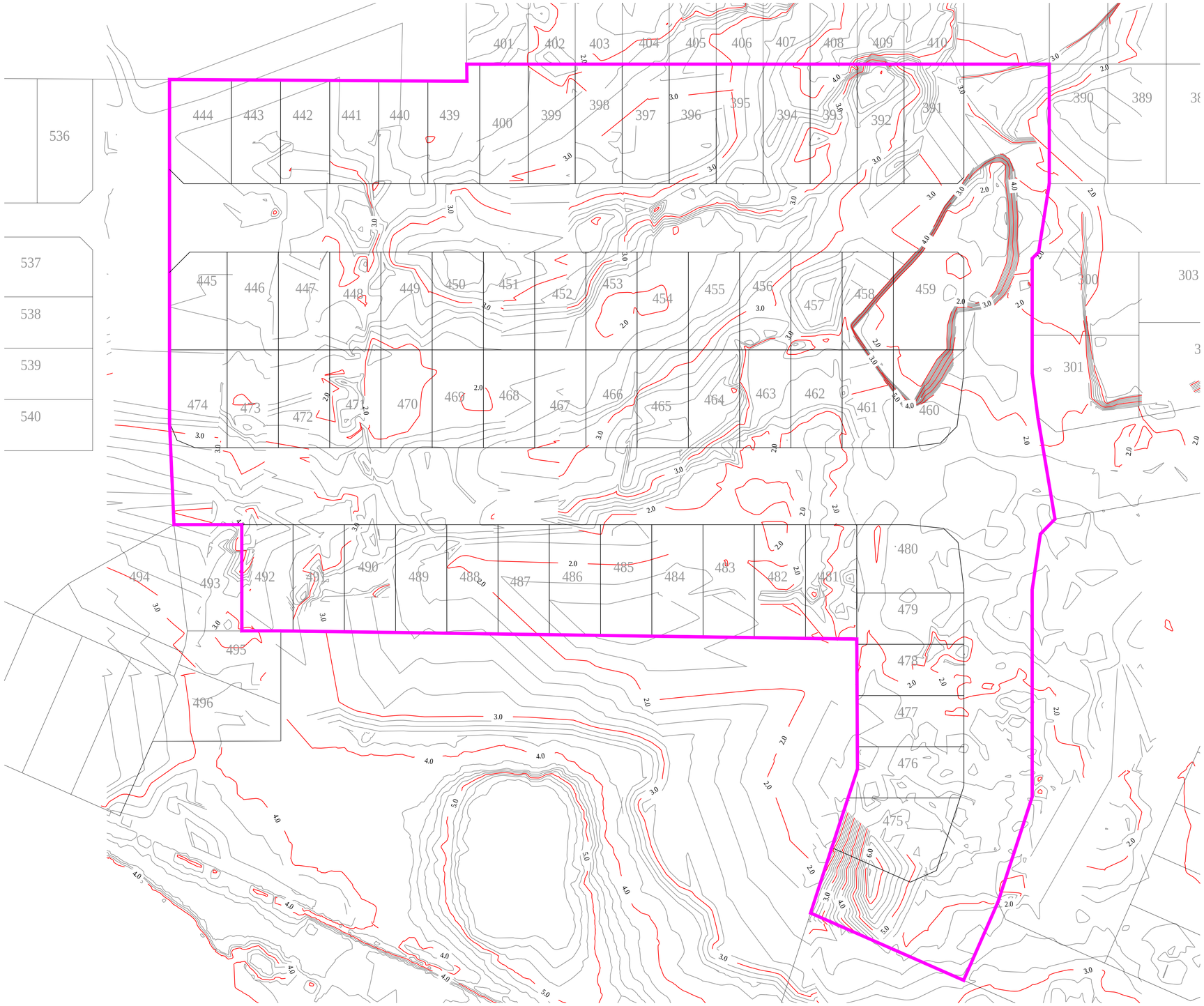
B

Drawings

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Appendix B
Drawings

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LEGEND

- STAGE 3D AND 3E BOUNDARY
- 8.0 EXISTING MAJOR CONTOURS
- NATURAL MINOR CONTOURS

NOTES:

1. SURVEY DATA SUPPLIED BY LYSAGHT CONSULTANTS LTD.
2. LEVELS IN TERMS OF MOTURIKI DATUM 1953.
3. COORDINATES IN TERMS OF GD2000, BOP CIRCUIT.
4. CONTOUR AT 0.2m INTERVALS.

DRAFT

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Plot Date: 20/12/019 2:55:43 PM Office: NZTRG Filename: P:\PROJECTS\247593 - ZARIBA HASHA PARTON ROAD PAPAMOA\C-DESIGN\CIVIL\STAGES 3D - 3E\C247593-0320-DRG-G-0001.DWG

aurecon
www.aurecongroup.com

CLIENT: ZARIBA PROPERTIES LIMITED

REV	DATE	REVISION DETAILS	APPROVED
A	??????	FOR INFORMATION	R.GRIFFITHS

SCALE	SIZE
1:500	A1

DRAWN: L.HODGSON
DESIGNED: M.BUOB
CHECKED: K.KISHORE

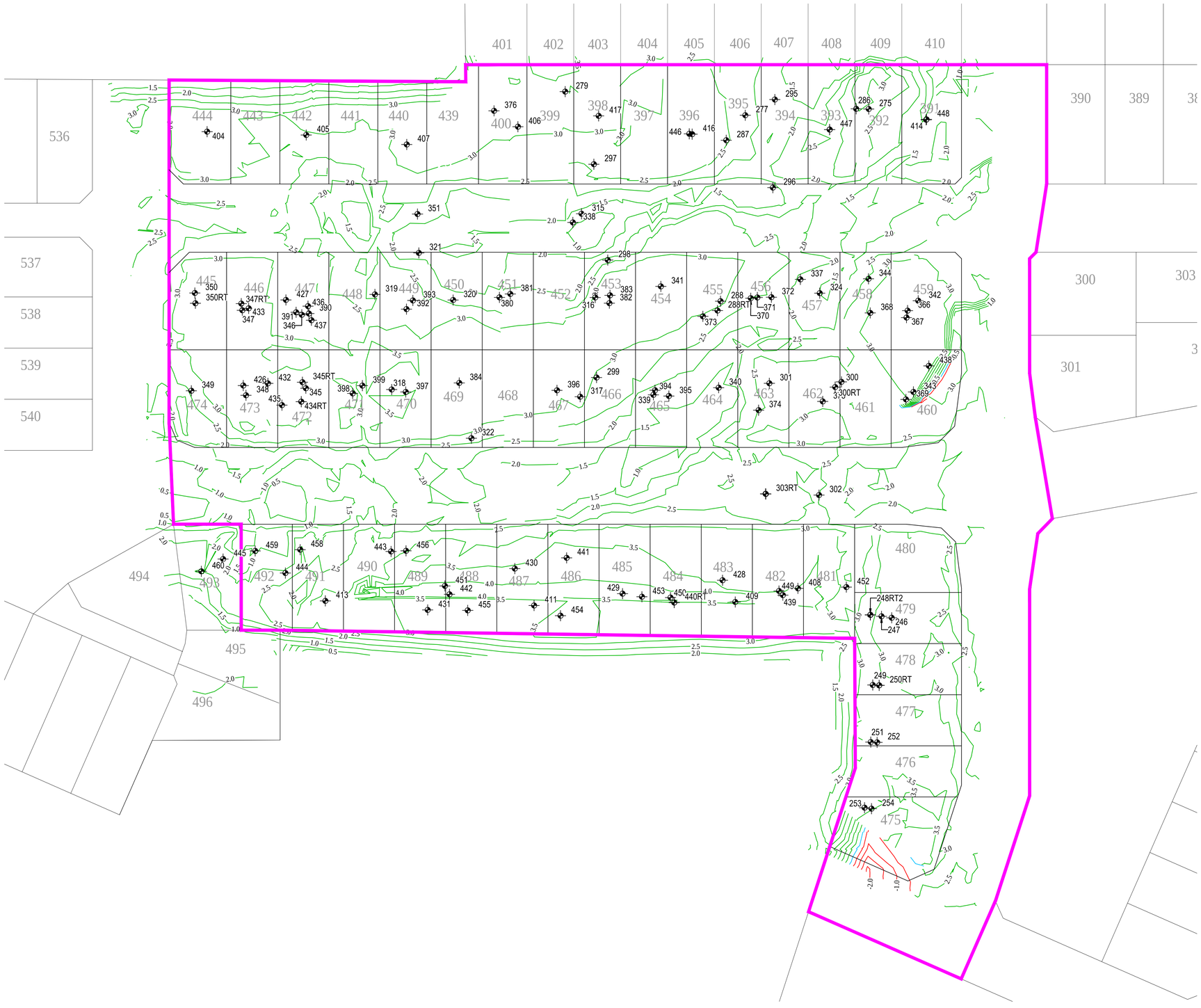
WORK IN PROGRESS
NOT FOR CONSTRUCTION

APPROVED
DATE
R.GRIFFITHS

PROJECT: TERRACE VIEWS SUBDIVISION
PARTON ROAD, PAPAMOA, TAURANGA

TITLE: STAGE 3D AND 3E
PRE-DEVELOPMENT LANDFORM PLAN

DRAWING No. 247593 – 0320 – DRG – G – 0001 – A
(PROJECT No. – WBS – TYPE – DISC – NUMBER – REV)



LEGEND

- STAGE 3D AND 3E BOUNDARY
- -1.0 CUT CONTOURS AT 0.5m INTERVALS
- 1.0 FILL CONTOURS AT 0.5m INTERVALS
- 0 ZERO CUT FILL
- COMPLIANCE TEST LOCATIONS
- CPT TEST LOCATIONS

NOTES:

1. SURVEY DATA SUPPLIED BY LYSAGHT CONSULTANTS LTD.
2. TEST LOCATIONS SUPPLIED BY JMC LTD.
3. LEVELS IN TERMS OF MOTURIKI DATUM 1953.
4. COORDINATES IN TERMS OF GD2000, BOP CIRCUIT.

DRAFT

5 0 10 20m
SCALE 1:500

aurecon
www.aurecongroup.com

CLIENT
ZARIBA PROPERTIES LIMITED

REV	DATE	REVISION DETAILS	APPROVED
A	??????	FOR INFORMATION	R.GRIFFITHS

SCALE	1:500
SIZE	A1
DRAWN	L.HODGSON
DESIGNED	M.BUOB
CHECKED	K.KISHORE

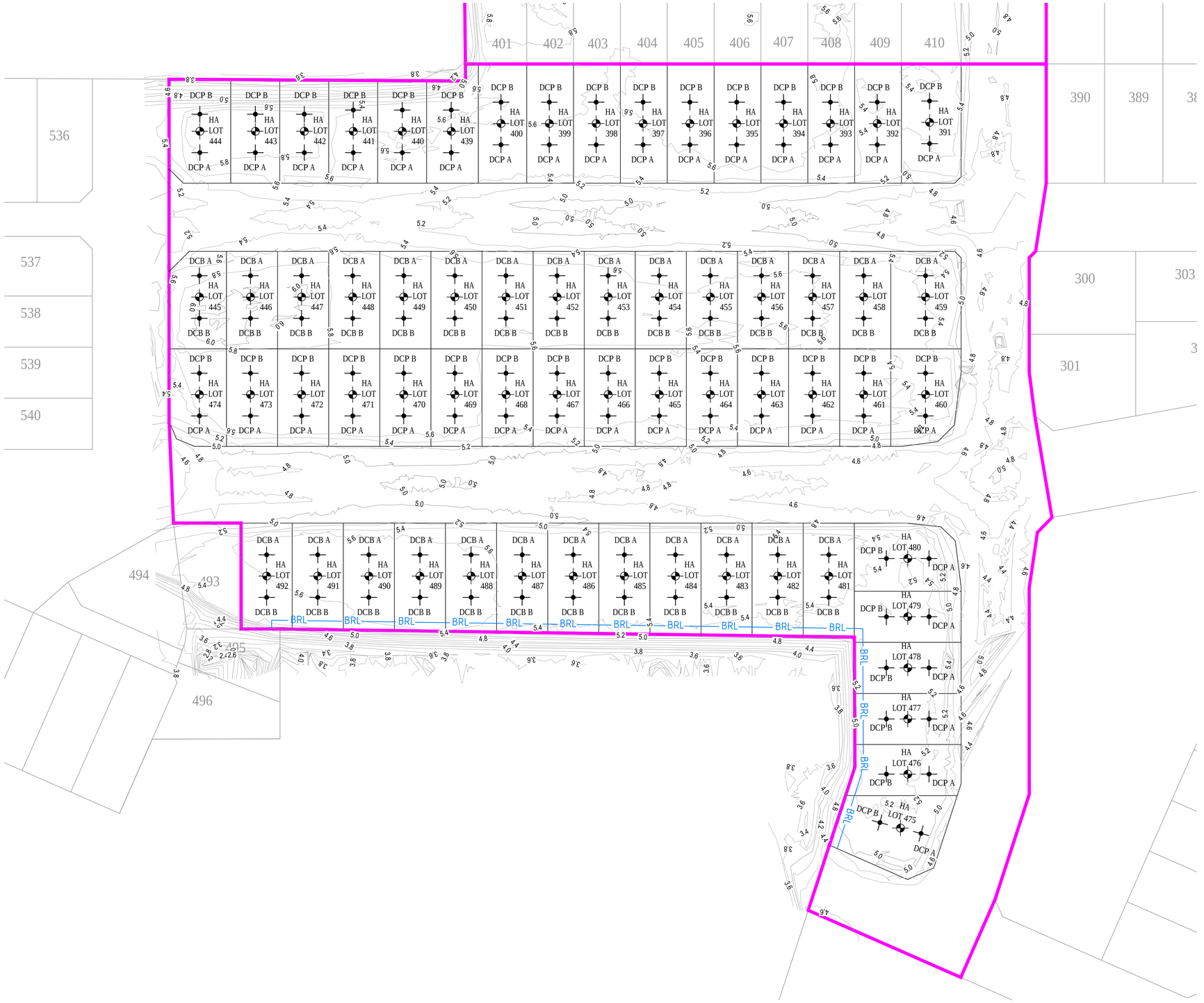
WORK IN PROGRESS
NOT FOR CONSTRUCTION

APPROVED
DATE
R.GRIFFITHS

PROJECT	TERRACE VIEWS SUBDIVISION PARTON ROAD, PAPAMOA, TAURANGA
TITLE	STAGE 3D AND 3E CUT TO FILL EARTHWORKS AND COMPLIANCE TEST LOCATION PLAN

DRAWING No.	PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
	247593	0320	DRG	G	0002	A

TCC - Approved Building Consent Document - BC301286 - Pg 105 of 406 - 9/07/2020 - bwoo



LEGEND

- AS BUILT LANDFORM MAJOR CONTOURS AT 0.1m INTERVALS
- HA LOT 392 — HAND AUGER
- DCP A — DYNAMIC CONE PENETROMETER TEST
- STAGE 3D AND 3E BOUNDARY
- TOP OF BANK
- BRL — BUILDING RESTRICTION LINE

NOTES:

1. SURVEY INFORMATION SUPPLIED BY LYSAGHT CONSULTANTS LTD.
2. LEVELS IN TERMS OF MOTURIKI DATUM 1953.
3. COORDINATES IN TERMS OF GD2000, BOP CIRCUIT.
4. TEST POSITIONS INDICATIVE ONLY.
5. TOP OF BANK POSITION IS BASED ON SURVEY BY LYSAGHT FINISHED LANDFORM DATA.

5 0 10 20m
SCALE 1:500

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www.aurecongroup.com

CLIENT: ZARIBA PROPERTIES LIMITED

REV	DATE	REVISION DETAILS	APPROVED
A	01.02.19	FOR INFORMATION	R.GRIFFITHS
B	05.02.19	FOR INFORMATION	R.GRIFFITHS

SCALE	SIZE
1:500	A1

DRAWN: L.HODGSON
DESIGNED: M.BUOB
CHECKED: R.GRIFFITHS

INFORMATION
NOT FOR CONSTRUCTION

APPROVED
DATE 01.02.19
R.GRIFFITHS
R.GRIFFITHS

PROJECT: TERRACE VIEWS SUBDIVISION
PARTON ROAD, PAPAMOA, TAURANGA

TITLE: STAGE 3D AND 3E
FINAL AS-BUILT SUBGRADE LANDFORM
AND LOT BY LOT TEST LOCATION PLAN

DRAWING No. 247593 – 0320 – DRG – G – 0003 – B

PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
247593	0320	DRG	G	0003	B

C

Fill Compliance Testing

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Appendix C
Fill Compliance Testing

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Bay of Plenty Laboratory

Poplar Lane, Te Puke
Private Bag 12016, Tauranga 3143
Telephone: +64 7 542 9672
Facsimile: +64 7 542 2245
www.fultonhogan.com
0800 LABORATORY

Nuclear Density Report

Report No: ND:BOP17W1054
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 9/11/2017

Testing Details

Site Tested: Lot Testing
Tested By: Jake Brown
Date Tested: 30/10/2017
Time Tested: 14:30
Material: Rhyolite Pumice Sand
Specification: Contract Specification
Field Methods: NZS 4407:2015 Test 4.2
Lab Methods: NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID: BOP17S-01212
MDD Method: NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density: 1.34 t/m³ @ 27 %
Min. Dry Density (t/m³):
Solid Density Type: Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
245	24.3	1.69	1.36	101
246	25.7	1.61	1.28	96
247	24.2	1.68	1.35	101
248	27.2	1.56	1.23	92
249	25.1	1.72	1.37	102
250	27.2	1.56	1.23	92
251	26.4	1.68	1.33	99
252	27.1	1.72	1.35	101
253	23.6	1.66	1.34	100
254	24.8	1.68	1.35	101

Comments

Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.

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Bay of Plenty Laboratory

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Facsimile: +64 7 542 2245
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0800 LABORATORY

Nuclear Density Report

Report No: ND:BOP18W0089
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 2/02/2018

Testing Details

Site Tested: Fill Area
Tested By: Jake Brown
Date Tested: 25/01/2018
Time Tested: 12:00
Material: Rhyolite Pumice Sand
Specification: Contract Specification
Field Methods: NZS 4407:2015 Test 4.2
Lab Methods: NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID: BOP18S-00172
MDD Method: NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density: 1.48 t/m³ @ 23 %
Min. Dry Density (t/m³):
Solid Density Type: Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
275	19.0	1.80	1.51	102
276	16.4	1.65	1.42	96
277	16.7	1.79	1.54	104
278	18.7	1.64	1.38	93
279	15.9	1.76	1.52	103

Comments

Wet density measurements that fall below 1.78t/m3 are not accredited due to being outside the NDM range of calibration.
GPS locations recorded by client on site.

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Bay of Plenty Laboratory

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0800 LABORATORY

Nuclear Density Report

Report No: ND:BOP18W0200
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 27/02/2018

Testing Details

Site Tested:	Lot Testing
Tested By:	Jake Brown
Date Tested:	22/02/2018
Time Tested:	10:00
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-00172
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.48 t/m³ @ 23 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
285	19.1	1.69	1.42	96
286	17.1	1.66	1.42	96
287	19.9	1.74	1.45	98
288	19.7	1.54	1.29	87

Comments

Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.

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Bay of Plenty Laboratory

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0800 LABORATORY

Report No: ND:BOP18W0225
Issue No: 1

Nuclear Density Report

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 28/02/2018

Testing Details

Site Tested:	Fill Area
Tested By:	Rob Ermens
Date Tested:	26/02/2018
Time Tested:	12:30
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-00172
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.48 t/m³ @ 23 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
289	15.1	1.72	1.50	101
290	20.1	1.70	1.41	95
291	20.2	1.74	1.45	98
292	21.0	1.74	1.44	97
293	21.8	1.72	1.42	96
294	19.6	1.64	1.37	93
295	21.1	1.66	1.37	93
296	19.3	1.67	1.40	95
297	18.4	1.62	1.37	93
298	16.3	1.79	1.54	104
299	21.3	1.70	1.40	95

Comments

Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.

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Bay of Plenty Laboratory

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Telephone: +64 7 542 9672
Facsimile: +64 7 542 2245
www.fultonhogan.com
0800 LABORATORY

Nuclear Density Report

Report No: ND:BOP18W0474
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 27/04/2018

Testing Details

Site Tested:	Fill Area
Tested By:	Andre Shine
Date Tested:	24/04/2018
Time Tested:	12:30
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-00172
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.48 t/m³ @ 23 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
300	22.7	1.69	1.37	93
301	19.6	1.70	1.42	96

Comments

Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.

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Nuclear Density Report

Report No: ND:BOP18W0476
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 27/04/2018

Testing Details

Site Tested:	Fill Area
Tested By:	Andre Shine
Date Tested:	24/04/2018
Time Tested:	12:30
Material:	Pumice
Material Source:	Marsh Pit - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1

Compaction Target Details

Material Sample ID:	External
MDD Method:	NZS 4402:1986 Test 4.1.1*
Max. Dry Density:	0.82 t/m³ @ 73.0 %
Min. Dry Density (t/m³):	
Solid Density Type:	

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
302	73.9	1.36	0.78	95
303	71.6	1.31	0.77	94

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.
MDD-OMC target taken from FH report reference BOP18S-00793

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Nuclear Density Report

Report No: ND:BOP18W0530
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 9/05/2018

Testing Details

Site Tested:	Fill Area
Tested By:	Andre Shine
Date Tested:	4/05/2018
Time Tested:	12:00
Material:	Pumice
Material Source:	Marsh Farm
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1

Compaction Target Details

Material Sample ID:	External
MDD Method:	NZS 4402:1986 Test 4.1.1*
Max. Dry Density:	0.82 t/m³ @ 73.0 %
Min. Dry Density (t/m³):	
Solid Density Type:	

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
303RT	34.6	1.45	1.07	130

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration
MDD-OMC target taken from FH report reference BOP18S-00793
GPS location recorded by client on site

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Nuclear Density Report

Report No: ND:BOP18W0593
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 22/05/2018

Testing Details

Site Tested: Lot testing
Tested By: Andre Shine
Date Tested: 21/05/2018
Time Tested: 09:00
Material: Rhyolite Pumice Sand
Material Source: Paengaroa Sands Ltd Quarry
Specification: Contract Specification
Field Methods: NZS 4407:2015 Test 4.2
Lab Methods: NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID: BOP18S-00172
MDD Method: NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density: 1.48 t/m³ @ 23 %
Min. Dry Density (t/m³):
Solid Density Type: Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
315	23.2	1.70	1.38	93
316	26.7	1.76	1.39	94
317	24.2	1.74	1.40	95
318	23.3	1.79	1.45	98
319	22.8	1.81	1.47	99
320	26.0	1.77	1.41	95
321	23.0	1.79	1.46	99
322	25.3	1.72	1.37	93

Statistical Data

Mean Relative Compaction %: 95.7

Comments

Wet density measurements that fall below 1.72t/m3 are not accredited due to being outside the NDM range of calibration.
GPS locations were recorded by client on site
Relative compaction results and averages are not IANZ accredited

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Nuclear Density Report

Report No: ND:BOP18W0946
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 21/08/2018

Testing Details

Site Tested:	Zariba
Tested By:	Andre Shine
Date Tested:	16/08/2018
Time Tested:	15:00
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-00172
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.48 t/m³ @ 23 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
324	21.6	1.73	1.42	96

Comments

Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.

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Nuclear Density Report

Report No: ND:BOP18W1030
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 17/09/2018

Testing Details

Site Tested:	Zariba
Tested By:	Andre Shine
Date Tested:	11/09/2018
Time Tested:	14:00
Material:	Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-00172
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.48 t/m³ @ 23 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
337	19.1	1.70	1.42	96
338	17.6	1.81	1.54	104
339	23.7	1.73	1.40	95
340	18.5	1.71	1.44	97
341	21.0	1.79	1.48	100
342	17.0	1.72	1.47	99
343	20.7	1.77	1.47	99
344	25.9	1.79	1.42	96

Comments

Wet density measurements that fall below 1.78t/m3 are not accredited due to being outside the NDM range of calibration.
GPS locations recorded by client on site.

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Nuclear Density Report

Report No: ND:BOP18W1039
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 18/09/2018

Testing Details

Site Tested:	Zariba
Tested By:	Andre Shine
Date Tested:	14/09/2018
Time Tested:	15:00
Material:	Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-00172
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.48 t/m³ @ 23 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
345	27.9	1.66	1.30	88
346	23.7	1.74	1.41	95
347	28.1	1.69	1.32	89
348	20.5	1.75	1.45	98
349	17.7	1.78	1.52	103
350	32.1	1.62	1.23	83
351	23.4	1.73	1.40	95

Comments

Wet density measurements that fall below 1.78t/m3 are not accredited due to being outside the NDM range of calibration.
GPS locations recorded by client on site.
Relative compaction results and averages are not IANZ accredited.

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Nuclear Density Report

Report No: ND:BOP18W1074
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 25/09/2018

Testing Details

Site Tested:	Lot testing
Tested By:	Rob Ermens
Date Tested:	21/09/2018
Time Tested:	10:30
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-00172
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.48 t/m³ @ 23 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
345RT	23.1	1.70	1.38	93
347RT	23.1	1.75	1.42	96
350RT	24.2	1.72	1.39	94

Comments

GPS locations recorded by client on site.
Relative compaction results and averages are not IANZ accredited
Wet density measurements that fall below 1.78t/m3 are not accredited due to being outside the NDM range of calibration.

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Nuclear Density Report

Report No: ND:BOP18W1125
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 8/10/2018

Testing Details

Site Tested:	Lot Testing
Tested By:	Jake Brown
Date Tested:	4/10/2018
Time Tested:	09:00
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-00172
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.48 t/m³ @ 23 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
288RT	24.4	1.69	1.36	92

Comments

Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.

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Nuclear Density Report

Report No: ND:BOP18W1210
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 6/11/2018

Testing Details

Site Tested: Stage 3C/ Stage D/E
Tested By: Rob Ermens
Date Tested: 25/10/2018
Time Tested: 12:00
Material: Rhyolite Pumice Sand
Specification: Contract Specification
Field Methods: NZS 4407:2015 Test 4.2
Lab Methods: NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID: BOP18S-00005
MDD Method: NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density: 1.48 t/m³ @ 24 %
Min. Dry Density (t/m³):
Solid Density Type: Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
365	20.2	1.75	1.46	99
366	28.7	1.81	1.41	95
367	24.9	1.71	1.37	93
368	17.2	1.76	1.50	101
369	26.0	1.82	1.45	98

Comments

Wet density measurements that fall below 1.78 t/m3 are outside the NDM calibration range and are excluded from the endorsement of this report.
Relative compaction results and averages are not accredited.
GPS locations recorded by client on site

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Nuclear Density Report

Report No: ND:BOP18W1248
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 7/11/2018

Testing Details

Site Tested:	Stage D/E
Tested By:	Rob Ermens
Date Tested:	25/10/2018
Time Tested:	12:00
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-03601
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.40 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
370	21.0	1.64	1.36	97
371	21.2	1.62	1.34	96
372	24.6	1.64	1.32	94
373	22.5	1.57	1.29	92
374	23.7	1.67	1.35	96
375	21.9	1.64	1.35	96

Comments

Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.

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Nuclear Density Report

Report No: ND:BOP18W1263
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 9/11/2018

Testing Details

Site Tested:	Stage D/E
Tested By:	Jake Brown
Date Tested:	29/10/2018
Time Tested:	13:00
Material:	Pumice Sand
Material Source:	Marbles - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1

Compaction Target Details

Material Sample ID:	External
MDD Method:	NZS 4402:1986 Test 4.1.1*
Max. Dry Density:	1.33 t/m³ @ 29.0 %
Min. Dry Density (t/m³):	
Solid Density Type:	

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
376	29.9	1.56	1.20	90
377	53.8	1.34	0.87	65
378	42.4	1.51	1.06	80
379	41.3	1.50	1.06	80

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
MDD-OMC target from FH report reference MDD:BOP18S-03298. GPS locations recorded by client on site.

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Nuclear Density Report

Report No: ND:BOP18W1265
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

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IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 12/11/2018

Testing Details

Site Tested:	Stage D/E
Tested By:	Jake Brown
Date Tested:	30/10/2018
Time Tested:	11:30
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-03601
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.40 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
380	34.5	1.68	1.25	89
381	21.9	1.78	1.46	104
382	30.9	1.66	1.27	91
383	28.0	1.74	1.36	97
384	28.0	1.76	1.37	98

Comments

Wet density measurements that fall below 1.78t/m3 are not accredited due to being outside the NDM range of calibration.
Relative compaction results and averages are not IANZ accredited. GPS locations recorded by client on site.

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Report No: ND:BOP18W1284
Issue No: 1

Nuclear Density Report

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 13/11/2018

Testing Details

Site Tested:	Stage D/E
Tested By:	Jake Brown
Date Tested:	7/11/2018
Time Tested:	15:10
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-03601
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.40 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
390	26.0	1.55	1.23	88
391	33.7	1.53	1.15	82
392	15.5	1.73	1.50	107
393	28.1	1.74	1.36	97
394	23.2	1.63	1.32	94
395	23.7	1.78	1.44	103
396	19.4	1.71	1.43	102
397	10.2	1.71	1.55	111

Comments

Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.

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0800 LABORATORY

Nuclear Density Report

Report No: ND:BOP18W1286
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 13/11/2018

Testing Details

Site Tested:	Stage D/E
Tested By:	Joseph Hughes
Date Tested:	8/11/2018
Time Tested:	09:00
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-03601
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.40 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
398	27.2	1.57	1.24	89
399	22.8	1.66	1.36	97
400	33.8	1.43	1.07	76
401	45.7	1.57	1.08	77

Comments

Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.

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0800 LABORATORY

Nuclear Density Report

Report No: ND:BOP18W1288
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 14/11/2018

Testing Details

Site Tested:	Fill Area
Tested By:	Joseph Hughes
Date Tested:	8/11/2018
Time Tested:	10:00
Material:	Pumice Sand
Material Source:	Marbles - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1

Compaction Target Details

Material Sample ID:	External
MDD Method:	NZS 4402:1986 Test 4.1.1*
Max. Dry Density:	1.33 t/m³ @ 29.0 %
Min. Dry Density (t/m³):	
Solid Density Type:	

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
404	25.7	1.56	1.24	93
405	27.8	1.64	1.29	97
406	19.5	1.75	1.47	111
407	18.9	1.75	1.47	111

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
MDD-OMC target from FH report reference MDD:BOP18S-03298. GPS locations recorded by client on site.

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Nuclear Density Report

Report No: ND:BOP18W1309
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 21/11/2018

Testing Details

Site Tested:	Fill Area
Tested By:	Jake Brown
Date Tested:	12/11/2018
Time Tested:	11:10
Material:	Pumice Sand
Material Source:	Marbles - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	External
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986*
Max. Dry Density:	1.33 t/m³ @ 29.0 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
408	21.7	1.52	1.25	94
409	31.8	1.56	1.19	89
410	42.7	1.65	1.15	86
411	33.1	1.61	1.21	91
412	44.5	1.56	1.08	81
413	30.8	1.61	1.23	92

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
MDD-OMC target from report reference BOP18S-03298.

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0800 LABORATORY

Report No: ND:BOP18W1310
Issue No: 1

Nuclear Density Report

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 21/11/2018

Testing Details

Site Tested:	Fill Area
Tested By:	Jake Brown
Date Tested:	12/11/2018
Time Tested:	11:10
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-03601
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.40 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
414	27.0	1.60	1.26	90
415	26.4	1.55	1.23	88
416	24.2	1.61	1.30	93
417	21.9	1.59	1.30	93

Comments

Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.

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Report No: ND:BOP18W1333
Issue No: 1

Nuclear Density Report

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 26/11/2018

Testing Details

Site Tested:	Fill Area
Tested By:	Jake Brown
Date Tested:	14/11/2018
Time Tested:	16:00
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	BOP18S-00172
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density:	1.48 t/m³ @ 23.5 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
426	19.5	1.79	1.50	102

Comments

Relative compaction results and averages are not IANZ accredited.
GPS locations recorded by client on site.

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Report No: ND:BOP18W1334
Issue No: 1

Nuclear Density Report

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 26/11/2018

Testing Details

Site Tested:	Fill Area
Tested By:	Jake Brown
Date Tested:	14/11/2018
Time Tested:	16:00
Material:	Pumice Sand
Material Source:	Marbles - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID:	External
MDD Method:	NZS 4402:1986 Test 4.1.1 - 1986*
Max. Dry Density:	1.33 t/m³ @ 29 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
427	40.5	1.60	1.14	86

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
MDD-OMC target from FH report reference BOP18S-03298.

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Nuclear Density Report

Report No: ND:BOP18W1339
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 26/11/2018

Testing Details

Site Tested:	Stage D/E
Tested By:	Jake Brown
Date Tested:	16/11/2018
Time Tested:	12:30
Material:	Pumice Sand
Material Source:	Marbles - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1

Compaction Target Details

Material Sample ID:	External
MDD Method:	NZS 4402:1986 Test 4.1.1*
Max. Dry Density:	1.33 t/m³ @ 29 %
Min. Dry Density (t/m³):	
Solid Density Type:	Assumed

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
428	25.8	1.54	1.23	92
429	30.7	1.65	1.26	95
430	27.7	1.68	1.31	99
431	22.5	1.59	1.30	98
432	23.7	1.59	1.29	97
433	25.4	1.65	1.31	99

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.

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Report No: ND:BOP18W1409
Issue No: 1

Nuclear Density Report

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 11/12/2018

Testing Details

Site Tested:	Lot testing
Tested By:	Jake Brown
Date Tested:	7/12/2018
Time Tested:	11:00
Material:	Pumice Sand
Material Source:	Marbles - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, NZS4402:1986 Test 4.1.1

Compaction Target Details

Material Sample ID:	External
MDD Method:	NZS4402:1986 Test 4.1.1*
Max. Dry Density:	1.33 t/m³ @ 29 %
Min. Dry Density (t/m³):	
Solid Density Type:	Assumed

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
434	34.7	1.53	1.14	85
435	30.1	1.67	1.28	97
436	24.3	1.64	1.32	100
437	26.4	1.61	1.27	96

Comments

* Test was conducted externally and is not accredited by this laboratory.
MDD-OMC wsa taken from FH report reference BOP18S-03289
GPS locations recorded by client on site.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration

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Nuclear Density Report

Report No: ND:BOP18W1410
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 11/12/2018

Testing Details

Site Tested:	Lot testing
Tested By:	Jake Brown
Date Tested:	7/12/2018
Time Tested:	11:00
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, Plateau Test

Compaction Target Details

Material Sample ID:	External
MDD Method:	Plateau Test*
Max. Dry Density:	1.28 t/m³ @ 23 %
Min. Dry Density (t/m³):	
Solid Density Type:	Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
438	26.5	1.60	1.27	99

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration
GPS location recorded by client on site.
Plateau target from FH report reference ND:BOP18W1361.

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Nuclear Density Report

Report No: ND:BOP18W1428
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 18/12/2018

Testing Details

Site Tested:	Lot Testing
Tested By:	Jake Brown
Date Tested:	14/12/2018
Time Tested:	14:30
Material:	Pumice Sand
Material Source:	Marbles - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, Plateau Test

Compaction Target Details

Material Sample ID:	External
MDD Method:	Plateau Test*
Max. Dry Density:	1.29 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Assumed

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
439	16.8	1.56	1.34	104
440	29.1	1.53	1.18	92
441	27.9	1.70	1.33	103
442	17.7	1.54	1.31	101
443	19.7	1.59	1.33	103
444	19.5	1.56	1.31	101
445	19.0	1.63	1.37	106
449	36.4	1.67	1.22	95
450	30.7	1.64	1.25	97
451	30.4	1.65	1.27	98

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
MDD-OMC target from FH Plateau test report BOP18W1355.
GPS locations recorded by client on site.

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Nuclear Density Report

Report No: ND:BOP18W1429
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 19/12/2018

Testing Details

Site Tested:	Lot Testing
Tested By:	Jake Brown
Date Tested:	14/12/2018
Time Tested:	14:30
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, Plateau Test

Compaction Target Details

Material Sample ID:	External
MDD Method:	Plateau Test*
Max. Dry Density:	1.22 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Assumed

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
446	30.8	1.63	1.25	102
447	27.3	1.62	1.27	104
448	28.5	1.57	1.22	100

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
MDD-OMC target from FH Plateau test report BOP18W1361.
GPS locations recorded by client on site.

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Nuclear Density Report

Report No: ND:BOP18W1438
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 20/12/2018

Testing Details

Site Tested:	Lot Testing
Tested By:	Jake Brown
Date Tested:	19/12/2018
Time Tested:	08:45
Material:	Rhyolite Pumice Sand
Material Source:	Paengaroa Sands Ltd Quarry
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, Calculated

Compaction Target Details

Material Sample ID:	External
MDD Method:	Calculated*
Max. Dry Density:	1.26 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Assumed

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
434RT	24.1	1.62	1.30	103

Comments

* Test was conducted externally and is not accredited by this laboratory.
GPS location recorded by client on site. Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
MDD value was supplied by Aurecon based on Plateau tests from FH reports reference BOP18W1355, BOP18W1359 and BOP18W1361 with a 50:50 blend of Marbles & Paengaroa Sands Pumice Sand materials.

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Report No: ND:BOP18W1440
Issue No: 1

Nuclear Density Report

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 20/12/2018

Testing Details

Site Tested:	Lot testing
Tested By:	Jake Brown
Date Tested:	19/12/2018
Time Tested:	08:45
Material:	Pumice Sand
Material Source:	Marbles - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, Plateau Test

Compaction Target Details

Material Sample ID:	External
MDD Method:	Plateau Test*
Max. Dry Density:	1.29 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Assumed

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
440 RT	21.3	1.58	1.30	101
452	16.3	1.63	1.41	109
453	16.1	1.56	1.35	104
454	26.4	1.62	1.28	100
455	26.7	1.60	1.27	98
456	23.7	1.63	1.32	102
457	29.3	1.56	1.20	93
458	22.9	1.60	1.30	101
459	24.8	1.59	1.28	99
460	26.2	1.62	1.28	99

Statistical Data

Mean Relative Compaction %: 100.7

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration
GPS locations recorded by client on site
MDD-OMC was taken from FH report reference BOP18W1355.

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Bay of Plenty Laboratory

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0800 LABORATORY

Nuclear Density Report

Report No: ND:BOP18W0086
Issue No: 2
This report replaces all previous issues of report no 'ND:BOP18W0086'.

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 1/02/2018

Testing Details

Site Tested: Fill Area - Retests
Tested By: Jake Brown
Date Tested: 24/01/2018
Time Tested: 14:15
Material: Rhyolite Pumice Sand
Specification: Contract Specification
Field Methods: NZS 4407:2015 Test 4.2
Lab Methods: NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID: BOP17S-01212
MDD Method: NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density: 1.34 t/m³ @ 27 %
Min. Dry Density (t/m³):
Solid Density Type: Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
248RT	15.5	1.70	1.47	110
250RT	17.4	1.65	1.41	105
256RT	18.2	1.59	1.34	100
257RT	21.0	1.61	1.33	99
266RT	19.2	1.50	1.26	94
268RT	24.4	1.52	1.22	91

Comments

Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.
Report re-issued with IANZ accreditation removed from report

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Nuclear Density Report

Report No: ND:BOP18W0088
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not accredited. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 1/02/2018

Testing Details

Site Tested: Retests (1.5m deeper than previous retests)
Tested By: Jake Brown
Date Tested: 25/01/2018
Time Tested: 14:00
Material: Rhyolite Pumice Sand
Specification: Contract Specification
Field Methods: NZS 4407:2015 Test 4.2
Lab Methods: NZS 4402:1986 Test 2.1, NZS 4402:1986 Test 4.1.1 - 1986

Compaction Target Details

Material Sample ID: BOP17S-01212
MDD Method: NZS 4402:1986 Test 4.1.1 - 1986
Max. Dry Density: 1.34 t/m³ @ 27 %
Min. Dry Density (t/m³):
Solid Density Type: Measured

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
248RT	16.9	1.41	1.21	90
256RT	20.6	1.61	1.34	100

Comments

Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
GPS locations recorded by client on site.
A colour change was noted in the material on test site 248RT which may indicate the excavation was into original ground.

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Nuclear Density Report

Report No: ND:BOP18W1355

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

PRELIMINARY REPORT ONLY

Date of Issue: 28/11/2018

Testing Details

Site Tested: Fill Area - Marbles Pumice Sand
Tested By: Rob Ermens
Date Tested: 27/11/2018
Time Tested: 13:00
Material: Pumice Sand
Specification: No Specification
Field Methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID:
MDD Method:
Max. Dry Density:
Min. Dry Density (t/m³):
Solid Density Type: Assumed

Test Results

Passes	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)
2	26.6	1.54	1.22
6	26.5	1.56	1.23
10	26.4	1.56	1.23
16	24.5	1.60	1.29
22	24.8	1.60	1.28

Comments

Plateau 1. Compaction plant was a loaded motor scraper.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.

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Nuclear Density Report

Report No: ND:BOP18W1359

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

PRELIMINARY REPORT ONLY

Date of Issue: 28/11/2018

Testing Details

Site Tested: Fill Area - Paengaroa Rhyolite Pumice Sand
Tested By: Jake Brown
Date Tested: 27/11/2018
Time Tested: 14:30
Material: Rhyolite Pumice Sand
Specification: No Specification
Field Methods: NZS 4407:2015 Test 4.3

Compaction Target Details

Material Sample ID:
MDD Method:
Max. Dry Density:
Min. Dry Density (t/m³):
Solid Density Type: Assumed

Test Results

Passes	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)
5	32.8	1.51	1.13
11	31.9	1.60	1.22
17	33.2	1.63	1.22
25	32.6	1.64	1.23
31	33.5	1.64	1.23
37	31.5	1.65	1.26
43	33.0	1.65	1.24

Comments

Plateau 2. Compaction plant was a loaded motor scraper.
Report not IANZ endorsed due to density measurements being outside the NDM range of calibration.

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D

Lot-by-Lot Hand Auger Logs

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Appendix D
Lot-by-Lot Hand Auger Logs

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GEOTECHNICS

Our Ref: 1009168.0.0.0/REP01
Customer Ref: Terrace Views Stage 3 D & E
11 February 2019

Aurecon New Zealand Ltd
Ground Level
247 Cameron Road
Tauranga 3110

Attention: Sam Webber

Dear Sam

Terrace Views, Papamoa - Stage 3 D & E: Site Investigation

Site Report

Customer's Instructions

We were instructed to:

- Complete Hand Auger (HA) investigations at the locations indicated on the provided plan and marked out by JMC ltd.
- Carry out Scala Penetrometer (SC) testing 5m towards the front and rear of each section from the indicated Hand Auger location.

Specifications

None issued.

Dates of Procedures

10, 11, 13, 14, December 2018

08, 16, 31 January 2019

01 February 2019

Determining the Test Locations

A location plan illustrating proposed investigation locations was provided to Geotechnics by Aurecon. Hand Auger locations were pegged and marked in the centre of each lot prior to Geotechnics' arrival on site by JMC Ltd. Geotechnics measured five metres towards the front and rear of each lot's centre position to locate the A and B Scala penetrometer test locations respectively.

Location Plans

The attached plan provides indicative locations only and is not to scale.

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Methods

NZS 4402:1988 Test 6.5.2 - Determination of the penetration resistance of a soil (Hand method using a dynamic cone penetrometer) - Scala

Material Description

Material descriptions are provided in the attached results. Scala data sheets denote material source as *unknown* and for interpretation and validation by the customer.

Results

Results are attached.

Photos can be downloaded from the following link:

https://transfer.tonkinandtaylorgroup.com/message/Xc6rmYAByj7UchfgybeCVm

This link will expire on 5 May 2019 after which we can provide the photos upon request.

Test Remarks

Material Logging

Material logging and descriptions in the field are in general accordance with the New Zealand Geotechnical Society Inc in 'Guideline for the Field Classification of Soil and Rock for Engineering Purposes' (December 2005), excluding geological information and are based on the observational behaviour of the recovered material.

As agreed with the customer, densities recorded in borehole logs are derived from Scala penetrometer test A on each lot. Scala penetrometer test B may alternatively be used for this purpose at the customer's discretion.

The logs represent our best assessment of the sub-surface conditions, but due to the subjective nature of material logging, we take no responsibility for any inaccuracies or misinterpretations.

Scala

The estimated CBR values are based on Figure 5.3, Correlation of Dynamic Cone Penetration and CBR AUSTROADS (2004) "Pavement Design - A Guide to the Structural Design of Road Pavements".

Our standard test procedure is to over-drill Scala penetrometer tests every 1m. As requested by you, we have not over-drilled these tests. This variation to the standard test method may increase friction with depth due to skin friction and the protrusion of the rod connectors. The results >1m deep may therefore not be accurate and are provided for your own interpretation and inference.

For ease of reference, Scala results from test "A" on each lot have been included in the borehole logs even though they were not performed adjacent to the boreholes.

For Lots 458 – 459, 472 – 482 and in Lot 391 A only, Aurecon conducted their own Scala penetrometer testing and this data has been included on applicable hand auger logs as agreed with the customer. These instances have been noted in the comments section of each log. Geotechnics takes no responsibility for data provided by the customer for inclusion in this report.

Hand Auger investigations that indicate the presence of Topsoil/Organic Silt may not have corresponding Scala Penetrometer data for that layer. This is because Scala penetrometer testing occasionally preceded Hand Auger investigations by a significant time interval. Topsoil/Organic Silt was placed on site/s between the testing and investigation activities. Scala data may therefore appear to commence at 0.0mbgl on Scala results pages but at a greater depth on logs.

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Lots where this may be observed are: 448 – 450, 452 – 453, 462 – 471.
All other tests commenced at the same level.

General Remarks

This report has been prepared for the benefit of Aurecon New Zealand Ltd, with respect to the particular brief given to us and it cannot be relied upon in other contexts or for any other purpose without our prior review and agreement. The inherent uncertainties of site investigation work, mean the nature and continuity of subsoil away from the test location could vary from the data logged.

We provide the results and logs for your interpretation and inference.

Please reproduce this report in full when transmitting to others or including in internal reports.

If we can be of any further assistance, feel free to get in touch. Contact details are provided at the bottom of the letterhead page.

GEOTECHNICS LTD

Report prepared by:

.....
Troy Robertson
Geotechnician

Authorised for Geotechnics by:

.....
Paul Burton
Project Director

Report checked by:



.....
Ryan Milligan
Development Manager

11-Feb-19

t:\geotechnicsgroup\projects\1009168\workingmaterial\20190211 tasr terrace views stg 3 d&e rep01.docx

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GEOTECHNICS	LOCATION PLAN		Site Investigation						Locations are indicative only	
	15C Amber Crescent Judea Tauranga 3110	Site	Terrace Views - Stage 3 D & E	Our Ref	1009168.0.0.0/REP01	Drawn	TASR	Date	20/12/2018	N
		Location	Papamoa	Your Ref	Terrace Views Stage 3 D & E	Checked	RWM	Date	20/12/2018	
		Project	Terrace Views, Papamoa - Stage 3 D & E: Site Investigation	Lab Ref	016/19 – 024/19	Scale	Not to Scale			

Drawing supplied by Aurecon New Zealand Ltd

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 391**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 10/12/2018

DRILLED BY: GEOTECHNICS

LOGGED BY: TASR CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/100mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 10/12/2018	100	HA	1, 4, 9, 19 >>, 21 >>, 17 >>, 15 >>, 10, 16 >>, 17 >>, 18 >>, 16 >>, 22 >>, 22 >>, 28 >>, 25 >>, 17 >>, 16 >>, 15 >>, 17 >>				0.5	TS	D-M	St		Organic SILT, with some sand; dark brownish black. Stiff, dry to moist, non-plastic; sand, fine to coarse.
										M-W	VD		Fine to coarse SAND, with some gravel, trace silt; light pinkish brown. Very dense, moist to wet, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
								1.0					Fine to coarse SAND, with minor gravel, trace silt; brown. Dense, moist to wet, well graded; gravel, fine, subangular to subrounded, pumiceous.
										W			Fine to coarse SAND, with trace silt and gravel; light pinkish brown. Dense, moist to wet, well graded; gravel, fine, subangular to subrounded, pumiceous. 1.2m: Changes to light brownish grey; wet.
								1.5		M-W			Fine to coarse SAND, with minor gravel, trace silt; light brown. Dense, moist to wet, well graded; gravel, fine, subangular to subrounded, pumiceous. 1.85m: Changes to pinkish brown.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from Aurecon.

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:54:59 p.m. - Produced with Core-GS by GeRoc

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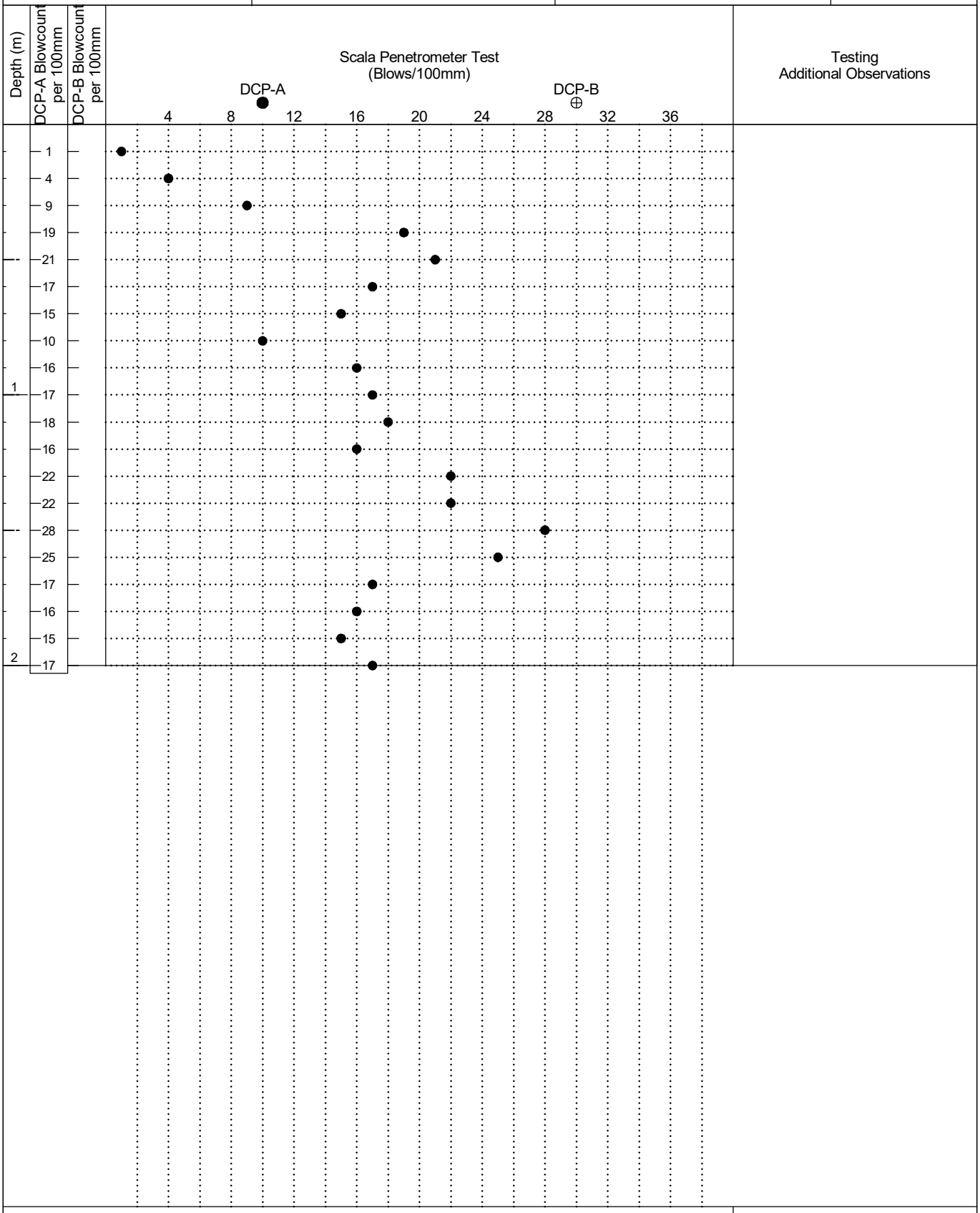
aurecon
Ground Floor, 247 Cameron Road
PO Box 2292, Tauranga
New Zealand
Tel: +64 7 578 6183
www.aurecongroup.com

Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

Lot 391

Sheet **1** of **1**

DRILLING INFORMATION	CO-ORDINATES: N/A		
Method: Scala	Easting: N/A	Date started: 19/12/2018	Logged by: AY
Equipment: Scala	Northing: N/A	Date completed: 19/12/2018	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG



Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Last Generated: 25/01/2019 10:38:04 AM
Database File: 181220-LOT BY LOT TESTS.GPJ Library file: AURECON AKL 20130827V1 (2).GLB Template: GINT STD US LAB.GDT Report File: AURECON TWO SCALA LOG 1.0 Date Generated: 25/01/2019

GEOTECHNICS

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Judea
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Page 1 of 1

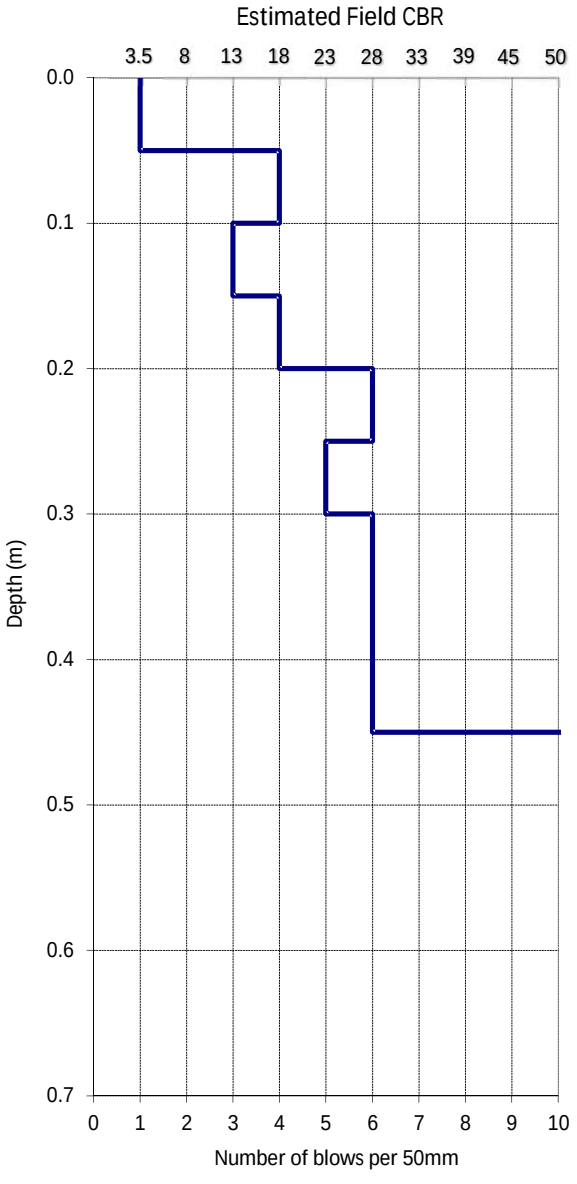
Lab Ref/URN
016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 391 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 391 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	4	1100	1100	
150	150	3	1150	1150	
200	200	4	1200	1200	
250	250	6	1250	1250	
300	300	5	1300	1300	
350	350	6	1350	1350	
400	400	6	1400	1400	
450	450	6	1450	1450	
500	500	11	1500	1500	
550	550	12	1550	1550	
600	600	14	1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 392**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 10/12/2018

DRILLED BY: GEOTECHNICS

LOGGED BY: DBRU CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				3					TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
				2									
				2									
				5					TS				
				16 >>							VD		Fine to coarse SAND, with minor silt, trace gravel; light greyish brown. Very dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
								0.5					
										W			0.6m: Changes to greyish brown; wet.
								1.0					
													1.3m: Changes to greyish brown.
								1.5					
	DRY 10/12/2018	100	HA							M-W			1.8m: Changes to moist to wet.
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:55:01 p.m. - Produced with Core-GS by GeRoc

GEOTECHNICS

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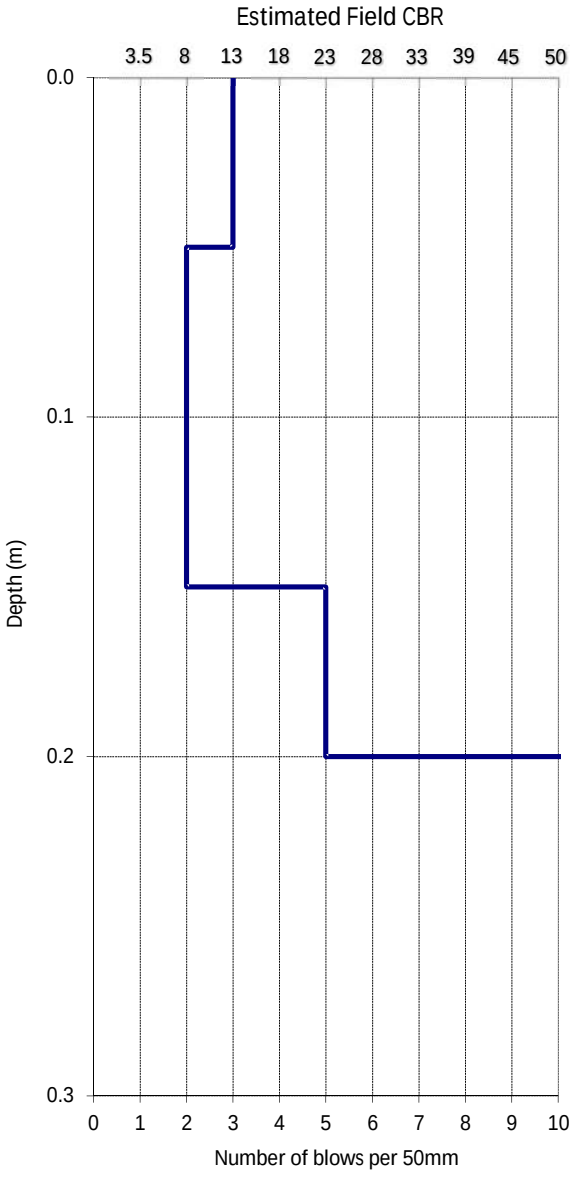
Lab Ref/URN: 016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 392 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 392 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	3	1050	1050	
100	100	2	1100	1100	
150	150	2	1150	1150	
200	200	5	1200	1200	
250	250	16	1250	1250	
300	300		1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

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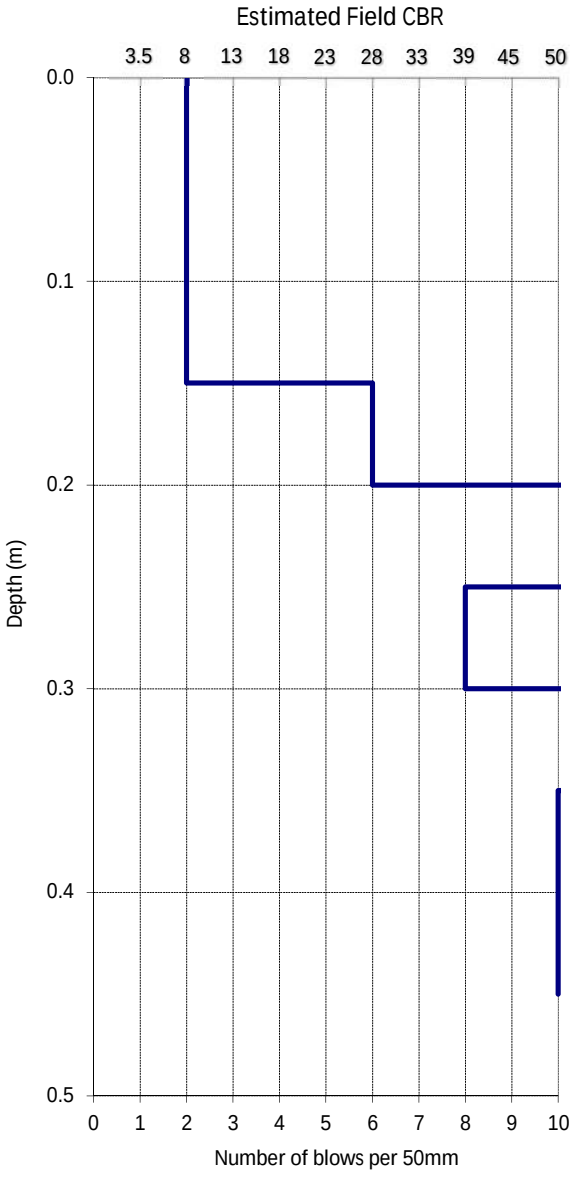
Lab Ref/URN
016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 392 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 392 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	2	1100	1100	
150	150	2	1150	1150	
200	200	6	1200	1200	
250	250	11	1250	1250	
300	300	8	1300	1300	
350	350	12	1350	1350	
400	400	10	1400	1400	
450	450	10	1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 393**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 10/12/2018

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 10/12/2018	100	HA	1, 4, 4, 7, 12 >>, 14 >>, 16 >>				0.0	TS	D-M	St		Organic SILT, with some sand; dark brownish black. Stiff, dry to moist, non-plastic; sand, fine to coarse.
								0.5		M	VD		Fine to coarse SAND, with trace silt and gravel; light orange brown. Very dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
								1.0		M-W			1.0m: Changes to orange brown; moist to wet.
													1.25m: Changes to brown.
								1.5					1.5m: Changes to greyish brown.
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:55:03 p.m. - Produced with Core-GS by GeRoc

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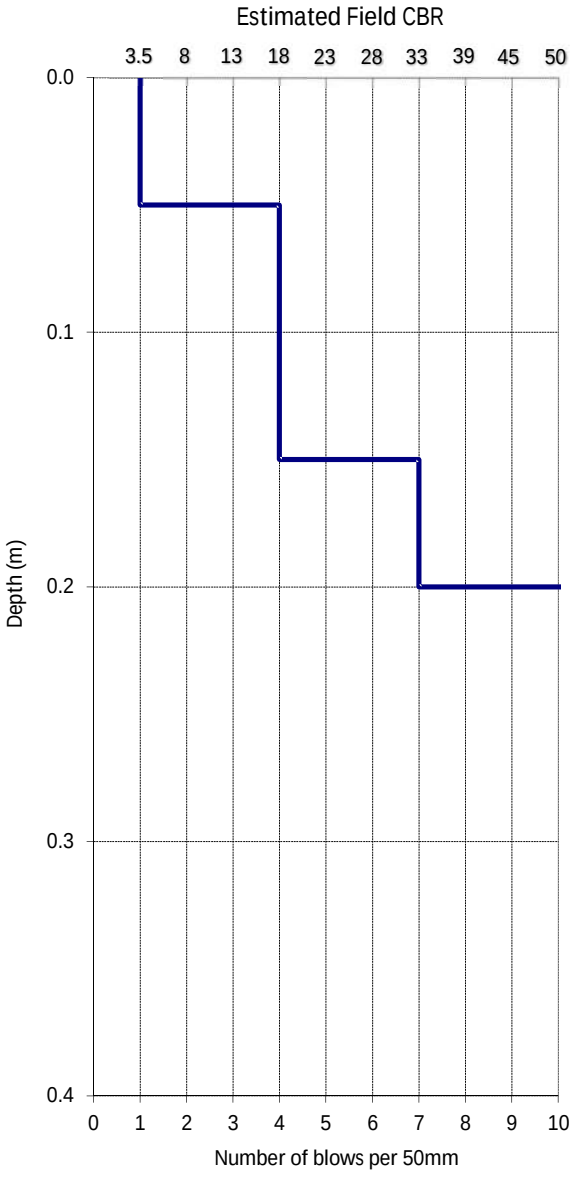
Lab Ref/URN
016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 393 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 393 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	4	1100	1100	
150	150	4	1150	1150	
200	200	7	1200	1200	
250	250	12	1250	1250	
300	300	14	1300	1300	
350	350	16	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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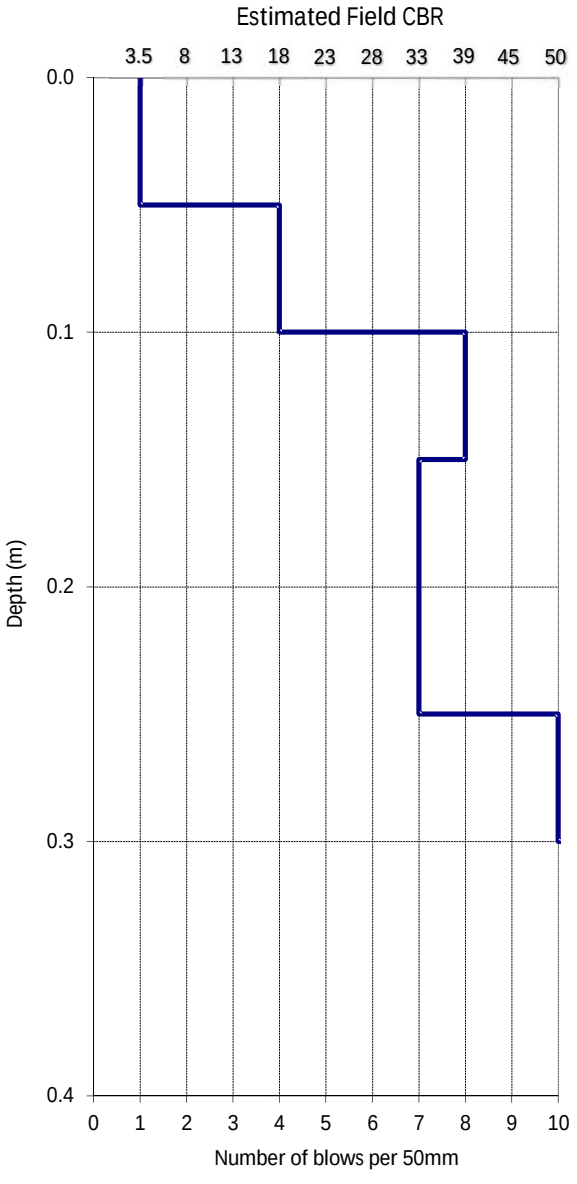
Lab Ref/URN: 016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 393 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 393 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	4	1100	1100	
150	150	8	1150	1150	
200	200	7	1200	1200	
250	250	7	1250	1250	
300	300	10	1300	1300	
350	350	16	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 394**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 10/12/2018

DRILLED BY: GEOTECHNICS

LOGGED BY: TASR CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				1, 4, 8, 7, 6, 11 >>, 14 >>, 15 >>				0.0	TS	D-M	St	10 25 50 100 200	Organic SILT, with some sand; dark brownish black. Stiff, dry to moist, non-plastic; sand, fine to coarse.
	DRY 10/12/2018	100	HA					0.5		M-W	VD		Fine to coarse SAND, with minor gravel, trace silt; light pinkish brown. Very dense, moist to wet, well graded; gravel, fine, subangular to subrounded, pumiceous.
								1.0					0.9m: Changes to greyish brown.
								1.5					
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:55:06 p.m. - Produced with Core-GS by GeRoc

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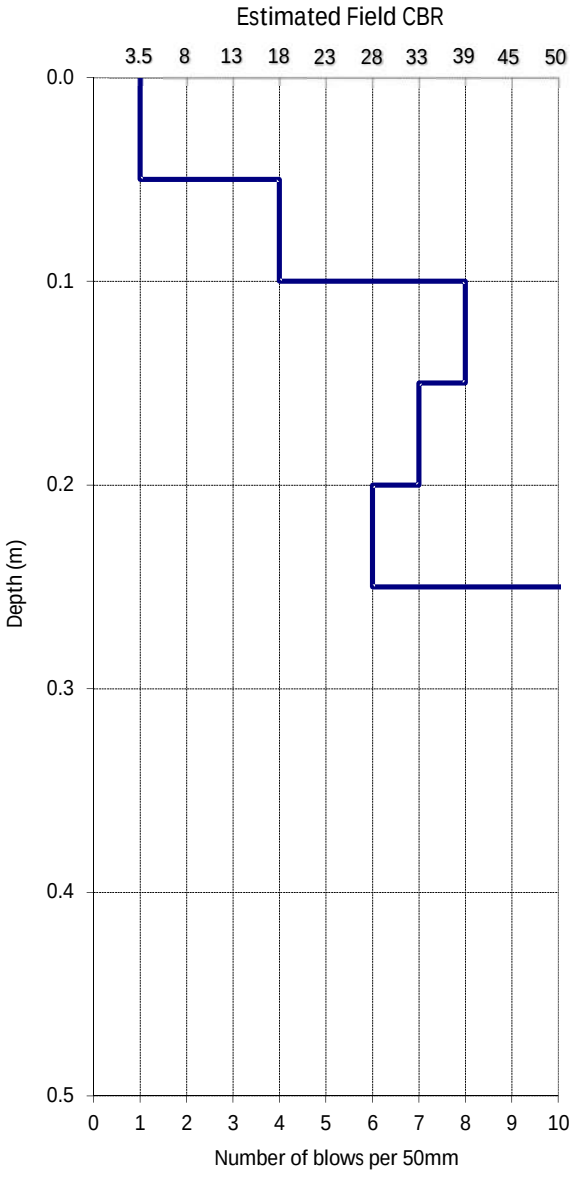
Lab Ref/URN
016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 394 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 394 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	4	1100	1100	
150	150	8	1150	1150	
200	200	7	1200	1200	
250	250	6	1250	1250	
300	300	11	1300	1300	
350	350	14	1350	1350	
400	400	15	1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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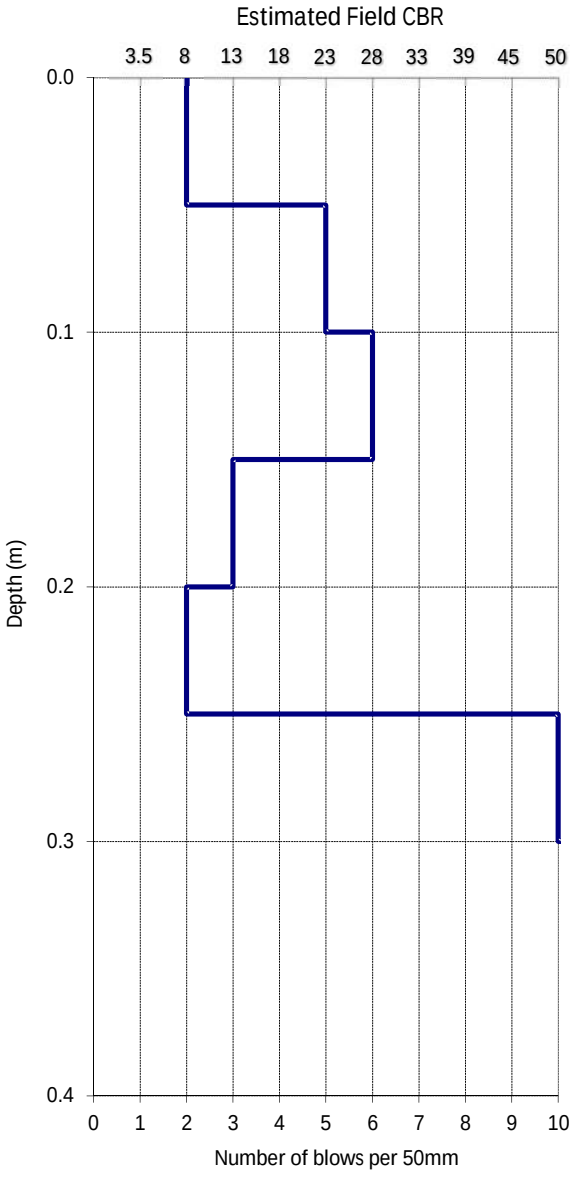
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 394 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 394 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	5	1100	1100	
150	150	6	1150	1150	
200	200	3	1200	1200	
250	250	2	1250	1250	
300	300	10	1300	1300	
350	350	16	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 395**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 10/12/2018

DRILLED BY: GEOTECHNICS

LOGGED BY: EWDA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 10/12/2018	100	HA	2, 4, 5, 5, 5, 10, 12 >>, 13 >>				0.0	TS	D-M	St		Organic SILT, with some sand, trace gravel; dark brownish black. Stiff, dry to moist, non-plastic; sand, fine to coarse; gravel, fine to medium, subangular to subrounded, pumiceous.
								0.5			VD		Fine to coarse SAND, with minor gravel, trace silt; light greyish brown. Very dense, dry to moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
													0.75m: Changes to brownish orange.
										M			0.9m: Changes to moist.
								1.0					
													1.15m: Changes to light greyish brown.
								1.5		M-W			1.6m: Changes to moist to wet.
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:55:08 p.m. - Produced with Core-GS by GeRoc

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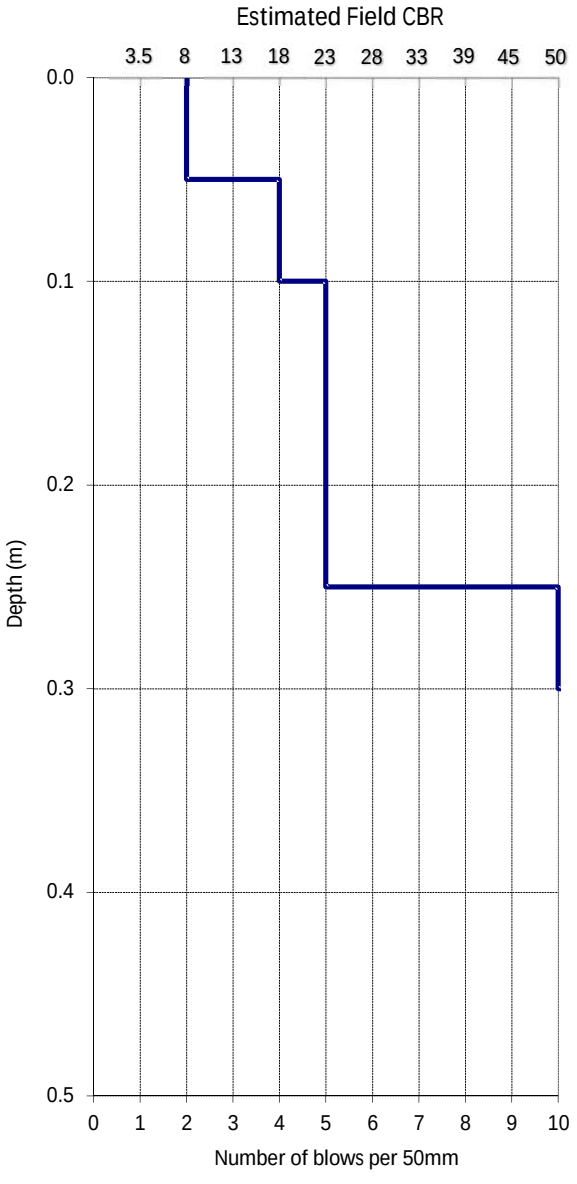
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016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 395 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 395 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	4	1100	1100	
150	150	5	1150	1150	
200	200	5	1200	1200	
250	250	5	1250	1250	
300	300	10	1300	1300	
350	350	12	1350	1350	
400	400	13	1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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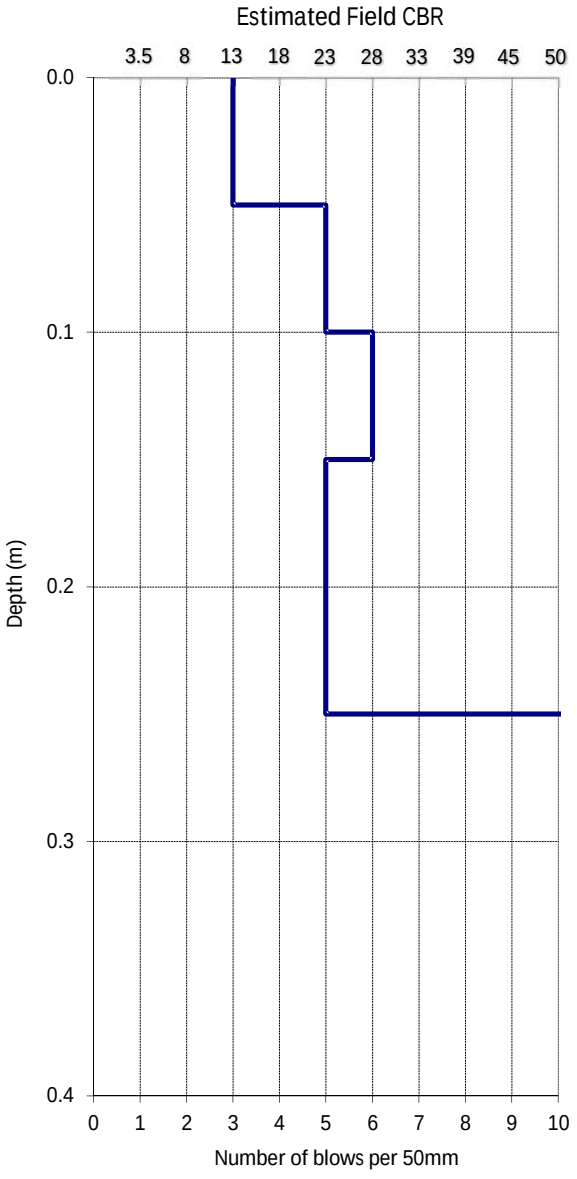
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 395 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 395 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	3	1050	1050	
100	100	5	1100	1100	
150	150	6	1150	1150	
200	200	5	1200	1200	
250	250	5	1250	1250	
300	300	11	1300	1300	
350	350	16	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC301286 - Pg 164 of 406 - 9/07/2020 - bwoo

HOLE Id: **Lot 396**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 10/12/2018

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 10/12/2018	100	HA	2, 4, 4, 4, 8, 10, 14 >>, 16 >>				0.0	TS	D-M	St		Organic SILT, with some sand, trace gravel; dark brownish black. Stiff, dry to moist, non-plastic; sand, fine to coarse; gravel, fine to medium, subangular to subrounded, pumiceous.
										M	D		Fine to coarse SAND, with minor gravel, trace silt; light orange brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
											VD		0.25m: Changes to very dense.
								0.5		M-W			0.8m: Change to moist to wet.
								1.0					1.0m: Change to orange brown.
								1.5		W			1.6m: Changes to greyish brown; wet.
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:55:10 p.m. - Produced with Core-GS by GeRoc

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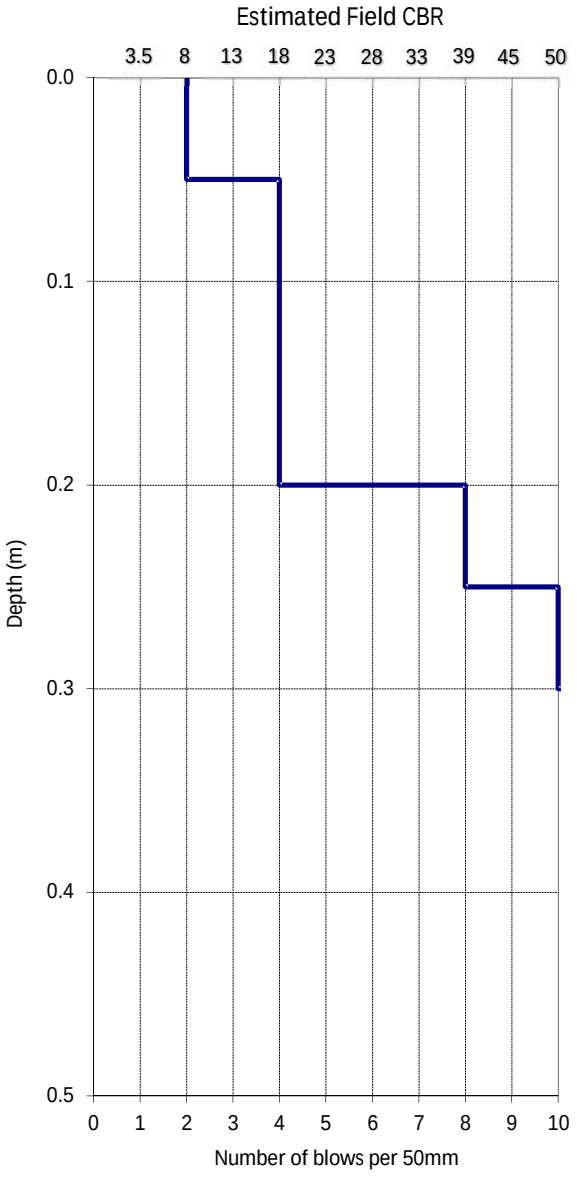
Lab Ref/URN: 016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 396 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 396 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	4	1100	1100	
150	150	4	1150	1150	
200	200	4	1200	1200	
250	250	8	1250	1250	
300	300	10	1300	1300	
350	350	14	1350	1350	
400	400	16	1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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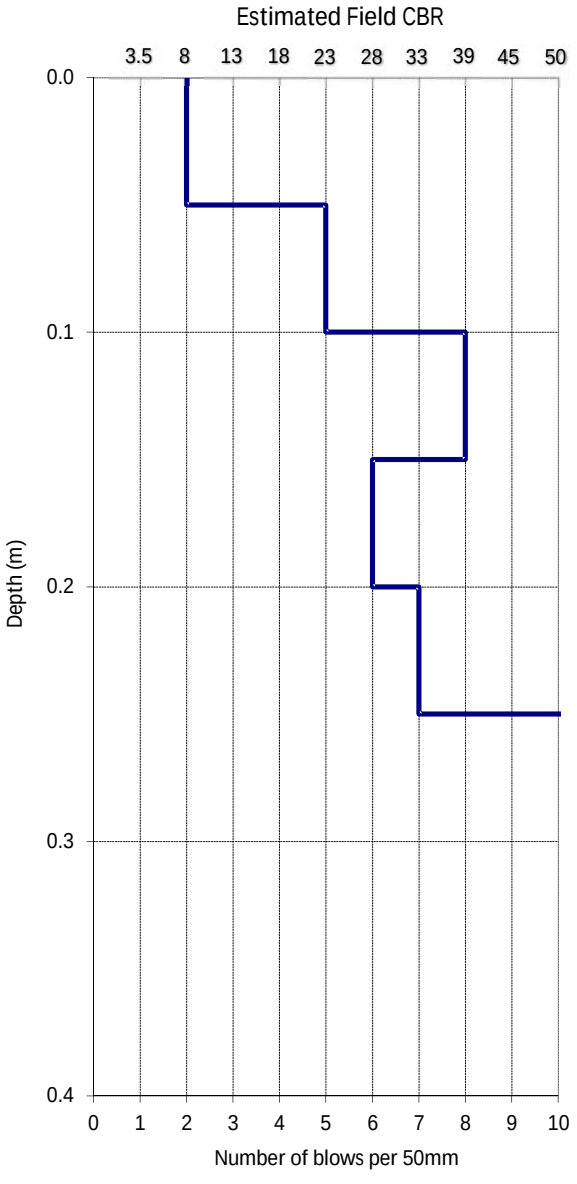
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 396 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 396 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	5	1100	1100	
150	150	8	1150	1150	
200	200	6	1200	1200	
250	250	7	1250	1250	
300	300	14	1300	1300	
350	350	16	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC301286 - Pg 167 of 406 - 9/07/2020 - bwoo

HOLE Id: **Lot 397**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 10/12/2018

DRILLED BY: GEOTECHNICS

LOGGED BY: DBRU CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				2					TS	D-M	St		Organic SILT, with some sand; dark brownish black. Stiff, dry to moist, non-plastic; sand, fine to coarse.
				6									
				6									
				7									
				10						M	VD		Fine to coarse SAND, with trace silt and gravel; light greyish brown. Very dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
				9									
				16 >>									
	DRY 13/12/2018	100	HA					0.5		W			0.7m: Changes to brown; wet.
								1.0					
										M			1.2m: Changes to orange brown; moist.
								1.5		W			1.6m: Changes to wet.
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:55:13 p.m. - Produced with Core-GS by GeRoc

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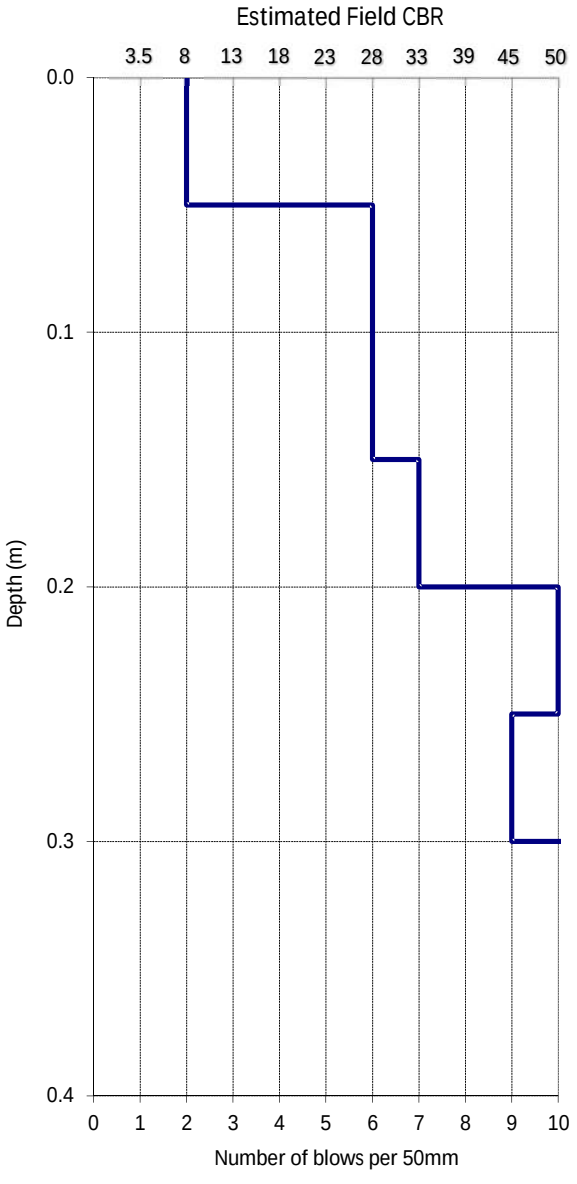
Lab Ref/URN: 016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 397 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 397 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	6	1100	1100	
150	150	6	1150	1150	
200	200	7	1200	1200	
250	250	10	1250	1250	
300	300	9	1300	1300	
350	350	16	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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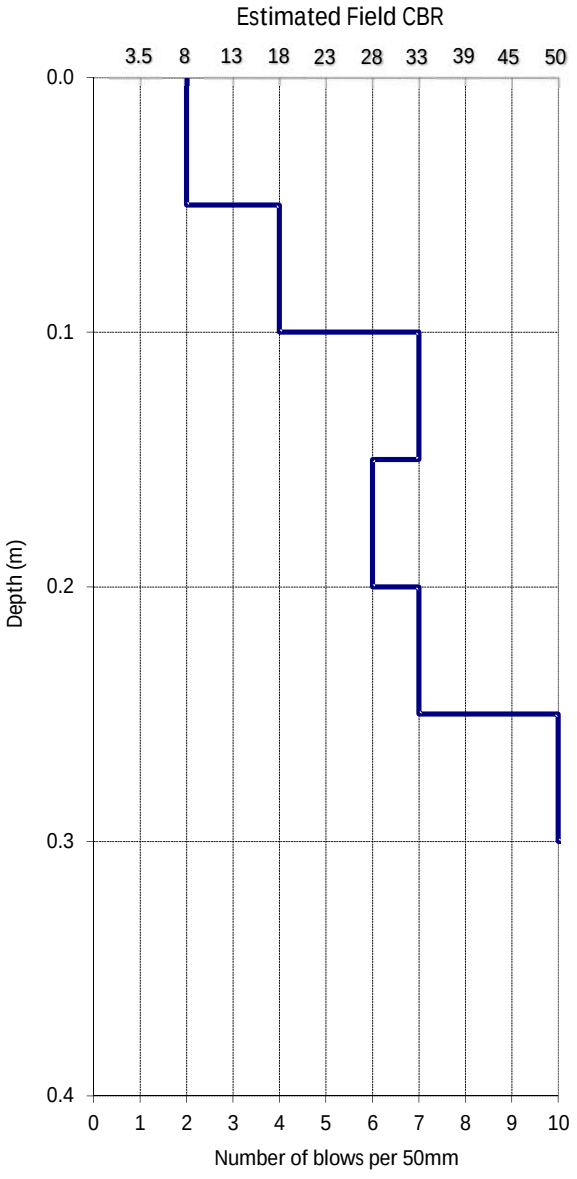
Lab Ref/URN
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 397 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 397 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	4	1100	1100	
150	150	7	1150	1150	
200	200	6	1200	1200	
250	250	7	1250	1250	
300	300	10	1300	1300	
350	350	16	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 398**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 10/12/2018

HOLE FINISHED: 10/12/2018

DRILLED BY: GEOTECHNICS

LOGGED BY: EWDA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 13/12/2018	100	HA	1, 1, 2, 2, 4, 7, 13 >>, 13 >>, 14 >>				0.5	TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
								1.0			VD		Fine to coarse SAND, with trace silt and gravel; yellowish brown. Very dense, moist, well graded gravel, fine to medium, subangular to subrounded, pumiceous.
								1.5					1.1m: Changes to greyish brown.
								2.0					1.35m: Changes to yellowish brown.
													End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 5:11:52 p.m. - Produced with Core-GS by GeRoc

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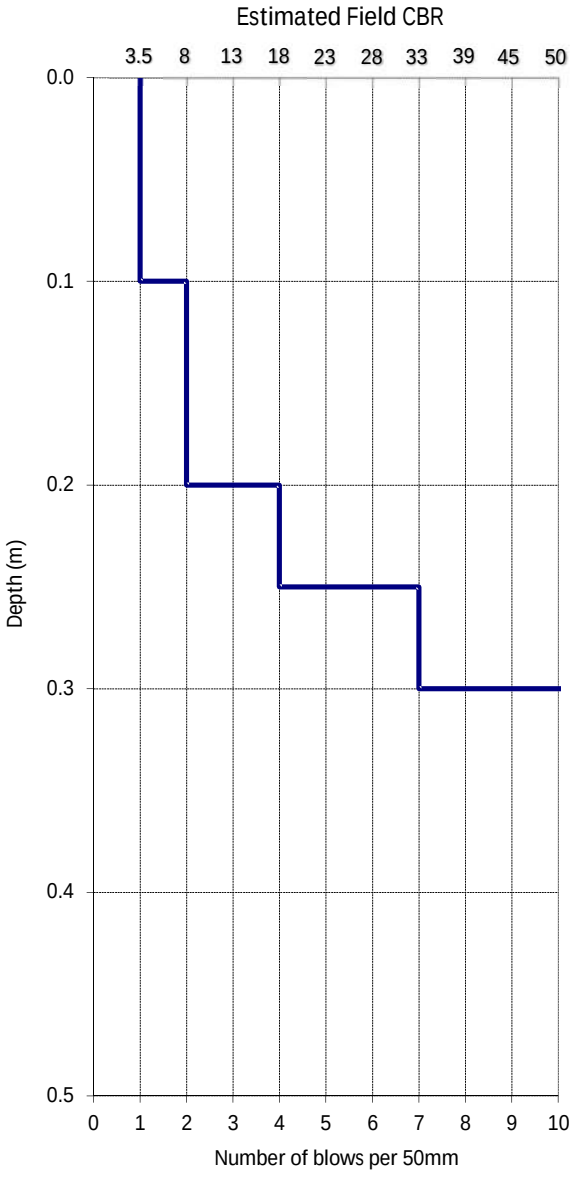
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 398 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 398 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	2	1150	1150	
200	200	2	1200	1200	
250	250	4	1250	1250	
300	300	7	1300	1300	
350	350	13	1350	1350	
400	400	13	1400	1400	
450	450	14	1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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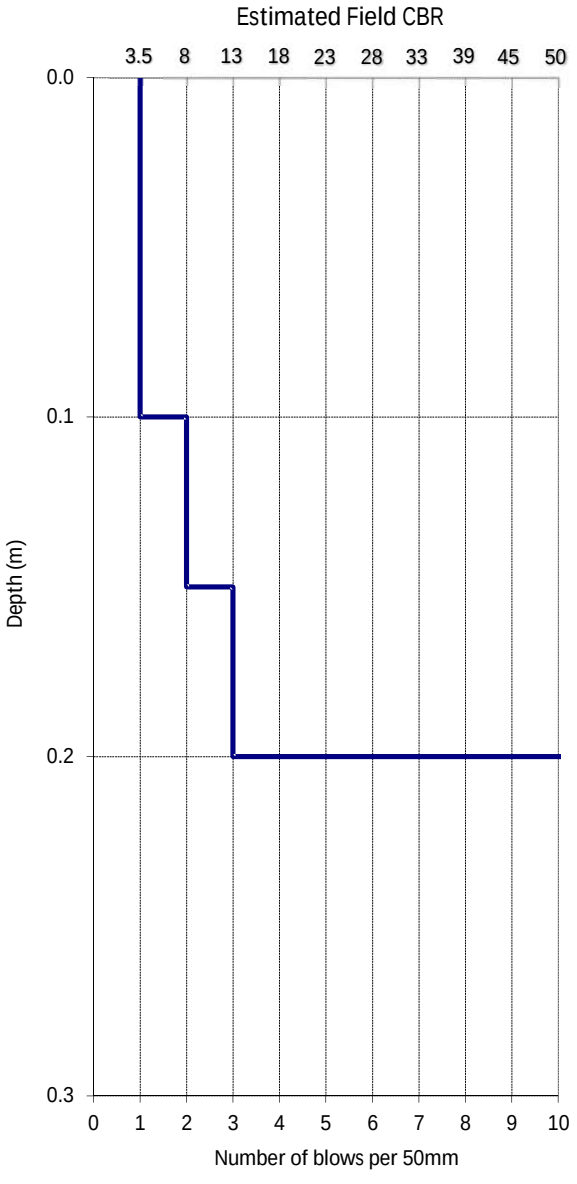
Lab Ref/URN
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 398 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 398 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	2	1150	1150	
200	200	3	1200	1200	
250	250	16	1250	1250	
300	300		1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 399**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 10/12/2018

HOLE FINISHED: 10/12/2018

DRILLED BY: GEOTECHNICS

LOGGED BY: EWDA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				0.5, 0.5, 1, 2, 5, 9				0	TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
	DRY 13/12/2018	100	HA	14 >>, 13 >>, 16 >>				0.5			VD		Fine to coarse SAND, with trace silt and gravel; light orange brown. Very dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
								1.0					0.9m: Changes to light brownish grey.
								1.5					1.3m: Changes to light orange brown.
								2.0					1.85m: Changes to orange brown.
													End of borehole at 2.00 mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 5:11:54 p.m. - Produced with Core-GS by GeRoc

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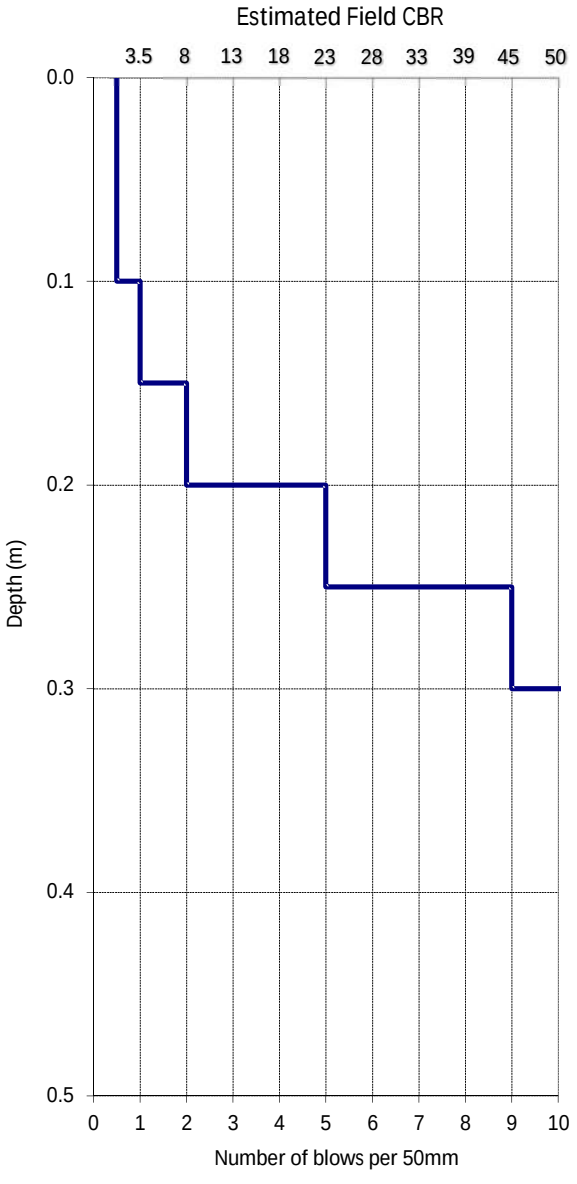
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 399 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 399 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	
100	100	0.5	1100	1100	
150	150	1	1150	1150	
200	200	2	1200	1200	
250	250	5	1250	1250	
300	300	9	1300	1300	
350	350	14	1350	1350	
400	400	13	1400	1400	
450	450	16	1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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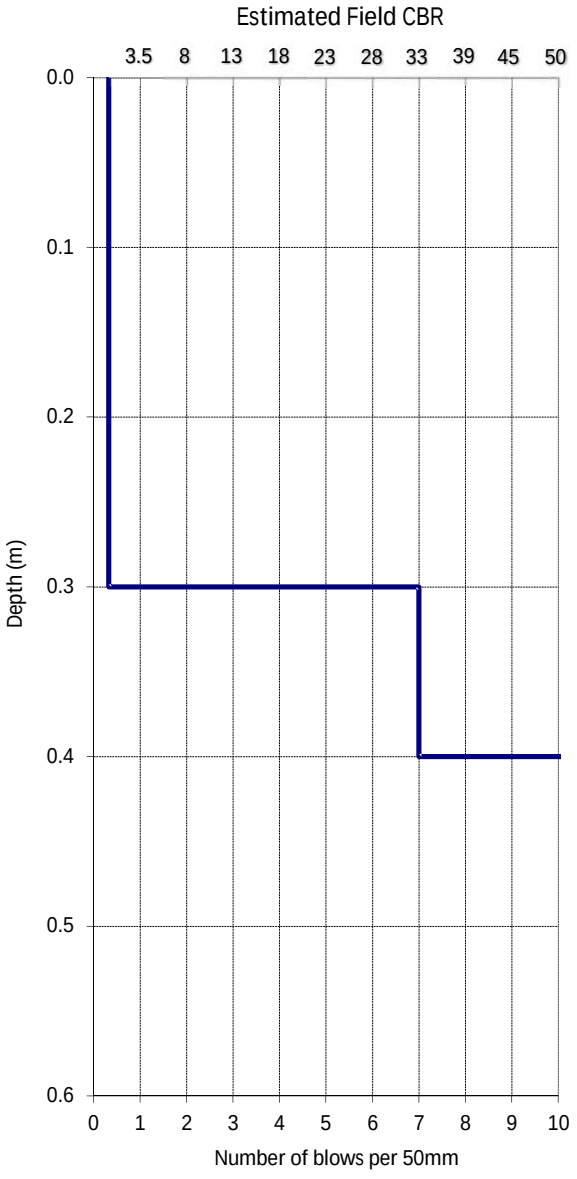
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 399 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 399 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.33	1050	1050	
100	100	0.33	1100	1100	
150	150	0.33	1150	1150	
200	200	0.33	1200	1200	
250	250	0.33	1250	1250	
300	300	0.33	1300	1300	
350	350	7	1350	1350	
400	400	7	1400	1400	
450	450	11	1450	1450	
500	500	16	1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 400**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 10/12/2018

HOLE FINISHED: 10/12/2018

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL											ENGINEERING DESCRIPTION
GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
	DRY 13/12/2018	100	HA	1 1 1 5 7 5 11 >> 16 >>				0.5 1.0 1.5 2.0	TS TS TS TS	M W M-W	St VD		Organic SILT, with some sand; dark brownish black. Stiff, moist, low plasticity; sand, fine to medium. Fine to coarse SAND, with trace silt and gravel; light orange brown. Very dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous. 1.0m: Changes to greyish brown; wet. 1.3m: Changes to light orange brown; moist to wet. End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC301286 - Pg 177 of 406 - 9/07/2020 - bwoo

HandAugerLog - 11/02/2019 5:11:56 p.m. - Produced with Core-GS by GeRoc

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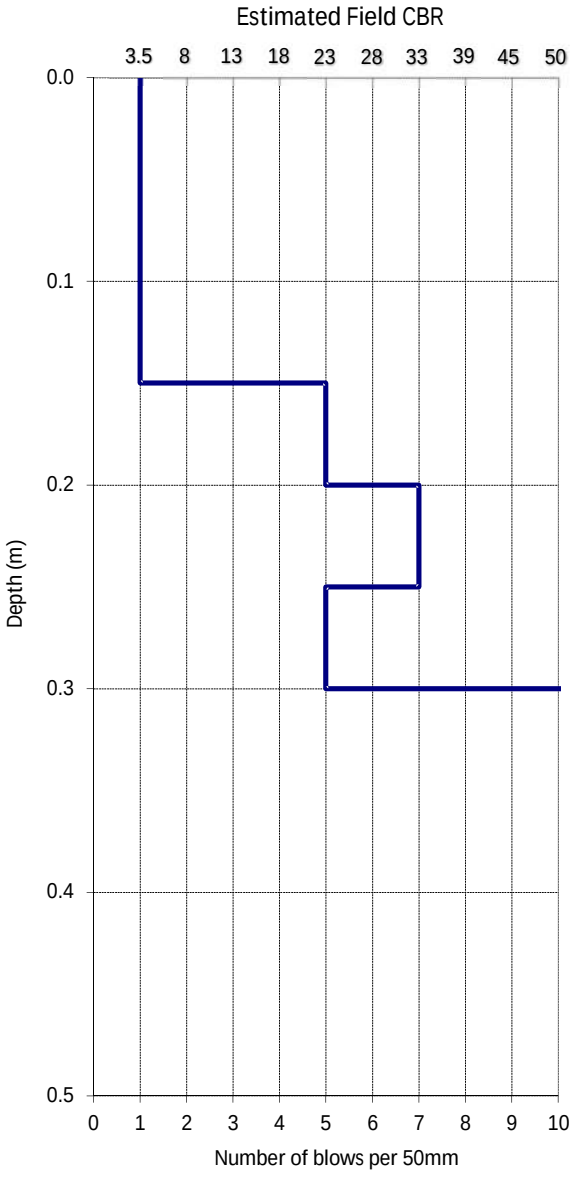
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016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 400 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 400 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	1	1150	1150	
200	200	5	1200	1200	
250	250	7	1250	1250	
300	300	5	1300	1300	
350	350	11	1350	1350	
400	400	16	1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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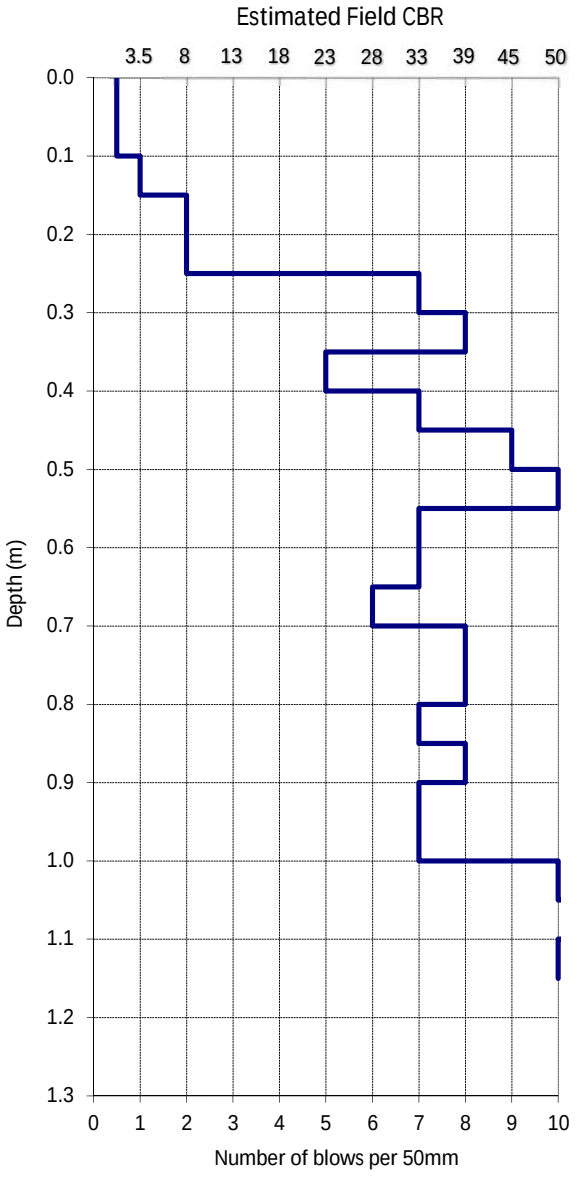
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 400 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 400 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	10
100	100	0.5	1100	1100	11
150	150	1	1150	1150	10
200	200	2	1200	1200	
250	250	2	1250	1250	
300	300	7	1300	1300	
350	350	8	1350	1350	
400	400	5	1400	1400	
450	450	7	1450	1450	
500	500	9	1500	1500	
550	550	10	1550	1550	
600	600	7	1600	1600	
650	650	7	1650	1650	
700	700	6	1700	1700	
750	750	8	1750	1750	
800	800	8	1800	1800	
850	850	7	1850	1850	
900	900	8	1900	1900	
950	950	7	1950	1950	
1000	1000	7	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 439**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 10/12/2018

HOLE FINISHED: 01/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				0.5, 0.5, 1, 2, 6, 7, 8, 8, 7, 7, 10, 9, 14 >>, 16 >>				0.0	TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
	DRY 13/12/2018	100	HA					0.5			D / VD		Fine to coarse SAND, with trace silt and gravel; light orange brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous. 0.5m: Changes to very dense.
								1.0		W			1.0m: Changes to wet.
								1.5		M			1.5m: Changes to moist.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 5:11:58 p.m. - Produced with Core-GS by GeRoc

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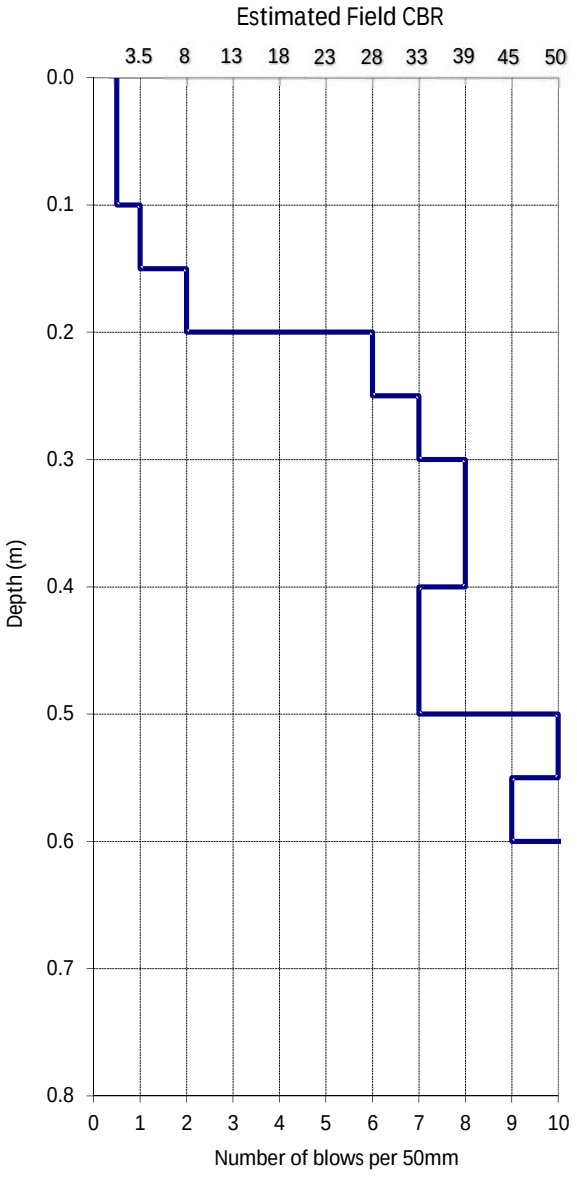
Lab Ref/URN: 016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 439 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 439 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	
100	100	0.5	1100	1100	
150	150	1	1150	1150	
200	200	2	1200	1200	
250	250	6	1250	1250	
300	300	7	1300	1300	
350	350	8	1350	1350	
400	400	8	1400	1400	
450	450	7	1450	1450	
500	500	7	1500	1500	
550	550	10	1550	1550	
600	600	9	1600	1600	
650	650	14	1650	1650	
700	700	16	1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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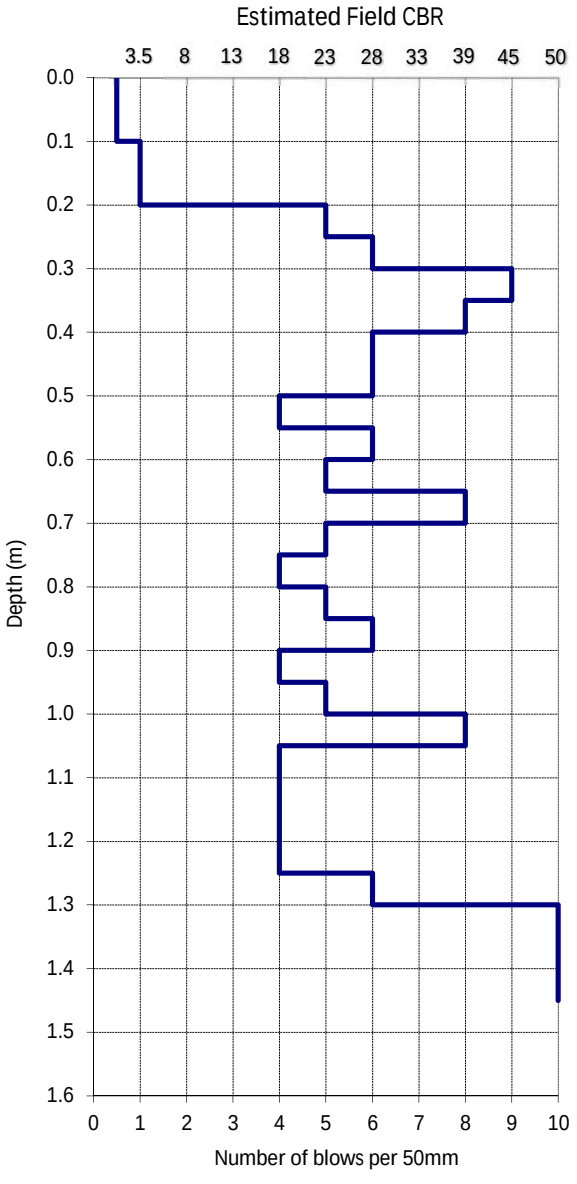
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 439 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 439 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	8
100	100	0.5	1100	1100	4
150	150	1	1150	1150	4
200	200	1	1200	1200	4
250	250	5	1250	1250	4
300	300	6	1300	1300	6
350	350	9	1350	1350	10
400	400	8	1400	1400	10
450	450	6	1450	1450	10
500	500	6	1500	1500	
550	550	4	1550	1550	
600	600	6	1600	1600	
650	650	5	1650	1650	
700	700	8	1700	1700	
750	750	5	1750	1750	
800	800	4	1800	1800	
850	850	5	1850	1850	
900	900	6	1900	1900	
950	950	4	1950	1950	
1000	1000	5	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 440**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 10/12/2018

HOLE FINISHED: 01/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				1 1 2 1 3 6 7 7 6 6 6 6 9 8 7 11 >> 11 >> 12 >>				0.0	TS TS TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, low plasticity; sand, fine to coarse.
	DRY 13/12/2018	100	HA					0.5			D		Fine to coarse SAND, with trace silt and gravel; light orange brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
											VD		0.75m: Changes to very dense.
								1.0		M-W			0.8m: Changes to moist to wet.
										M			1.1m: Changes to moist
								1.5					1.85m: Changes to light yellowish brown.
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 5:12:00 p.m. - Produced with Core-GS by GeRoc

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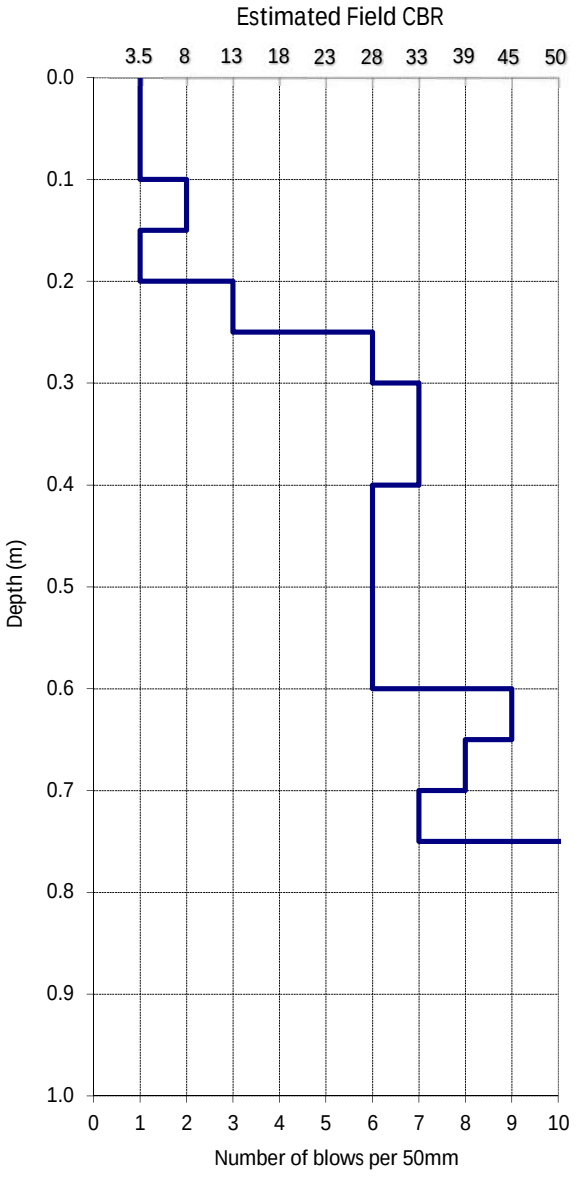
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 440 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 440 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	2	1150	1150	
200	200	1	1200	1200	
250	250	3	1250	1250	
300	300	6	1300	1300	
350	350	7	1350	1350	
400	400	7	1400	1400	
450	450	6	1450	1450	
500	500	6	1500	1500	
550	550	6	1550	1550	
600	600	6	1600	1600	
650	650	9	1650	1650	
700	700	8	1700	1700	
750	750	7	1750	1750	
800	800	11	1800	1800	
850	850	11	1850	1850	
900	900	12	1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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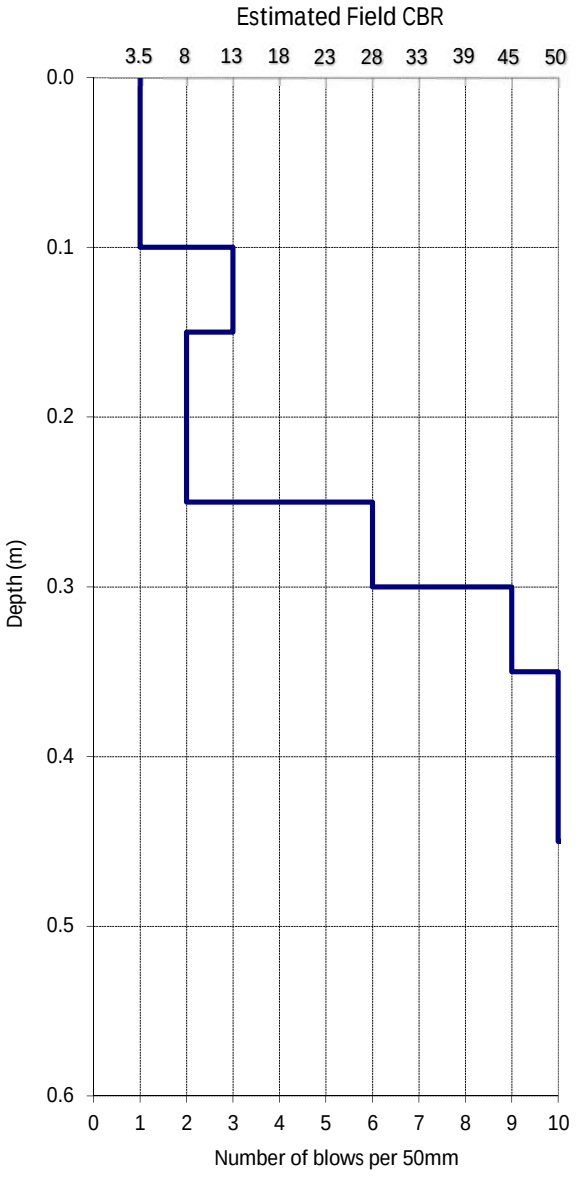
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 440 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 440 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	3	1150	1150	
200	200	2	1200	1200	
250	250	2	1250	1250	
300	300	6	1300	1300	
350	350	9	1350	1350	
400	400	10	1400	1400	
450	450	10	1450	1450	
500	500	11	1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 441**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 10/12/2018

HOLE FINISHED: 01/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
				1					TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
				1					TS				
				1					TS				
				1									
				5									
				8									
				7									
				6									
				7							D		Fine to coarse SAND, with trace silt and gravel; light orange brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded; pumiceous.
				7									
				8				0.5					
				6									
				4									
				4									
				4									
				3									
				5									
				4									
				4									
				4				1.0					
				4									
				4									
				4									
				4									
				4									
				5									
				13 >>							VD		1.25m: Changes to very dense.
				14 >>						W			1.3m: Changes to wet.
				13 >>				1.5					
	DRY 13/12/2018	100	HA										
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 5:12:03 p.m. - Produced with Core-GS by GeRoc

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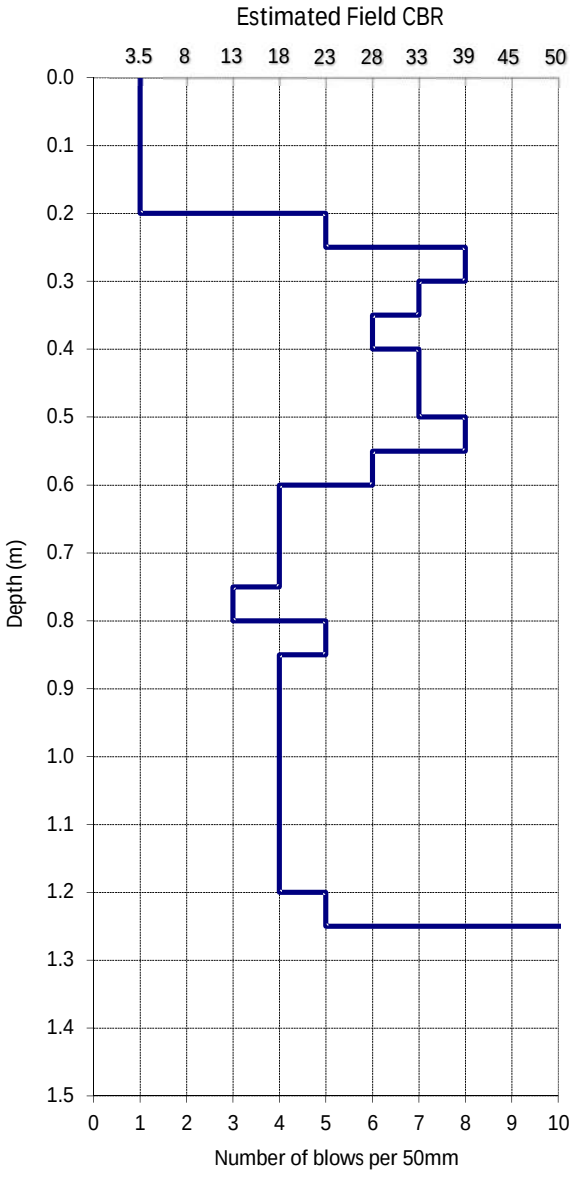
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 441 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 441 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	4
100	100	1	1100	1100	4
150	150	1	1150	1150	4
200	200	1	1200	1200	4
250	250	5	1250	1250	5
300	300	8	1300	1300	13
350	350	7	1350	1350	14
400	400	6	1400	1400	13
450	450	7	1450	1450	
500	500	7	1500	1500	
550	550	8	1550	1550	
600	600	6	1600	1600	
650	650	4	1650	1650	
700	700	4	1700	1700	
750	750	4	1750	1750	
800	800	3	1800	1800	
850	850	5	1850	1850	
900	900	4	1900	1900	
950	950	4	1950	1950	
1000	1000	4	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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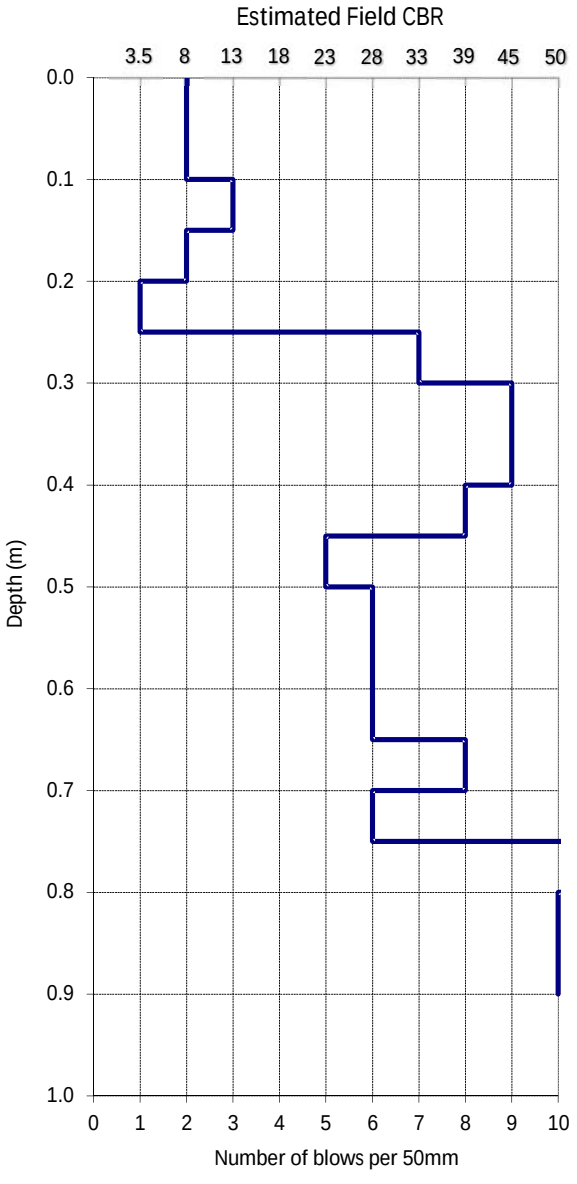
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 441 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 441 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	2	1100	1100	
150	150	3	1150	1150	
200	200	2	1200	1200	
250	250	1	1250	1250	
300	300	7	1300	1300	
350	350	9	1350	1350	
400	400	9	1400	1400	
450	450	8	1450	1450	
500	500	5	1500	1500	
550	550	6	1550	1550	
600	600	6	1600	1600	
650	650	6	1650	1650	
700	700	8	1700	1700	
750	750	6	1750	1750	
800	800	13	1800	1800	
850	850	10	1850	1850	
900	900	10	1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 442**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				2 2 3 7 7 7 7 8 7 6 7 3 4 5 4 2 5 3 3 4 5 7 6 6 6 6 7 6 7 5 6 8 14 >> 14 >> 10				0.5 1.0 1.5 2.0	TS	M-W	St	10 25 50 100 200	Organic SILT, with some sand; dark brownish black. stiff, moist to wet, non-plastic; sand, fine to medium.
										M	D		Fine to coarse SAND, with minor gravel, trace silt, light yellowish brown. Dense, moist, well graded; gravel, fine, subrounded to subangular, pumiceous.
											MD		0.55m: Changes to medium dense.
											D		1.0m: Changes to dense.
		100	HA							W			1.4m: Changes to brown; wet; gravel, fine to medium.
											VD		1.6m: Changes to very dense.
													End of borehole at 2.00 mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC301286 - Pg 189 of 406 - 9/07/2020 - bwoo

HandAugerLog - 11/02/2019 3:55:31 p.m. - Produced with Core-GS by GeRoc

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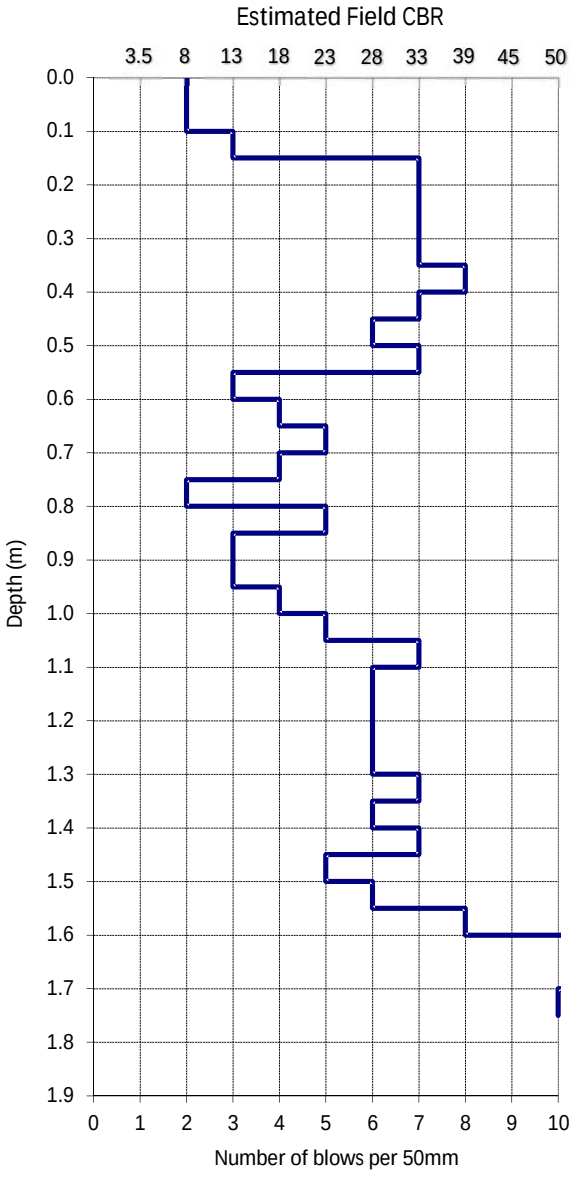
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 442 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 442 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	5
100	100	2	1100	1100	7
150	150	3	1150	1150	6
200	200	7	1200	1200	6
250	250	7	1250	1250	6
300	300	7	1300	1300	6
350	350	7	1350	1350	7
400	400	8	1400	1400	6
450	450	7	1450	1450	7
500	500	6	1500	1500	5
550	550	7	1550	1550	6
600	600	3	1600	1600	8
650	650	4	1650	1650	14
700	700	5	1700	1700	14
750	750	4	1750	1750	10
800	800	2	1800	1800	
850	850	5	1850	1850	
900	900	3	1900	1900	
950	950	3	1950	1950	
1000	1000	4	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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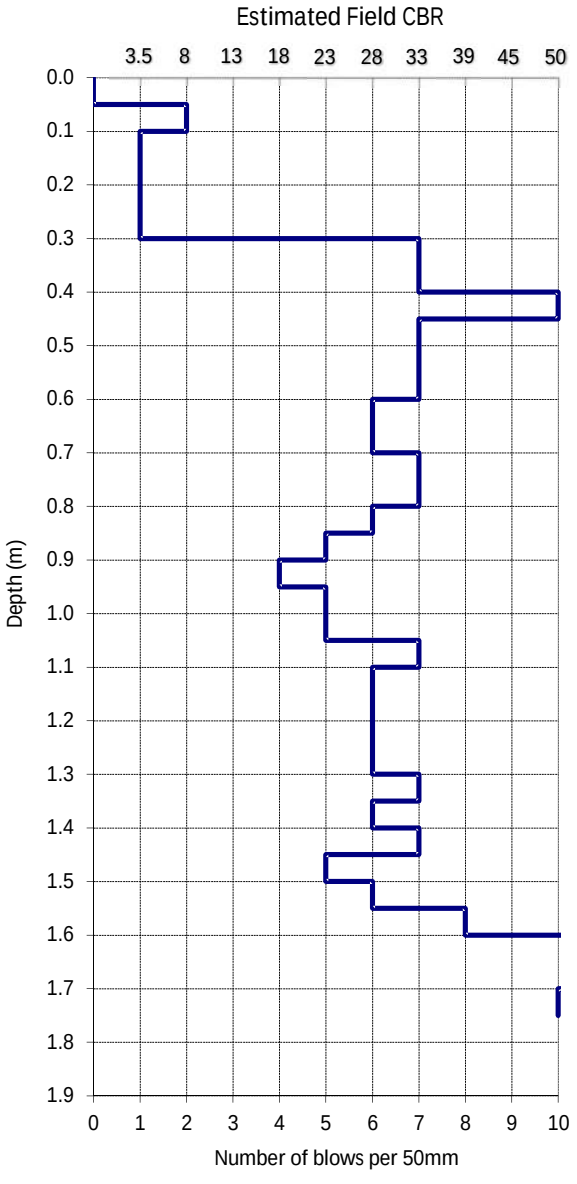
Lab Ref/URN
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 442 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 442 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0	1050	1050	5
100	100	2	1100	1100	7
150	150	1	1150	1150	6
200	200	1	1200	1200	6
250	250	1	1250	1250	6
300	300	1	1300	1300	6
350	350	7	1350	1350	7
400	400	7	1400	1400	6
450	450	10	1450	1450	7
500	500	7	1500	1500	5
550	550	7	1550	1550	6
600	600	7	1600	1600	8
650	650	6	1650	1650	14
700	700	6	1700	1700	14
750	750	7	1750	1750	10
800	800	7	1800	1800	
850	850	6	1850	1850	
900	900	5	1900	1900	
950	950	4	1950	1950	
1000	1000	5	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC301286 - Pg 191 of 406 - 9/07/2020 - bwoo

HOLE Id: **Lot 443**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				1 1 2 5 10 9 7 6 8 6 7 5 5 4 4 4 4 4 3 4 6 6 5 4 4 5 4 6 6 5 4 16 >>				0.0	TS TS	M-W	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, non-plastic; sand, fine to medium.
								0.5		M	D		Fine to coarse SAND, with minor silt and gravel light greyish brown. Dense, moist, well graded; gravel, fine, subrounded to subangular, pumiceous.
								1.0		W			1.4m: Changes to dark greyish brown; wet.
								1.5			VD		1.55m: Changes to very dense.
								2.0					1.95m: Changes to pinkish brown.
													End of borehole at 2.0 mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:55:34 p.m. - Produced with Core-GS by GeRoc

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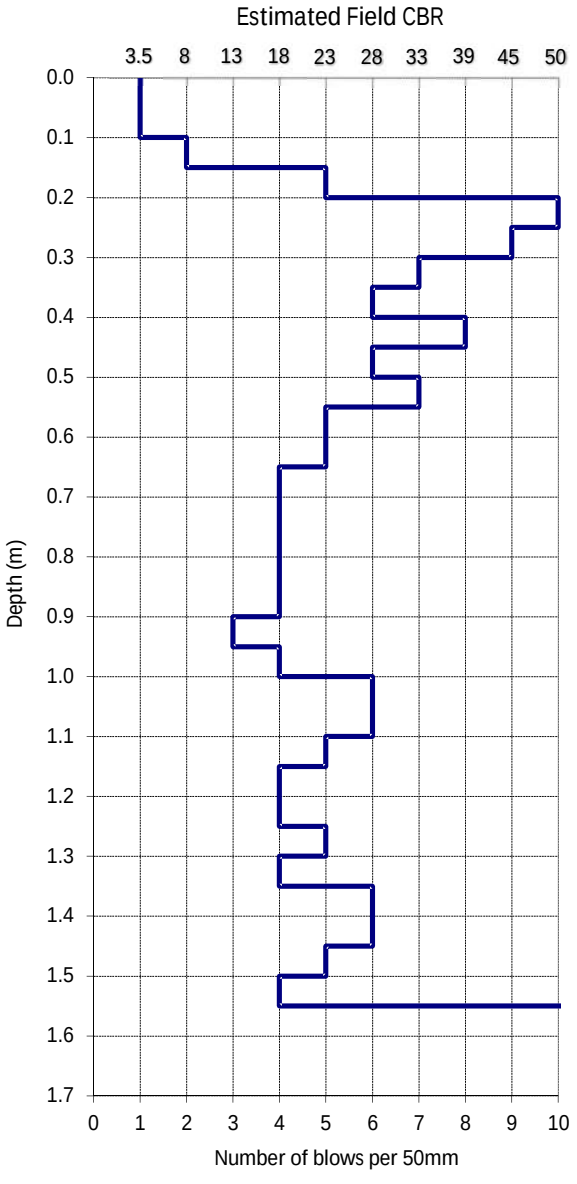
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 443 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 443 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	6
100	100	1	1100	1100	6
150	150	2	1150	1150	5
200	200	5	1200	1200	4
250	250	10	1250	1250	4
300	300	9	1300	1300	5
350	350	7	1350	1350	4
400	400	6	1400	1400	6
450	450	8	1450	1450	6
500	500	6	1500	1500	5
550	550	7	1550	1550	4
600	600	5	1600	1600	16
650	650	5	1650	1650	
700	700	4	1700	1700	
750	750	4	1750	1750	
800	800	4	1800	1800	
850	850	4	1850	1850	
900	900	4	1900	1900	
950	950	3	1950	1950	
1000	1000	4	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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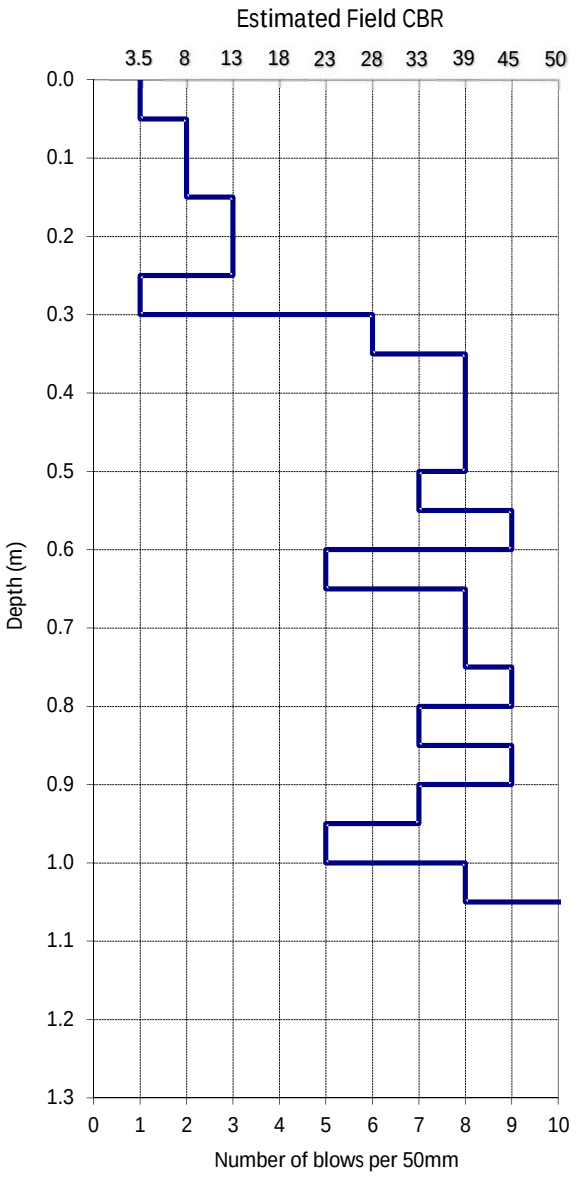
Lab Ref/URN
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 443 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 443 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	8
100	100	2	1100	1100	11
150	150	2	1150	1150	18
200	200	3	1200	1200	
250	250	3	1250	1250	
300	300	1	1300	1300	
350	350	6	1350	1350	
400	400	8	1400	1400	
450	450	8	1450	1450	
500	500	8	1500	1500	
550	550	7	1550	1550	
600	600	9	1600	1600	
650	650	5	1650	1650	
700	700	8	1700	1700	
750	750	8	1750	1750	
800	800	9	1800	1800	
850	850	7	1850	1850	
900	900	9	1900	1900	
950	950	7	1950	1950	
1000	1000	5	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 444**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: DBRU CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
				1 2 1 6 8 5 6 5 7 8 7 7 6 6 4 4 4 3 3 4 4 3 3 4 4 3 3 3 4 5 6 4 5 6 6 5 11 >> 12 >> 8				0.5 1.0 1.5 2.0	TS TS	M	St		Sandy SILT, with trace gravel; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse; gravel, fine, subangular to subrounded, pumiceous.
											D		Fine to coarse SAND, with trace silt and gravel; light yellowish brown. Dense, moist, poorly graded; gravel, fine, subangular to subrounded, pumiceous.
											MD		0.7m: Changes to medium dense.
											D		1.45m: Changes to dense.
	DRY 08/01/2019									M-W	VD		1.75m: Changes to minor silt; moist to wet 1.8m: Changes to brown; very dense.
													End of borehole at 2.00 mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:55:36 p.m. - Produced with Core-GS by GeRoc

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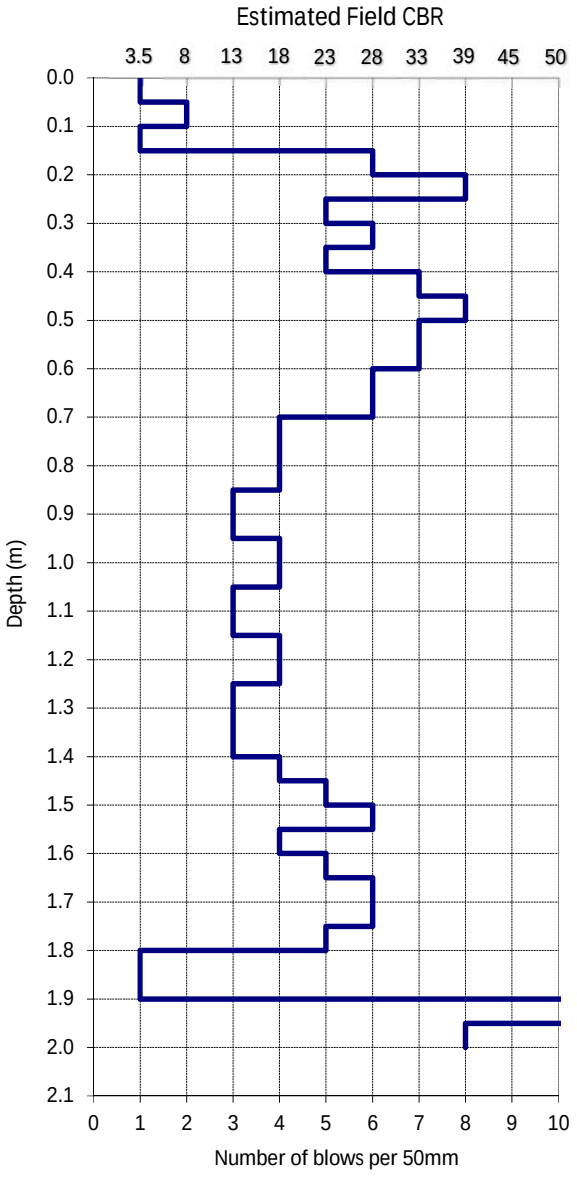
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 444 borehole log.	Test Series	Terrace Views/091218/SC444-446
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 444 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	4
100	100	2	1100	1100	3
150	150	1	1150	1150	3
200	200	6	1200	1200	4
250	250	8	1250	1250	4
300	300	5	1300	1300	3
350	350	6	1350	1350	3
400	400	5	1400	1400	3
450	450	7	1450	1450	4
500	500	8	1500	1500	5
550	550	7	1550	1550	6
600	600	7	1600	1600	4
650	650	6	1650	1650	5
700	700	6	1700	1700	6
750	750	4	1750	1750	6
800	800	4	1800	1800	5
850	850	4	1850	1850	1
900	900	3	1900	1900	1
950	950	3	1950	1950	12
1000	1000	4	2000	2000	8



Test Remarks

Tested By	PIFA	Date	9/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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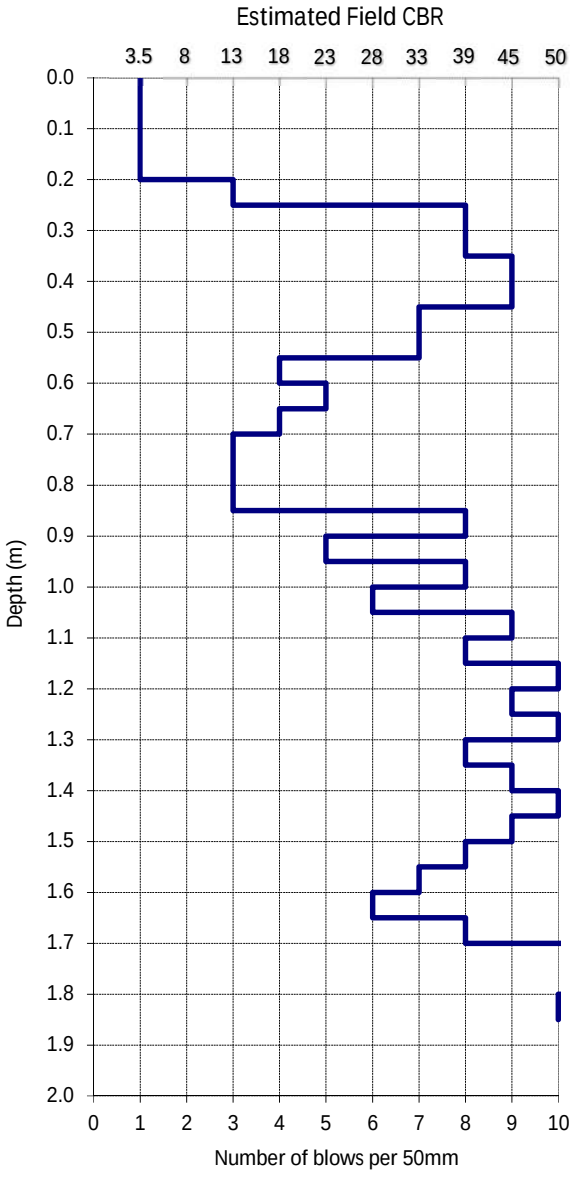
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 444 borehole log.	Test Series	Terrace Views/091218/SC444-446
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 444 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	6
100	100	1	1100	1100	9
150	150	1	1150	1150	8
200	200	1	1200	1200	10
250	250	3	1250	1250	9
300	300	8	1300	1300	10
350	350	8	1350	1350	8
400	400	9	1400	1400	9
450	450	9	1450	1450	10
500	500	7	1500	1500	9
550	550	7	1550	1550	8
600	600	4	1600	1600	7
650	650	5	1650	1650	6
700	700	4	1700	1700	8
750	750	3	1750	1750	11
800	800	3	1800	1800	12
850	850	3	1850	1850	10
900	900	8	1900	1900	
950	950	5	1950	1950	
1000	1000	8	2000	2000	



Test Remarks

Tested By	PIFA	Date	9/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC301286 - Pg 197 of 406 - 9/07/2020 - bwoo

HOLE Id: **Lot 445**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: WS

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 14/12/2018	100	WS	1 1 1 3 5 7 7 7 6 5 5 6 6 5 5 6 7 6 4 7 10 11 >> 8 7 6 5 6 6 5 6 6 7 12 >> 20 >>				0.5 1.0 1.5 2.0	TS TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, non-plastic; sand, fine to medium
											D		Fine to coarse SAND, with trace silt and gravel; light yellowish brown. Dense, moist, well graded gravel, fine, subangular to subrounded, pumiceous.
											VD		1.0m: Changes to very dense.
											D		1.1m: Changes to dense.
										W			1.5m: Changes to light greyish brown; wet.
											VD		1.6m: Changes to very dense.
										M-W			1.8m: Changes to light orange brown; moist to wet.
								2.0					End of borehole at 2.00 mbgl.
													No standing ground water encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC301286 - Pg 198 of 406 - 9/07/2020 - bwoo

HandAugerLog - 11/02/2019 3:55:39 p.m. - Produced with Core-GS by GeRoc

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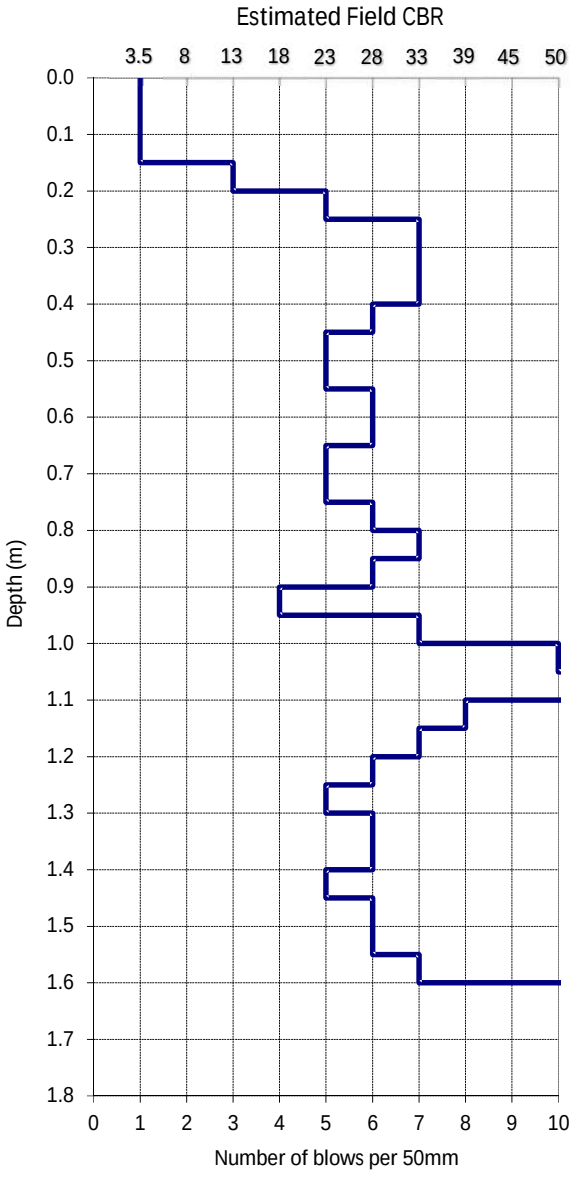
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 445 borehole log.	Test Series	Terrace Views/091218/SC444-446
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 445 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	10
100	100	1	1100	1100	11
150	150	1	1150	1150	8
200	200	3	1200	1200	7
250	250	5	1250	1250	6
300	300	7	1300	1300	5
350	350	7	1350	1350	6
400	400	7	1400	1400	6
450	450	6	1450	1450	5
500	500	5	1500	1500	6
550	550	5	1550	1550	6
600	600	6	1600	1600	7
650	650	6	1650	1650	12
700	700	5	1700	1700	20
750	750	5	1750	1750	
800	800	6	1800	1800	
850	850	7	1850	1850	
900	900	6	1900	1900	
950	950	4	1950	1950	
1000	1000	7	2000	2000	



Test Remarks

Tested By	PIFA	Date	9/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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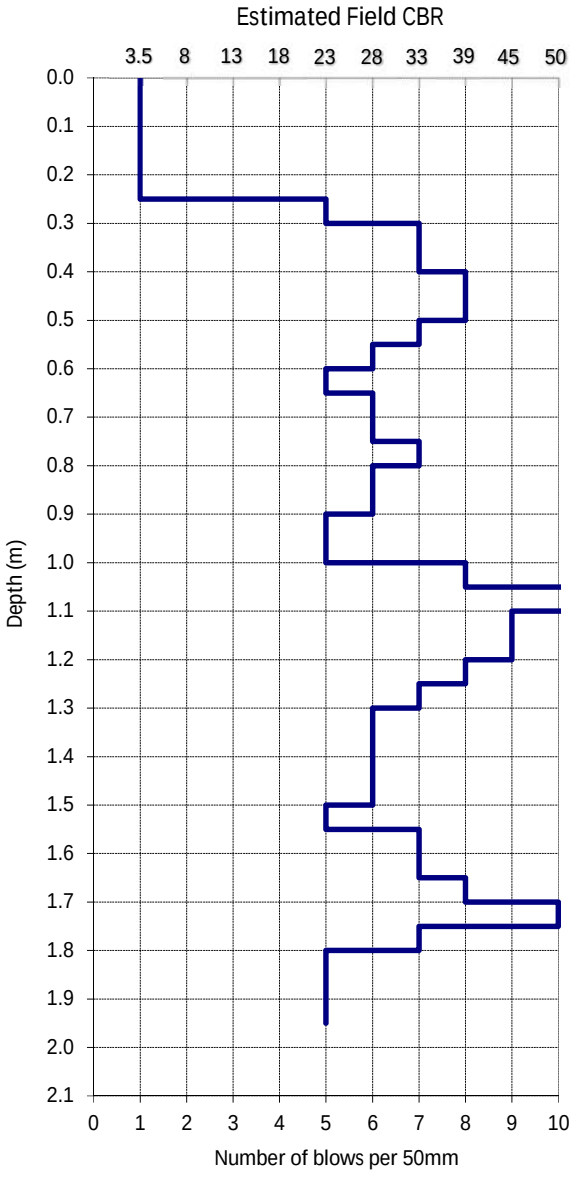
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 445 borehole log.	Test Series	Terrace Views/091218/SC444-446
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 445 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	8
100	100	1	1100	1100	11
150	150	1	1150	1150	9
200	200	1	1200	1200	9
250	250	1	1250	1250	8
300	300	5	1300	1300	7
350	350	7	1350	1350	6
400	400	7	1400	1400	6
450	450	8	1450	1450	6
500	500	8	1500	1500	6
550	550	7	1550	1550	5
600	600	6	1600	1600	7
650	650	5	1650	1650	7
700	700	6	1700	1700	8
750	750	6	1750	1750	10
800	800	7	1800	1800	7
850	850	6	1850	1850	5
900	900	6	1900	1900	5
950	950	5	1950	1950	5
1000	1000	5	2000	2000	



Test Remarks

Tested By	PIFA	Date	9/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 446**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 09/01/2019			1 1 1 1 7 9 8 8 8 8 9 8 8 9 7 7 6 5 9 9 11 >> 9 7 6 7 6 10 10 5 5 7 10 10 10				0.5 1.0 1.5 2.0	TS	M-W	St	10 25 50 100 200	Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, non-plastic; sand, fine to medium.
										M	VD		Fine to coarse SAND, with minor gravel; light yellowish brown. Very dense, moist, well graded gravel, fine, subangular to subrounded, pumiceous.
											D		0.7m: Changes to dense.
											VD		0.9m: Changes to very dense.
											D		1.1m: Changes to dense.
											VD		1.3m: Changes to very dense.
											D		1.4m: Changes to dense.
										M-W			1.5m: Changes to moist to wet.
											VD		1.55m: Changes to very dense.
										W			1.8m: Changes to wet.
													End of borehole at 2.0 mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:55:41 p.m. - Produced with Core-GS by GeRoc

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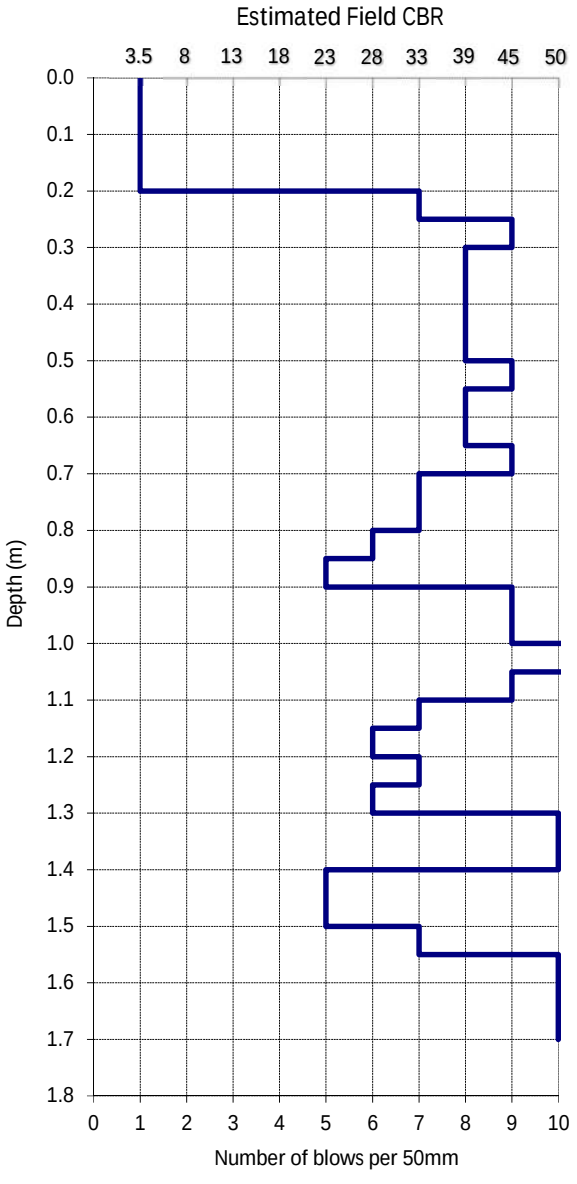
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 446 borehole log.	Test Series	Terrace Views/091218/SC444-446
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 446 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	11
100	100	1	1100	1100	9
150	150	1	1150	1150	7
200	200	1	1200	1200	6
250	250	7	1250	1250	7
300	300	9	1300	1300	6
350	350	8	1350	1350	10
400	400	8	1400	1400	10
450	450	8	1450	1450	5
500	500	8	1500	1500	5
550	550	9	1550	1550	7
600	600	8	1600	1600	10
650	650	8	1650	1650	10
700	700	9	1700	1700	10
750	750	7	1750	1750	
800	800	7	1800	1800	
850	850	6	1850	1850	
900	900	5	1900	1900	
950	950	9	1950	1950	
1000	1000	9	2000	2000	



Test Remarks

Tested By	PIFA	Date	9/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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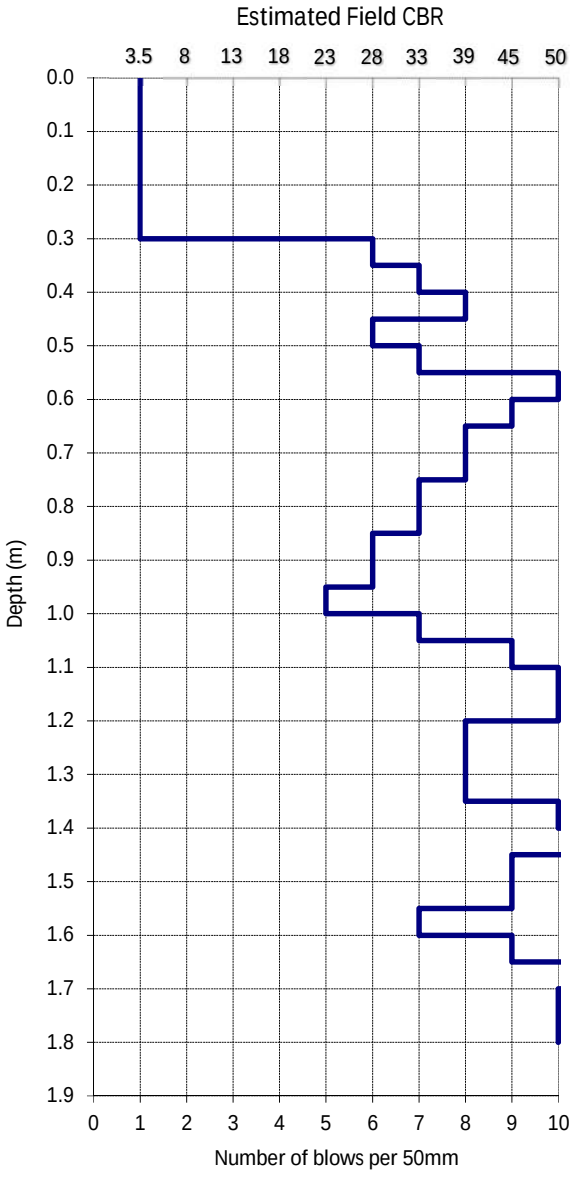
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 446 borehole log.	Test Series	Terrace Views/091218/SC444-446
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 446

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	7
100	100	1	1100	1100	9
150	150	1	1150	1150	10
200	200	1	1200	1200	10
250	250	1	1250	1250	8
300	300	1	1300	1300	8
350	350	6	1350	1350	8
400	400	7	1400	1400	10
450	450	8	1450	1450	11
500	500	6	1500	1500	9
550	550	7	1550	1550	9
600	600	10	1600	1600	7
650	650	9	1650	1650	9
700	700	8	1700	1700	11
750	750	8	1750	1750	10
800	800	7	1800	1800	10
850	850	7	1850	1850	
900	900	6	1900	1900	
950	950	6	1950	1950	
1000	1000	5	2000	2000	



Test Remarks

Tested By	PIFA	Date	9/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 447**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				1, 4, 5, 6, 6, 10, 15 >>, 13 >>				0.0	TS	M-W	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, non-plastic; sand, fine to medium.
	DRY 08/01/2019							0.5		M	VD		Fine to coarse SAND, with minor gravel, trace silt; yellowish brown. Very dense, moist, well graded; gravel, fine, subangular to subrounded, pumiceous.
								1.0		M-W			1.1m: Change from moist to wet.
										W			1.2m: Changes to orange brown; wet.
								1.5					1.4m: Changes to light brown.
								2.0					End of Borehole at 2.00 mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC301286 - Pg 204 of 406 - 9/07/2020 - bwoo

HandAugerLog - 11/02/2019 3:55:43 p.m. - Produced with Core-GS by GeRoc

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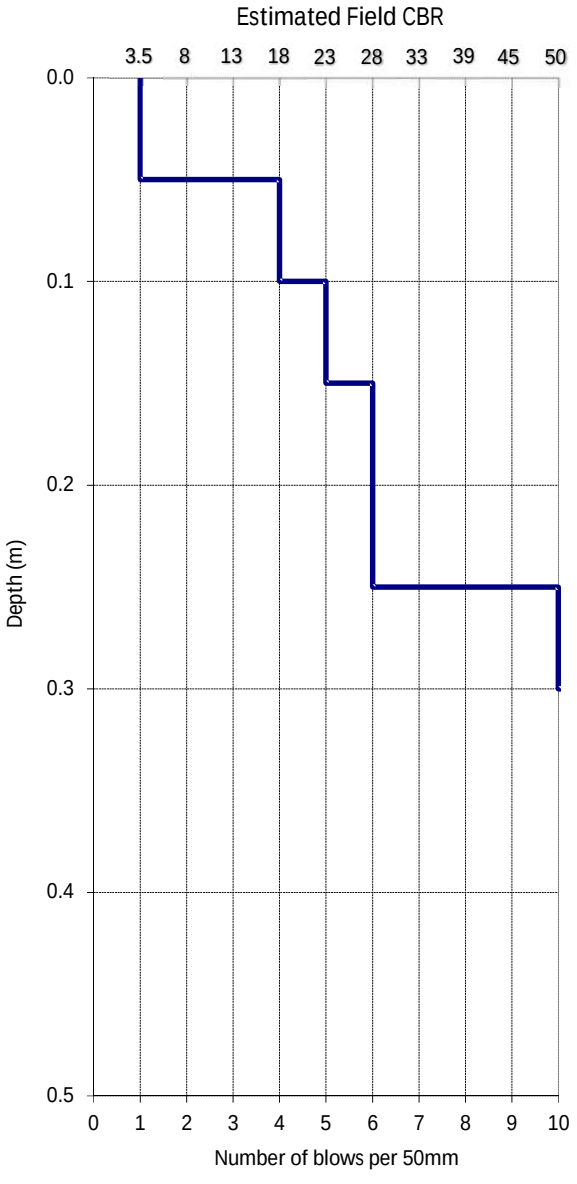
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019/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 448 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)		Test Number	Lot 447 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	4	1100	1100	
150	150	5	1150	1150	
200	200	6	1200	1200	
250	250	6	1250	1250	
300	300	10	1300	1300	
350	350	15	1350	1350	
400	400	13	1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	DBRU	Date	11/12/2018
Data Entry By	ALDE	Date	18/12/2018
Checked By	RWM	Date	7/02/2019

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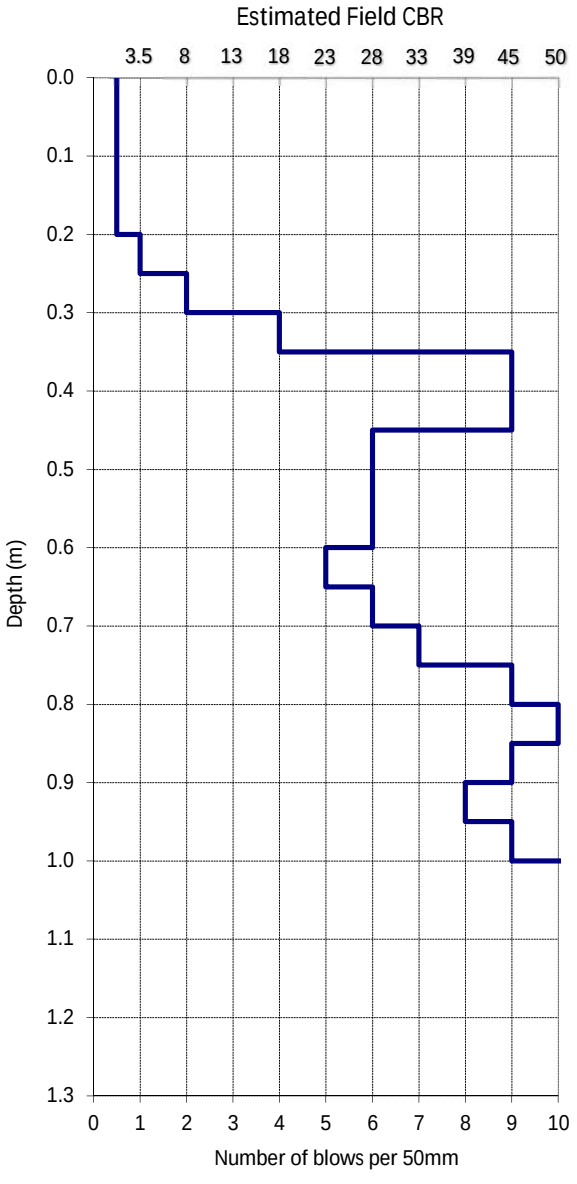
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 447 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 447

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	11
100	100	0.5	1100	1100	12
150	150	0.5	1150	1150	11
200	200	0.5	1200	1200	
250	250	1	1250	1250	
300	300	2	1300	1300	
350	350	4	1350	1350	
400	400	9	1400	1400	
450	450	9	1450	1450	
500	500	6	1500	1500	
550	550	6	1550	1550	
600	600	6	1600	1600	
650	650	5	1650	1650	
700	700	6	1700	1700	
750	750	7	1750	1750	
800	800	9	1800	1800	
850	850	10	1850	1850	
900	900	9	1900	1900	
950	950	8	1950	1950	
1000	1000	9	2000	2000	



Test Remarks

Tested By	DBRU	Date	11/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 448**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: EWDA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
				3					TS	M-W	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, low plasticity; sand, fin to coarse.
				7						M	VD		Fine to coarse SAND, with trace silt and gravel; light orange brown with trace pink mottling. Ver dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous
				9				0.5					
				9									
				10									
				9									
				9									
				9									
				10									
				10							D		0.85m: Changes to dense.
				6									
				5				1.0					
				7									
				7									
				6									
				5									
				11 >>							VD		1.15m: Changes to very dense.
				11 >>									
				11 >>									
													1.4m: Pink mottling absent.
								1.5					
										W			1.6m: Changes to wet.
	DRY 13/12/2018	100	WS										
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 5:12:05 p.m. - Produced with Core-GS by GeRoc

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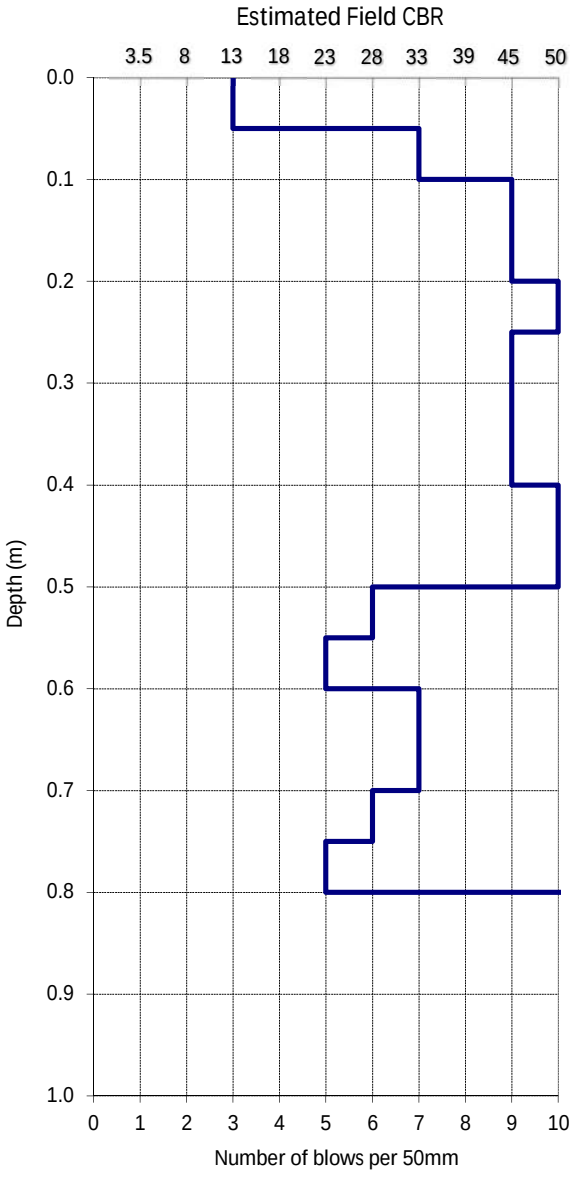
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019/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 448 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 448 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	3	1050	1050	
100	100	7	1100	1100	
150	150	9	1150	1150	
200	200	9	1200	1200	
250	250	10	1250	1250	
300	300	9	1300	1300	
350	350	9	1350	1350	
400	400	9	1400	1400	
450	450	10	1450	1450	
500	500	10	1500	1500	
550	550	6	1550	1550	
600	600	5	1600	1600	
650	650	7	1650	1650	
700	700	7	1700	1700	
750	750	6	1750	1750	
800	800	5	1800	1800	
850	850	11	1850	1850	
900	900	11	1900	1900	
950	950	11	1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	DBRU	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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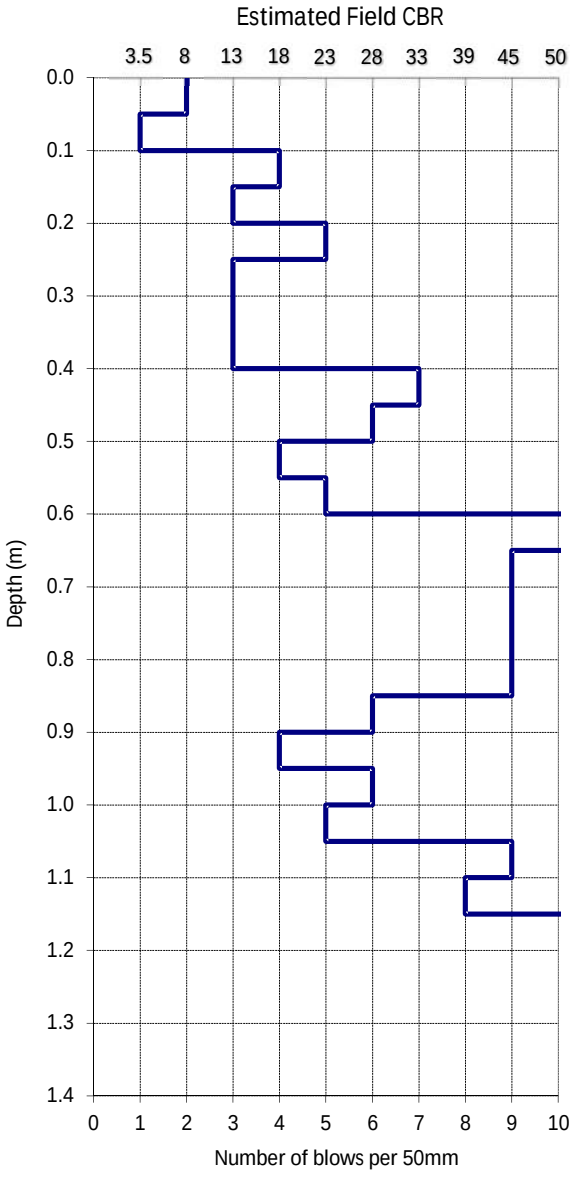
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 448 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 448 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	5
100	100	1	1100	1100	9
150	150	4	1150	1150	8
200	200	3	1200	1200	11
250	250	5	1250	1250	16
300	300	3	1300	1300	16
350	350	3	1350	1350	
400	400	3	1400	1400	
450	450	7	1450	1450	
500	500	6	1500	1500	
550	550	4	1550	1550	
600	600	5	1600	1600	
650	650	11	1650	1650	
700	700	9	1700	1700	
750	750	9	1750	1750	
800	800	9	1800	1800	
850	850	9	1850	1850	
900	900	6	1900	1900	
950	950	4	1950	1950	
1000	1000	6	2000	2000	



Test Remarks

Tested By	DBRU	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC301286 - Pg 209 of 406 - 9/07/2020 - bwoo

HOLE Id: **Lot 449**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: EWDA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
								0.0	TS	M-W	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, low plasticity; sand, fine to coarse.
	DRY 13/12/2018	100	HA	6 8 10 9 10 10 10				0.5			D VD		Fine to coarse SAND, with trace silt and gravel; light orange brown. Dense, moist to wet, well graded; gravel, fine to medium, subangular to subrounded, pumiceous. 0.6m: Changes to very dense.
								1.0 1.5 2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC301286 - Pg 210 of 406 - 9/07/2020 - bwoo

HandAugerLog - 11/02/2019 5:12:08 p.m. - Produced with Core-GS by GeRoc

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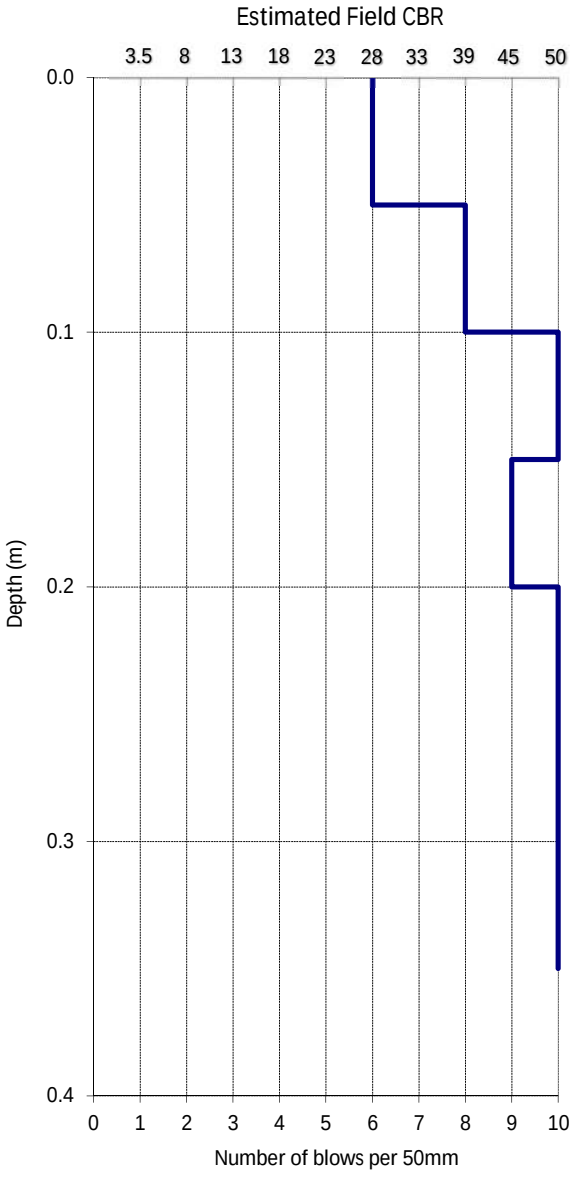
Lab Ref/URN: 020/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 449 borehole log.	Test Series	Terrace Views/131218/SC449-450
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 449 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	6	1050	1050	
100	100	8	1100	1100	
150	150	10	1150	1150	
200	200	9	1200	1200	
250	250	10	1250	1250	
300	300	10	1300	1300	
350	350	10	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	13/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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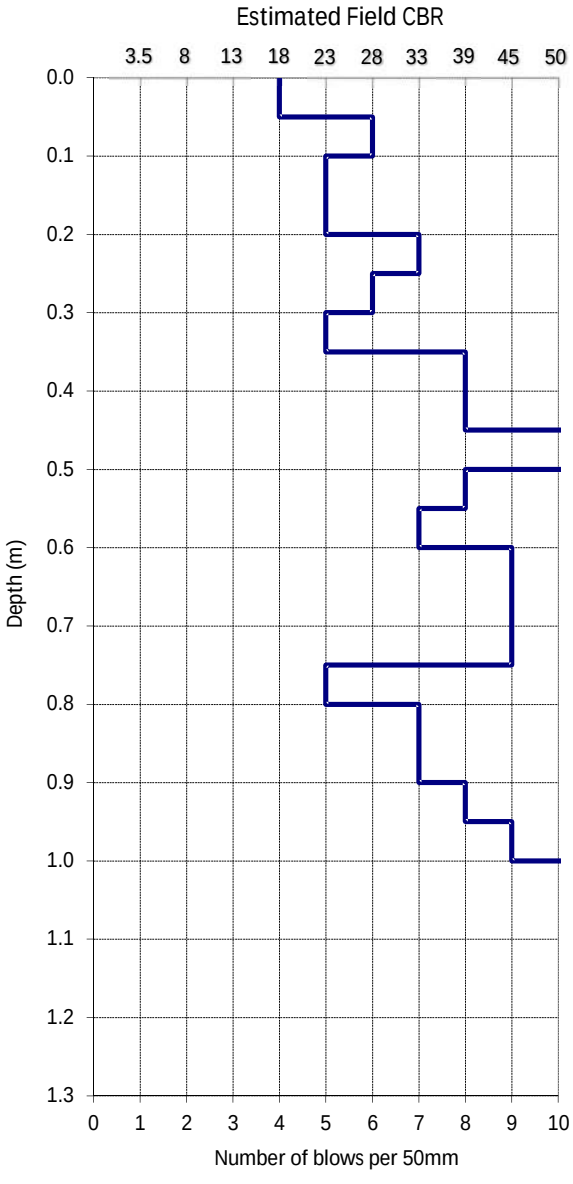
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 449 borehole log.	Test Series	Terrace Views/131218/SC449-450
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 449 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	4	1050	1050	12
100	100	6	1100	1100	17
150	150	5	1150	1150	20
200	200	5	1200	1200	
250	250	7	1250	1250	
300	300	6	1300	1300	
350	350	5	1350	1350	
400	400	8	1400	1400	
450	450	8	1450	1450	
500	500	11	1500	1500	
550	550	8	1550	1550	
600	600	7	1600	1600	
650	650	9	1650	1650	
700	700	9	1700	1700	
750	750	9	1750	1750	
800	800	5	1800	1800	
850	850	7	1850	1850	
900	900	7	1900	1900	
950	950	8	1950	1950	
1000	1000	9	2000	2000	



Test Remarks

Tested By	DBRU	Date	13/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 450**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: EWDA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
									TS	M-W	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, low plasticity; sand, fin to coarse.
				3							VD		Fine to coarse SAND, with trace silt and gravel; light orange brown. Very dense, moist to wet, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
				12 >>				0.5					
				11 >>									
	DRY 13/12/2018	100	HA	12 >>				1.0					
								1.5					1.5m: Changes to orange brown.
													1.65m: Changes to light greyish brown.
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 5:12:10 p.m. - Produced with Core-GS by GeRoc

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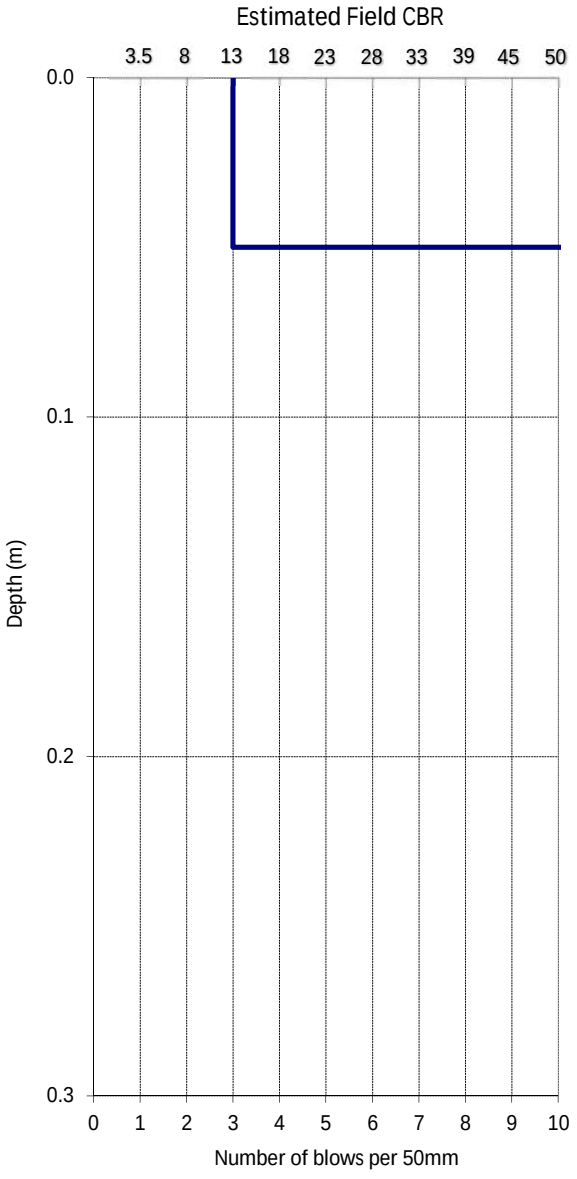
Lab Ref/URN
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 450 borehole log.	Test Series	Terrace Views/131218/SC449-450
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 450 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	3	1050	1050	
100	100	12	1100	1100	
150	150	11	1150	1150	
200	200	12	1200	1200	
250	250		1250	1250	
300	300		1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	DBRU	Date	13/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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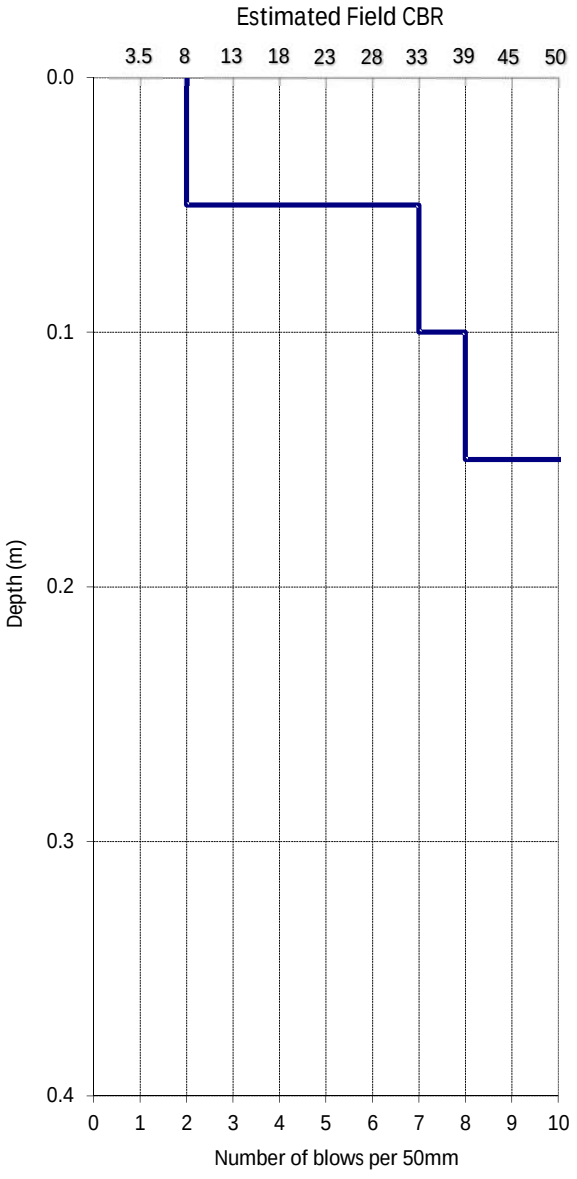
Lab Ref/URN
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 450 borehole log.	Test Series	Terrace Views/131218/SC449-450
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 450 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	7	1100	1100	
150	150	8	1150	1150	
200	200	13	1200	1200	
250	250	12	1250	1250	
300	300	12	1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	13/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 451**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: EWDA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
	DRY 11/12/2018	100	HA	4 6 6 6 7 8 8 8 6 5 4 3 3 3 3 5 9 9 11 >> 9 16 >> 16 >>				0.5 1.0 1.5 2.0		M-W W	D MD VD		Fine to coarse SAND, with trace silt and gravel; light brown. Dense, moist to wet, well graded; gravel, subrounded to subangular, fine to medium, pumiceous. 0.55m: Changes to medium dense. 0.8m: Changes to very dense. 1.2m: Changes to greyish brown; wet. 1.6m: Gravel absent. End of borehole at 2.0 mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:55:53 p.m. - Produced with Core-GS by GeRoc

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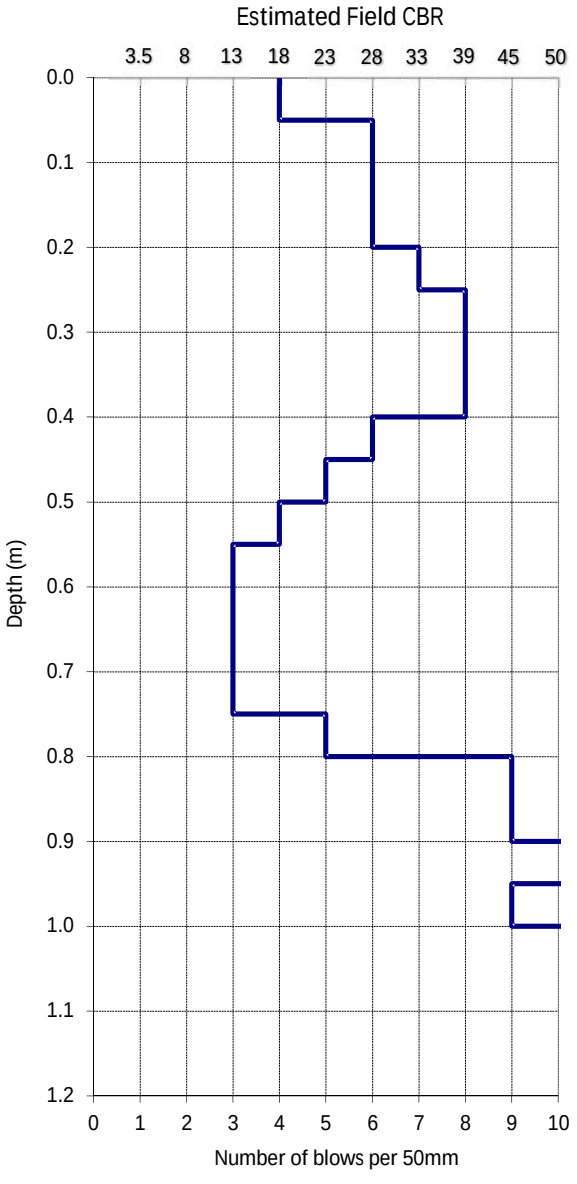
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 451 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 451 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	4	1050	1050	16
100	100	6	1100	1100	16
150	150	6	1150	1150	
200	200	6	1200	1200	
250	250	7	1250	1250	
300	300	8	1300	1300	
350	350	8	1350	1350	
400	400	8	1400	1400	
450	450	6	1450	1450	
500	500	5	1500	1500	
550	550	4	1550	1550	
600	600	3	1600	1600	
650	650	3	1650	1650	
700	700	3	1700	1700	
750	750	3	1750	1750	
800	800	5	1800	1800	
850	850	9	1850	1850	
900	900	9	1900	1900	
950	950	11	1950	1950	
1000	1000	9	2000	2000	



Test Remarks

Tested By	DBRU	Date	11/12/2018
Data Entry By	ALDE	Date	18/12/2018
Checked By	RWM	Date	7/02/2019

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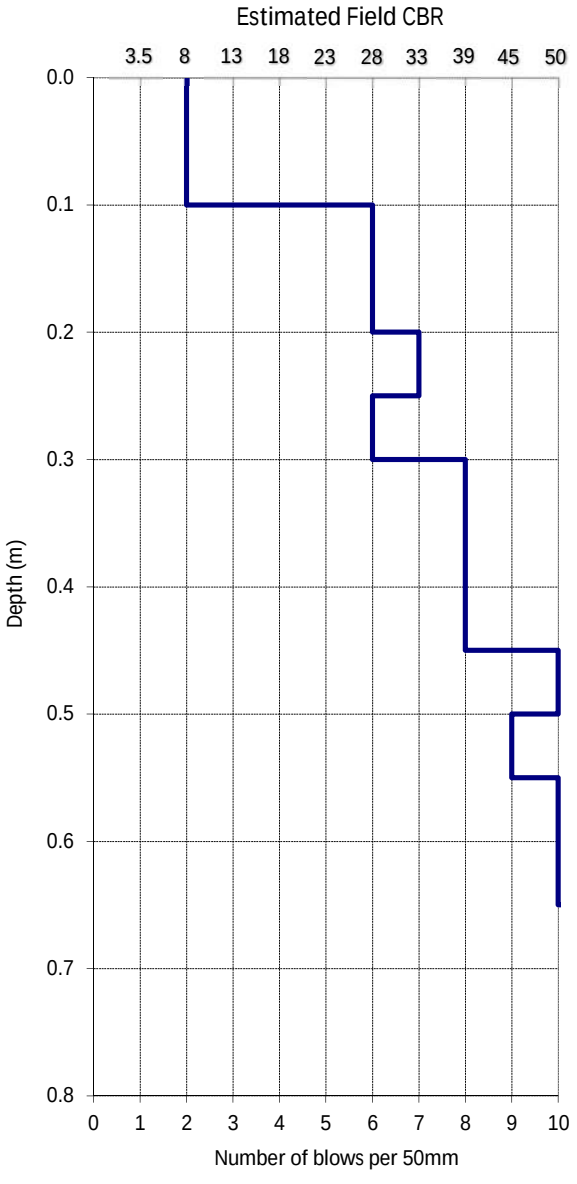
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 451 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 451 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	2	1100	1100	
150	150	6	1150	1150	
200	200	6	1200	1200	
250	250	7	1250	1250	
300	300	6	1300	1300	
350	350	8	1350	1350	
400	400	8	1400	1400	
450	450	8	1450	1450	
500	500	10	1500	1500	
550	550	9	1550	1550	
600	600	10	1600	1600	
650	650	10	1650	1650	
700	700	11	1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	DBRU	Date	11/12/2018
Data Entry By	ALDE	Date	18/12/2018
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 452**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 10/12/2018	100	HA	1, 2, 4, 4, 4, 4, 5, 4, 3, 5, 9, 8, 8, 8, 11 >>, 9, 9, 10, 10, 10				0.5, 1.0, 1.5, 2.0		M-W	L / MD / VD	10 25 50 100 200	Fine to coarse SAND, with trace silt and gravel; light orange brown. Loose, moist to wet, well graded; gravel, fine to medium, subangular to subrounded, pumiceous. 0.1m: Changes to medium dense. 0.5m: Changes to very dense. 1.2m: Changes to light greyish brown; gravel absent. 1.45m: Changes to greyish brown. End of borehole at 2.0 mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:55:55 p.m. - Produced with Core-GS by GeRoc

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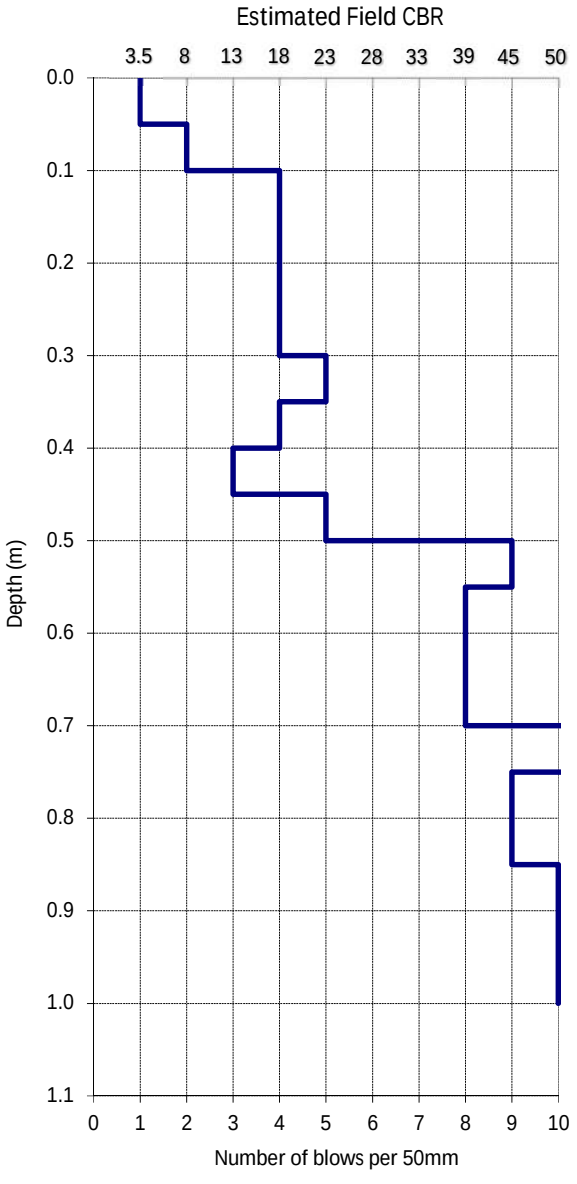
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 452 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 452 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	2	1100	1100	
150	150	4	1150	1150	
200	200	4	1200	1200	
250	250	4	1250	1250	
300	300	4	1300	1300	
350	350	5	1350	1350	
400	400	4	1400	1400	
450	450	3	1450	1450	
500	500	5	1500	1500	
550	550	9	1550	1550	
600	600	8	1600	1600	
650	650	8	1650	1650	
700	700	8	1700	1700	
750	750	11	1750	1750	
800	800	9	1800	1800	
850	850	9	1850	1850	
900	900	10	1900	1900	
950	950	10	1950	1950	
1000	1000	10	2000	2000	



Test Remarks

Tested By	DBRU	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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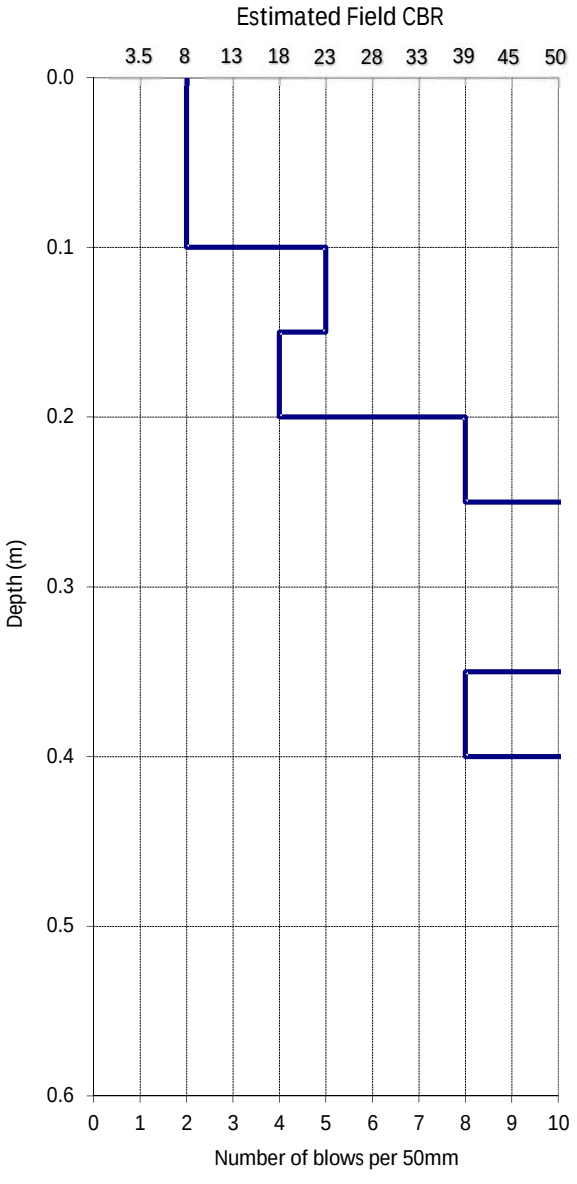
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 452 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 452 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	2	1100	1100	
150	150	5	1150	1150	
200	200	4	1200	1200	
250	250	8	1250	1250	
300	300	12	1300	1300	
350	350	11	1350	1350	
400	400	8	1400	1400	
450	450	12	1450	1450	
500	500	16	1500	1500	
550	550	13	1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	DBRU	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 453**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: DBRU CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 11/12/2018	100	HA	1, 2, 4, 8, 10, 12 >>, 13 >>				0.5		M	L		Fine to coarse SAND, with minor gravel, trace silt; orange brown. Loose, moist, well graded; gravel, fine, subangular to subrounded, pumiceous.
											D		0.1m: Changes to dense.
											VD		0.2m: Changes to very dense.
								1.0		W			0.55m: Changes to greyish brown; wet.
								1.5					
								2.0					End of borehole at 2.0 mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:55:58 p.m. - Produced with Core-GS by GeRoc

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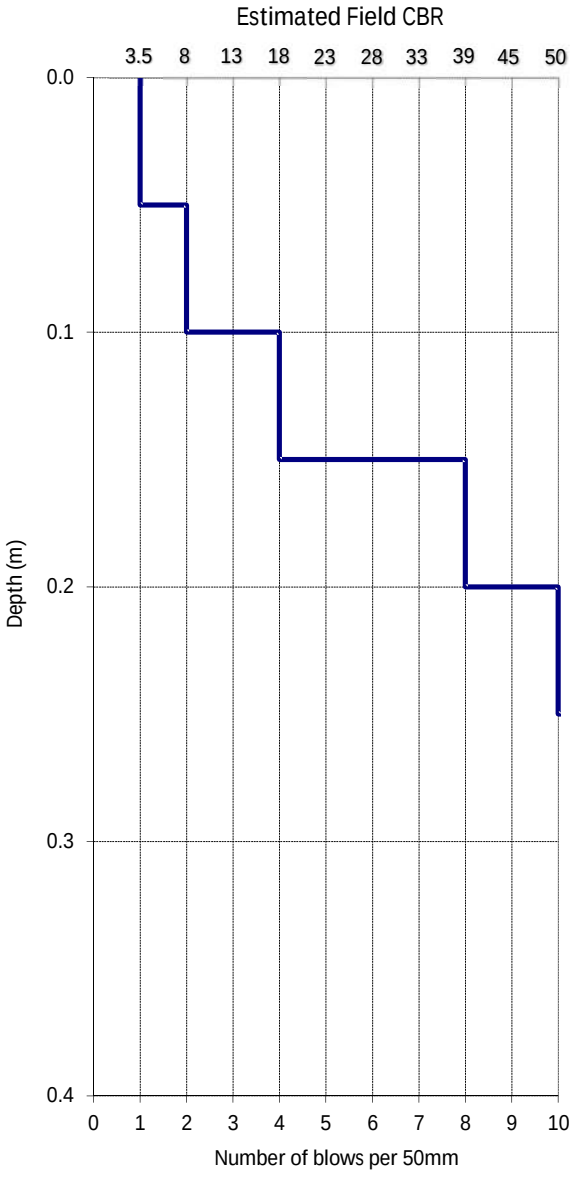
Lab Ref/URN
019/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 453 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 453 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	2	1100	1100	
150	150	4	1150	1150	
200	200	8	1200	1200	
250	250	10	1250	1250	
300	300	12	1300	1300	
350	350	13	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	DBRU	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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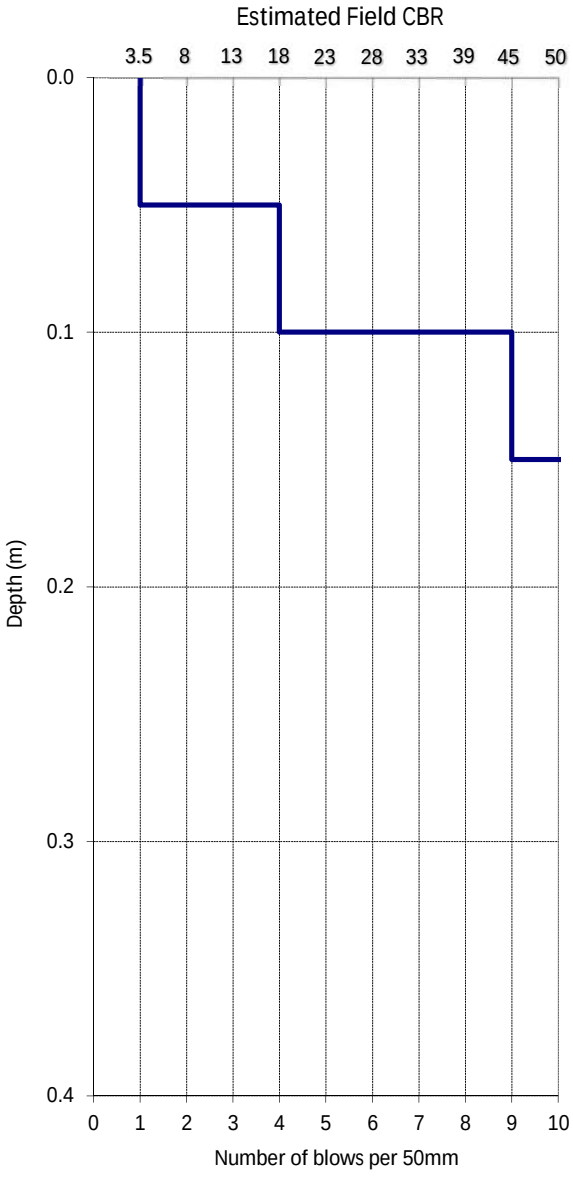
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 453 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 453 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	4	1100	1100	
150	150	9	1150	1150	
200	200	12	1200	1200	
250	250	12	1250	1250	
300	300	11	1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	DBRU	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 454**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: DBRU CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 10/12/2018	100	HA	4, 9, 10, 11 >>, 10				0.5, 1.0, 1.5, 2.0		M / W	VD	10, 25, 50, 100, 200	Fine to coarse SAND, with minor silt, trace gravel; brown. Very dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous. 1.45m: Changes to trace silt; wet. End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:56:00 p.m. - Produced with Core-GS by GeRoc

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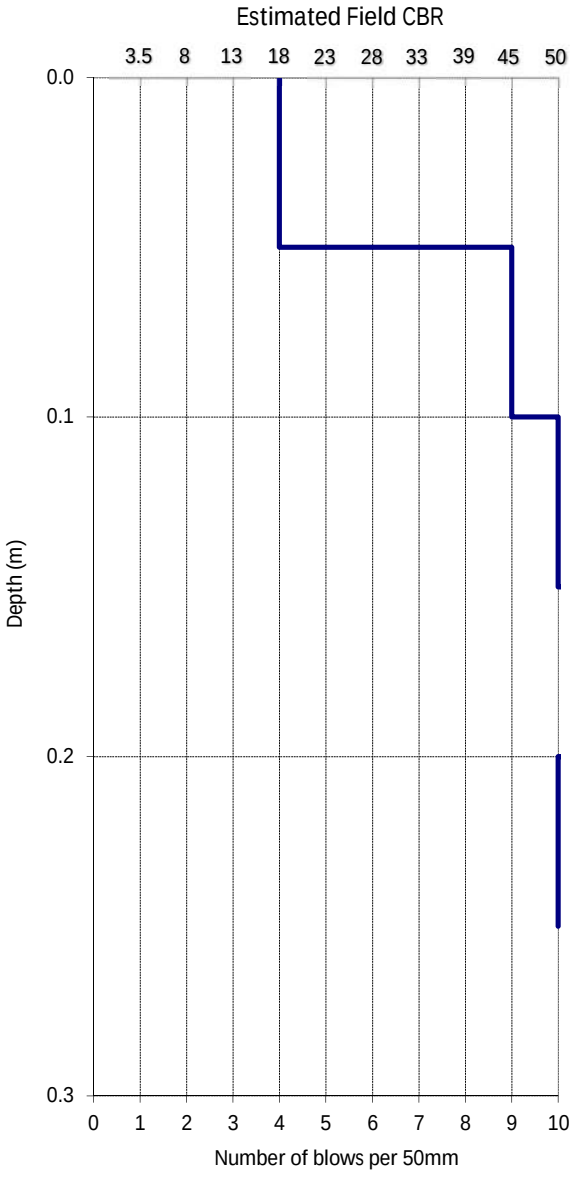
Lab Ref/URN
018/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 454 borehole log.	Test Series	Terrace Views/101218/SC452,454-457
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 454 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	4	1050	1050	
100	100	9	1100	1100	
150	150	10	1150	1150	
200	200	11	1200	1200	
250	250	10	1250	1250	
300	300		1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	10/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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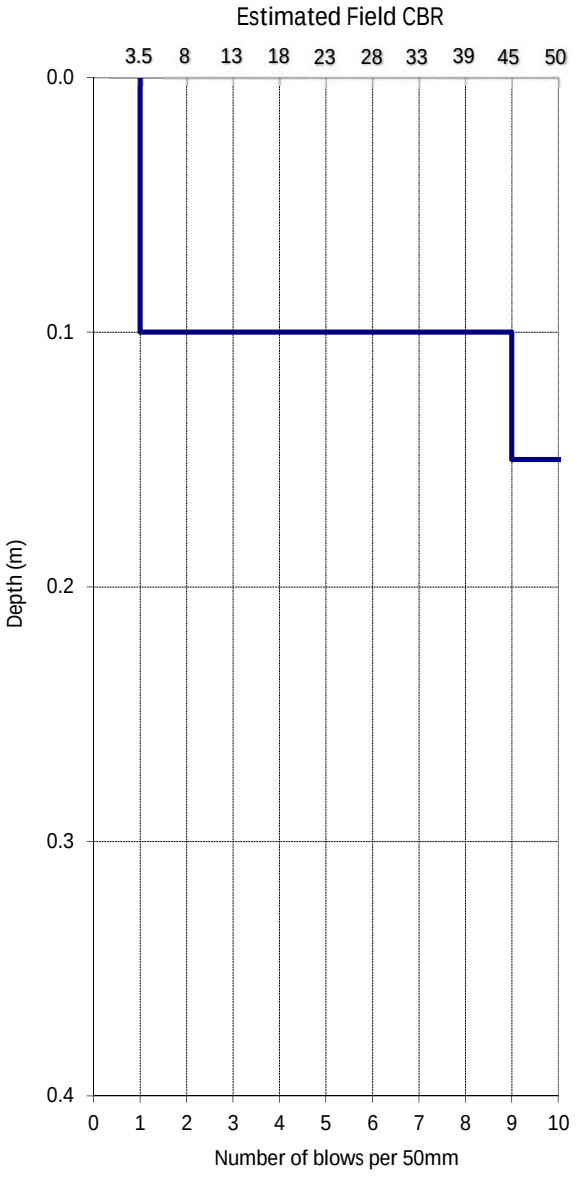
Lab Ref/URN
018/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 454 borehole log.	Test Series	Terrace Views/101218/SC452,454-457
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 454 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	9	1150	1150	
200	200	11	1200	1200	
250	250	12	1250	1250	
300	300	11	1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	10/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 455**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TASR CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
	DRY 10/12/2018	100	HA	1 6 9 10 10 8 8 10 11 >> 10				0.5 1.0 1.5 2.0		M M-W W	D VD		Fine to coarse SAND, with minor gravel, trace silt; light greyish brown. Dense, moist, well graded; gravel, fine, subangular to subrounded, pumiceous. 0.1m: Changes to very dense. 0.7m: Changes to pinkish brown. 1.2m: Changes to greyish brown. 1.5m: Changes to orange brown; moist to wet. 1.6m: Changes to wet. End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:56:02 p.m. - Produced with Core-GS by GeRoc

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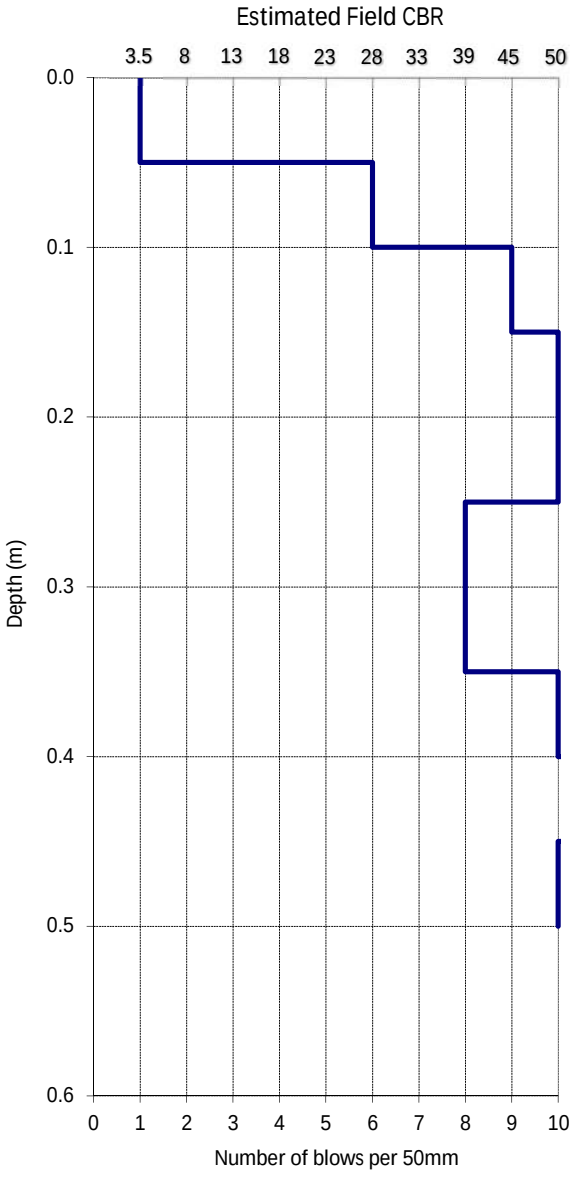
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 455 borehole log.	Test Series	Terrace Views/101218/SC452,454-457
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 455 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	6	1100	1100	
150	150	9	1150	1150	
200	200	10	1200	1200	
250	250	10	1250	1250	
300	300	8	1300	1300	
350	350	8	1350	1350	
400	400	10	1400	1400	
450	450	11	1450	1450	
500	500	10	1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	10/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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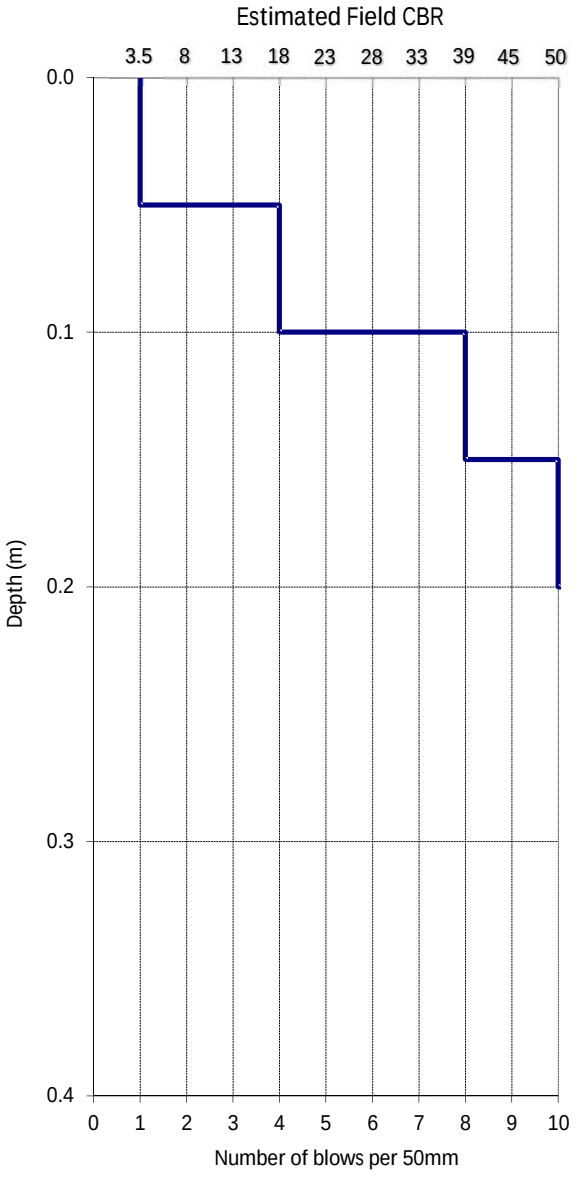
Lab Ref/URN
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 455 borehole log.	Test Series	Terrace Views/101218/SC452,454-457
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 455 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	4	1100	1100	
150	150	8	1150	1150	
200	200	10	1200	1200	
250	250	11	1250	1250	
300	300	17	1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	10/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 456**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: EWDA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 10/12/2018	100	HA	3, 5, 7, 6, 6, 6, 7, 7, 8, 12 >>, 11 >>, 9, 8, 5, 5, 6, 7, 7, 12 >>, 13 >>, 14 >>				0.5		M	D		Fine to coarse SAND, with trace silt and gravel; light orange brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
											VD		0.4m: Changes to very dense.
													0.5m: Changes to orange brown.
											D		0.65m: Changes to dense.
								1.0			VD		0.9m: Changes to very dense.
													1.15m: Changes to greyish brown.
										M-W			1.4m: Change to moist to wet.
								1.5					
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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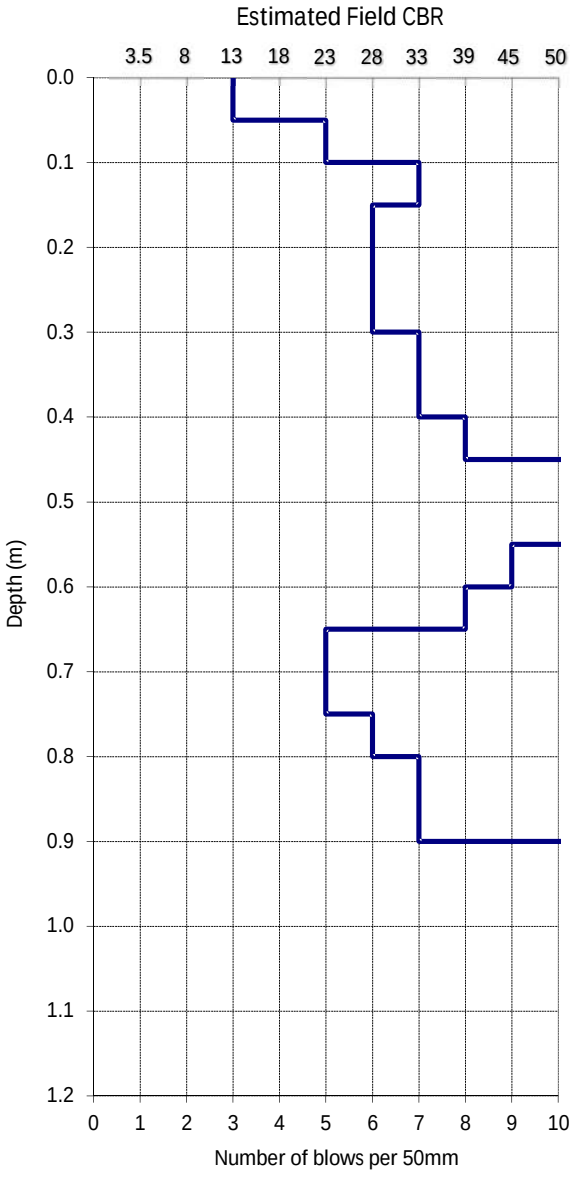
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 456 borehole log.	Test Series	Terrace Views/101218/SC452,454-457
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 456 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	3	1050	1050	14
100	100	5	1100	1100	
150	150	7	1150	1150	
200	200	6	1200	1200	
250	250	6	1250	1250	
300	300	6	1300	1300	
350	350	7	1350	1350	
400	400	7	1400	1400	
450	450	8	1450	1450	
500	500	12	1500	1500	
550	550	11	1550	1550	
600	600	9	1600	1600	
650	650	8	1650	1650	
700	700	5	1700	1700	
750	750	5	1750	1750	
800	800	6	1800	1800	
850	850	7	1850	1850	
900	900	7	1900	1900	
950	950	12	1950	1950	
1000	1000	13	2000	2000	



Test Remarks

Tested By	PIFA	Date	10/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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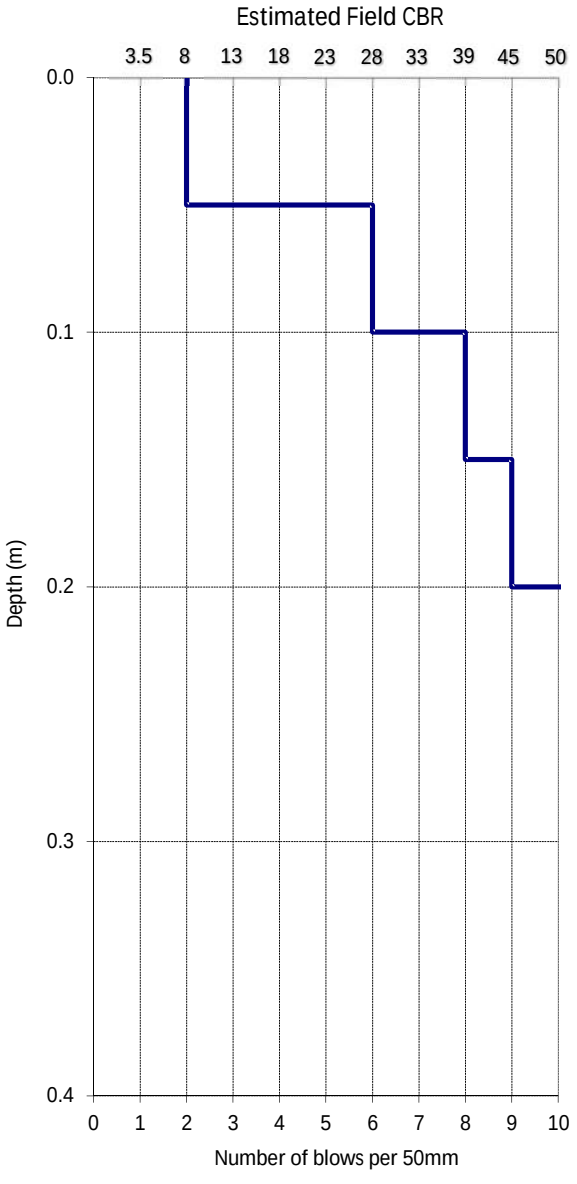
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 456 borehole log.	Test Series	Terrace Views/101218/SC452,454-457
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 456 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	6	1100	1100	
150	150	8	1150	1150	
200	200	9	1200	1200	
250	250	13	1250	1250	
300	300	16	1300	1300	
350	350	17	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	10/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 457**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
	DRY 10/12/2018	100	HA	1, 8, 8, 8, 6, 6, 7, 7, 8, 10, 9, 10, 12 >>, 14 >>				0.5		D-M	D		Fine to coarse SAND, with trace silt and gravel; light orange brown. Dense, dry to moist, well graded; gravel, fine, subangular to subrounded, pumiceous.
											VD		0.45m: Changes to very dense.
								1.0		M-W			1.3m: Change to greyish brown; moist to wet.
								1.5					
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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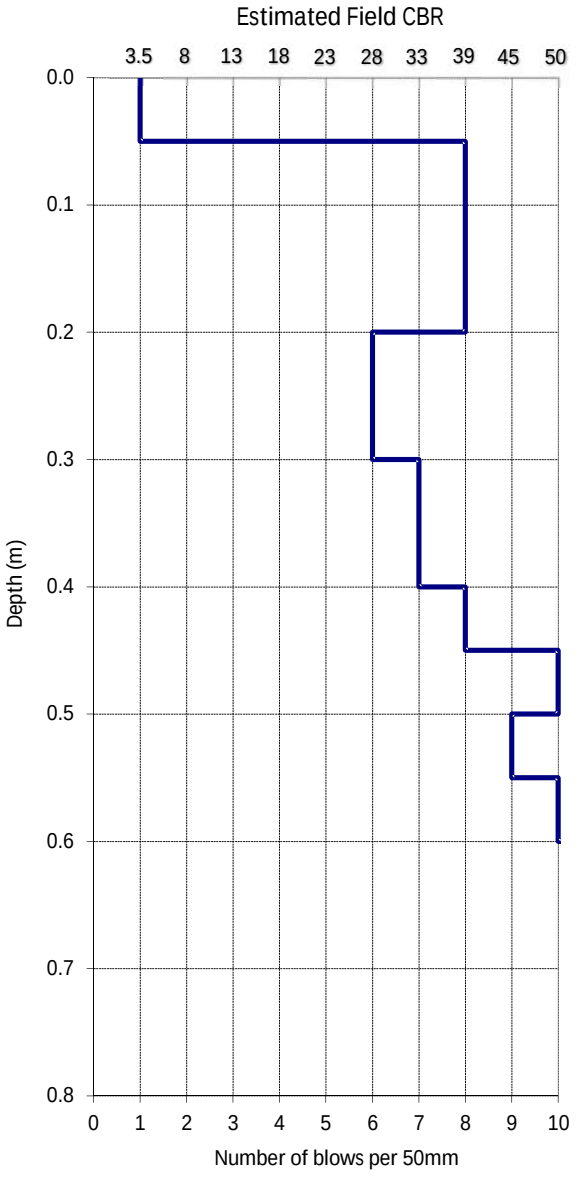
Lab Ref/URN: 018/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 457 borehole log.	Test Series	Terrace Views/101218/SC452,454-457
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 457 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	8	1100	1100	
150	150	8	1150	1150	
200	200	8	1200	1200	
250	250	6	1250	1250	
300	300	6	1300	1300	
350	350	7	1350	1350	
400	400	7	1400	1400	
450	450	8	1450	1450	
500	500	10	1500	1500	
550	550	9	1550	1550	
600	600	10	1600	1600	
650	650	12	1650	1650	
700	700	14	1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	10/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

15C Amber Crescent
Judea
Tauranga 3110
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p. +64 7 571 0280

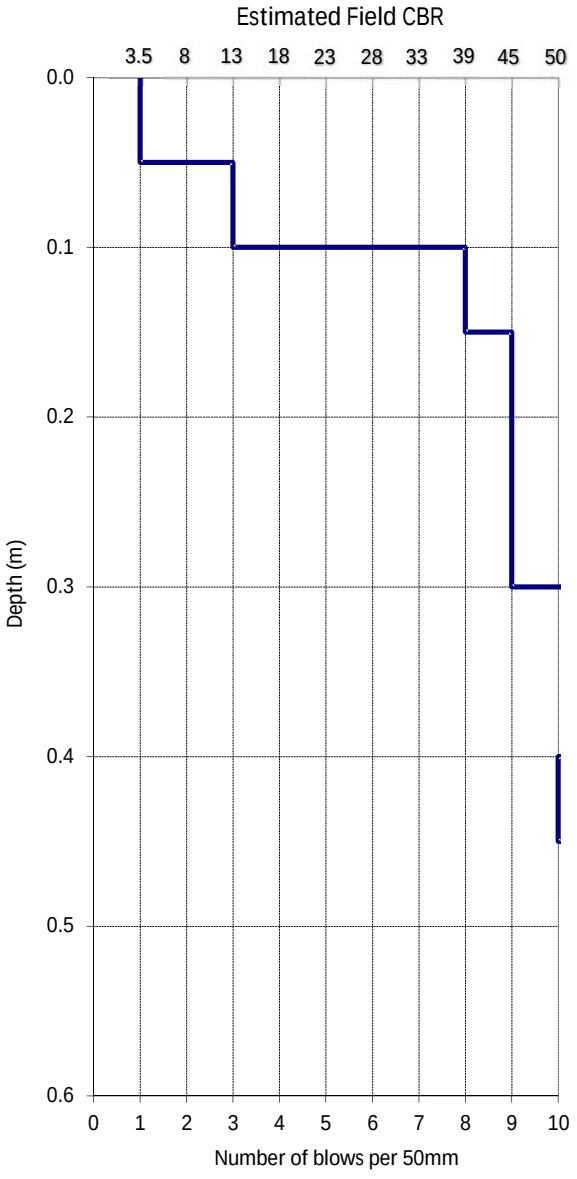
Lab Ref/URN: 018/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 457 borehole log.	Test Series	Terrace Views/101218/SC452,454-457
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 457 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	3	1100	1100	
150	150	8	1150	1150	
200	200	9	1200	1200	
250	250	9	1250	1250	
300	300	9	1300	1300	
350	350	13	1350	1350	
400	400	15	1400	1400	
450	450	10	1450	1450	
500	500	11	1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	10/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC301286 - Pg 236 of 406 - 9/07/2020 - bwoo

HOLE Id: **Lot 458**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 14/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				1 2 3 4 5 6 7 8 9					TS	M	St	10 25 50 100 200	Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
				1							MD		Fine to coarse SAND, with trace silt and gravel; light orange brown. Medium dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
				2				0.5			VD		0.5m: Changes to very dense.
				4									
				5									
				5									
				16 >>									
				18 >>									
				17 >>									
				15 >>									
				39 >>									
				34 >>				1.0					
				32 >>									
				16 >>									
				20 >>									
				15 >>									
				8							D		1.5m: Changes to dense.
				7				1.5					
				8									
				9									
	DRY 14/12/2018	100	HA	10									
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC301286 - Pg 237 of 406 - 9/07/2020 - bwoo

HandAugerLog - 11/02/2019 5:12:12 p.m. - Produced with Core-GS by GeRoc

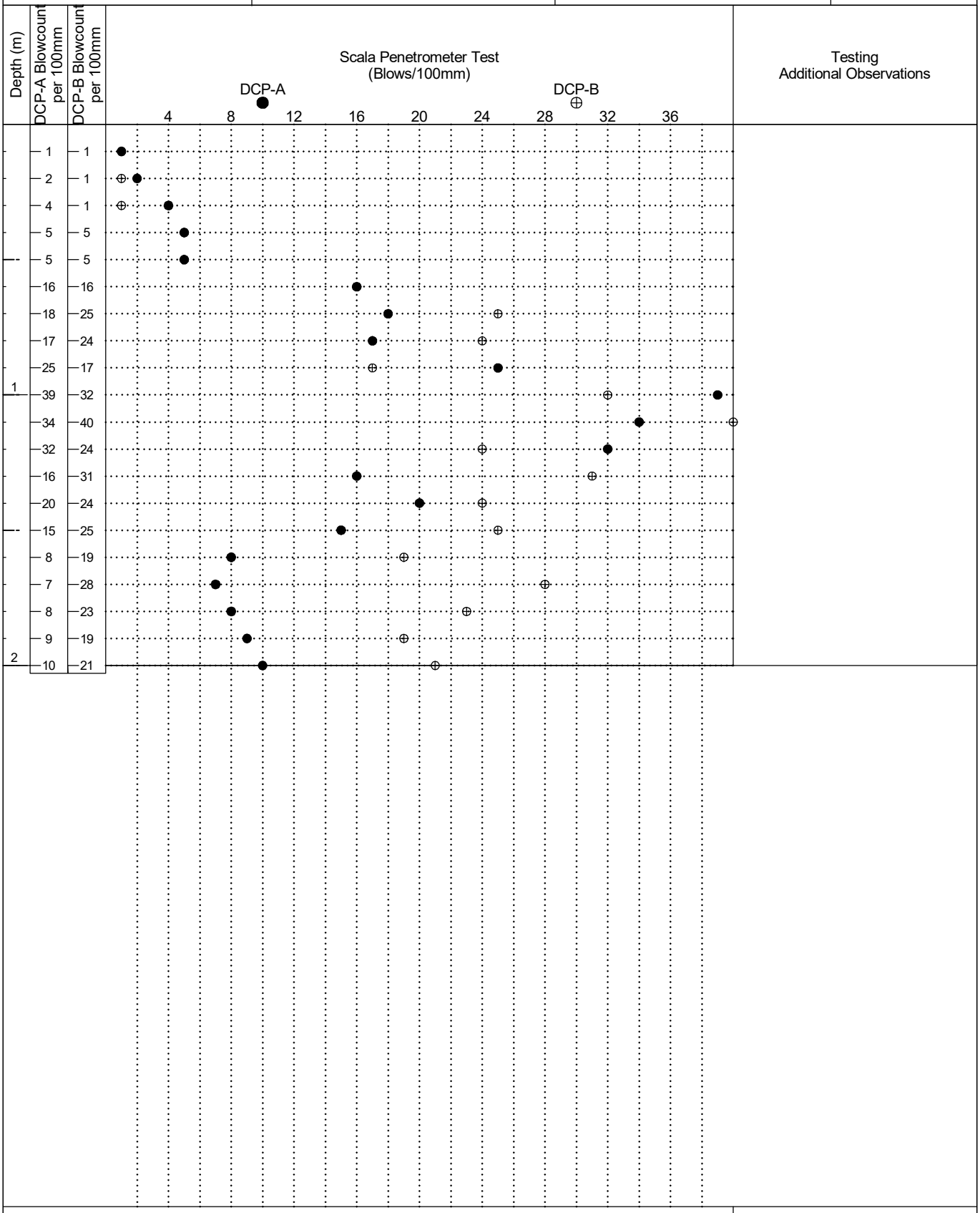
aurecon
Ground Floor, 247 Cameron Road
PO Box 2292, Tauranga
New Zealand
Tel: +64 7 578 6183
www.aurecongroup.com

Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

Lot 458

Sheet **1** of **1**

DRILLING INFORMATION	CO-ORDINATES: N/A		
Method: Scala	Easting: N/A	Date started: 19/12/2018	Logged by: AY
Equipment: Scala	Northing: N/A	Date completed: 19/12/2018	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG



Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

TCC - Approved Building Consent Document - BC301286 - Pg 238 of 406 - 9/07/2020 - bwoo

Last Generated: 25/01/2019 10:38:06 AM
Database File: 181220-LOT BY LOT TESTS.GPJ Library file: AURECON AKL 20130827V1 (2).GLB Template: GINT STD US LAB.GDT Report File: AURECON TWO SCALA LOG 1.0 Date Generated: 25/01/2019

HOLE Id: **Lot 459**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 14/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: EWDA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
				1					TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
				2					TS				
				3							MD		Fine to coarse SAND, with trace silt and gravel; light orange brown. Medium dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
				3									
				6				0.5			D		0.5m: Changes to dense.
				10									
				11 >>									
				9									
				8									
				7									
				6				1.0					
				8									
				10									
				10									
				12 >>									
				21 >>				1.5		M-W	VD		1.5m: Changes to very dense, moist to wet.
				16 >>							D		1.6m: Changes to dense.
				15 >>									
				8									
	DRY 14/12/2018	100	HA	7				2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 5:12:14 p.m. - Produced with Core-GS by GeRoc

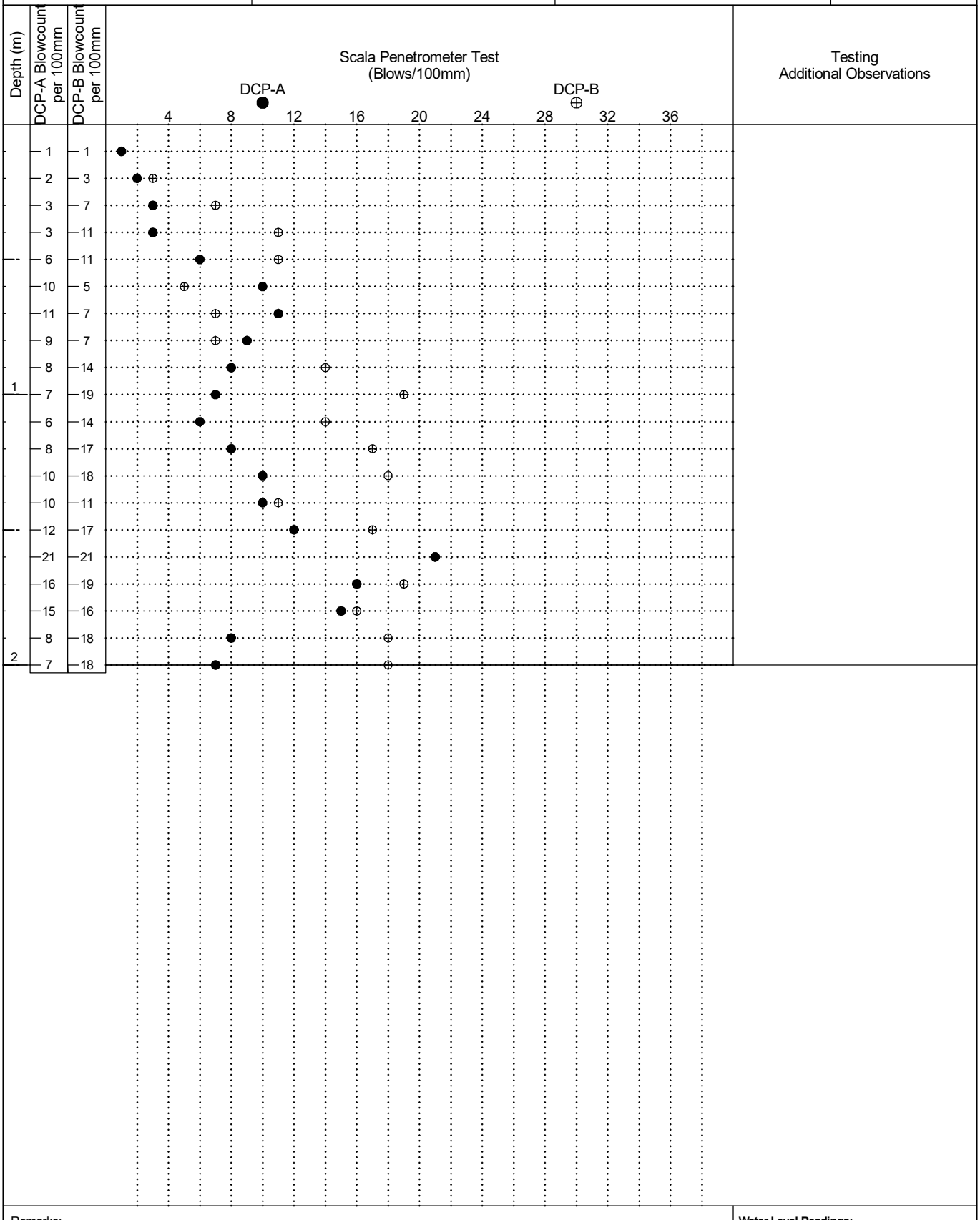
aurecon
Ground Floor, 247 Cameron Road
PO Box 2292, Tauranga
New Zealand
Tel: +64 7 578 6183
www.aurecongroup.com

Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

Lot 459

Sheet **1** of **1**

DRILLING INFORMATION	CO-ORDINATES: N/A		
Method: Scala	Easting: N/A	Date started: 19/12/2018	Logged by: AY
Equipment: Scala	Northing: N/A	Date completed: 19/12/2018	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG



Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

TCC - Approved Building Consent Document - BC301286 - Pg 240 of 406 - 9/07/2020 - bwoo

Last Generated: 25/01/2019 10:38:06 AM
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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 460**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 14/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: EWDA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 14/12/2018	100	HA	1 2 3 4 5 6 7 8 9				0.0	TS	M	St	10 25 50 100 200	Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
								0.5			MD		Fine to coarse SAND, with trace silt and gravel; light orange brown. Medium dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
											D		0.45m: Changes to dense.
								1.0					
											MD		1.4m: Changes to medium dense.
								1.5		M-W			1.6m: Changes to orange brown; moist to wet.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 5:12:16 p.m. - Produced with Core-GS by GeRoc

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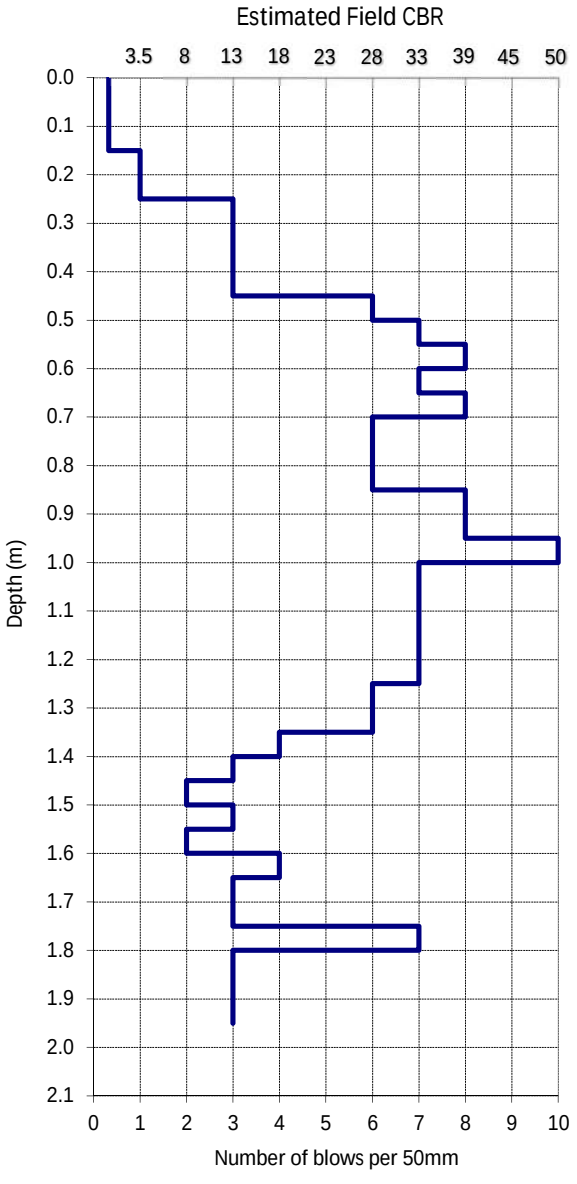
Lab Ref/URN
021/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 460 borehole log.	Test Series	Terrace Views/141218/SC460-463
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 460 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.33	1050	1050	7
100	100	0.33	1100	1100	7
150	150	0.33	1150	1150	7
200	200	1	1200	1200	7
250	250	1	1250	1250	7
300	300	3	1300	1300	6
350	350	3	1350	1350	6
400	400	3	1400	1400	4
450	450	3	1450	1450	3
500	500	6	1500	1500	2
550	550	7	1550	1550	3
600	600	8	1600	1600	2
650	650	7	1650	1650	4
700	700	8	1700	1700	3
750	750	6	1750	1750	3
800	800	6	1800	1800	7
850	850	6	1850	1850	3
900	900	8	1900	1900	3
950	950	8	1950	1950	3
1000	1000	10	2000	2000	



Test Remarks

Tested By	EWDA	Date	14/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

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Page 1 of 1

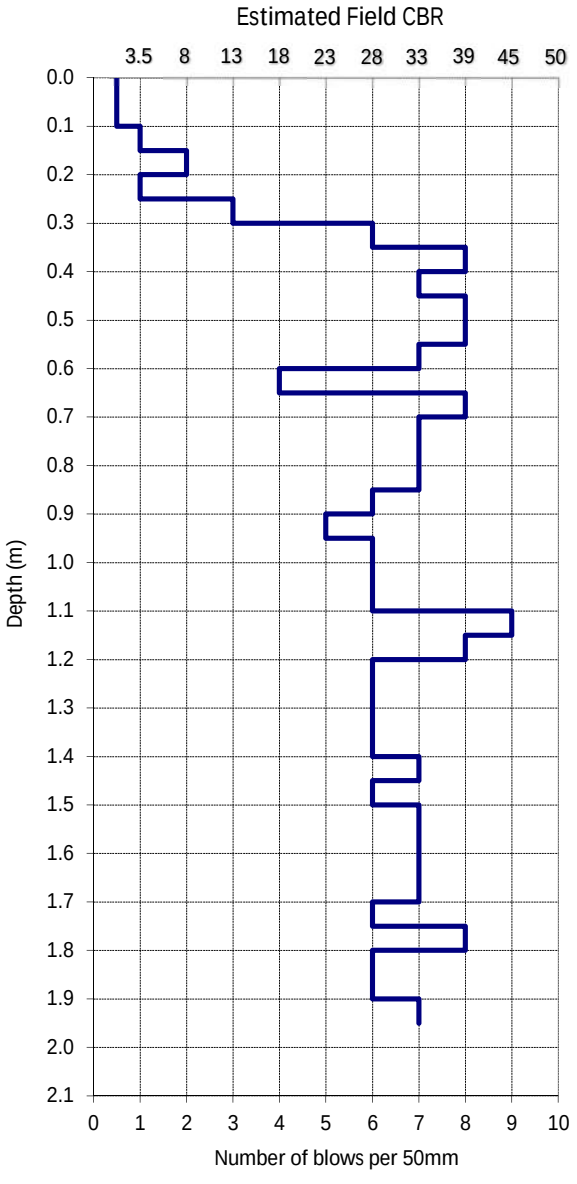
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 460 borehole log.	Test Series	Terrace Views/141218/SC460-463
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 460 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	6
100	100	0.5	1100	1100	6
150	150	1	1150	1150	9
200	200	2	1200	1200	8
250	250	1	1250	1250	6
300	300	3	1300	1300	6
350	350	6	1350	1350	6
400	400	8	1400	1400	6
450	450	7	1450	1450	7
500	500	8	1500	1500	6
550	550	8	1550	1550	7
600	600	7	1600	1600	7
650	650	4	1650	1650	7
700	700	8	1700	1700	7
750	750	7	1750	1750	6
800	800	7	1800	1800	8
850	850	7	1850	1850	6
900	900	6	1900	1900	6
950	950	5	1950	1950	7
1000	1000	6	2000	2000	



Test Remarks

Tested By	EWDA	Date	14/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 461**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 14/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: EWDA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				5					TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
				4							D		Fine to coarse SAND, with trace silt and gravel; light orange brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
				5							VD		0.4m: Changes to very dense.
				10				0.5					
				13 >>									
				11 >>									1.3m: Changes to yellowish brown.
				10				1.0					
	DRY 14/12/2018	100	WS					1.5		M-W			1.5m: Changes to moist to wet.
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 5:12:19 p.m. - Produced with Core-GS by GeRoc

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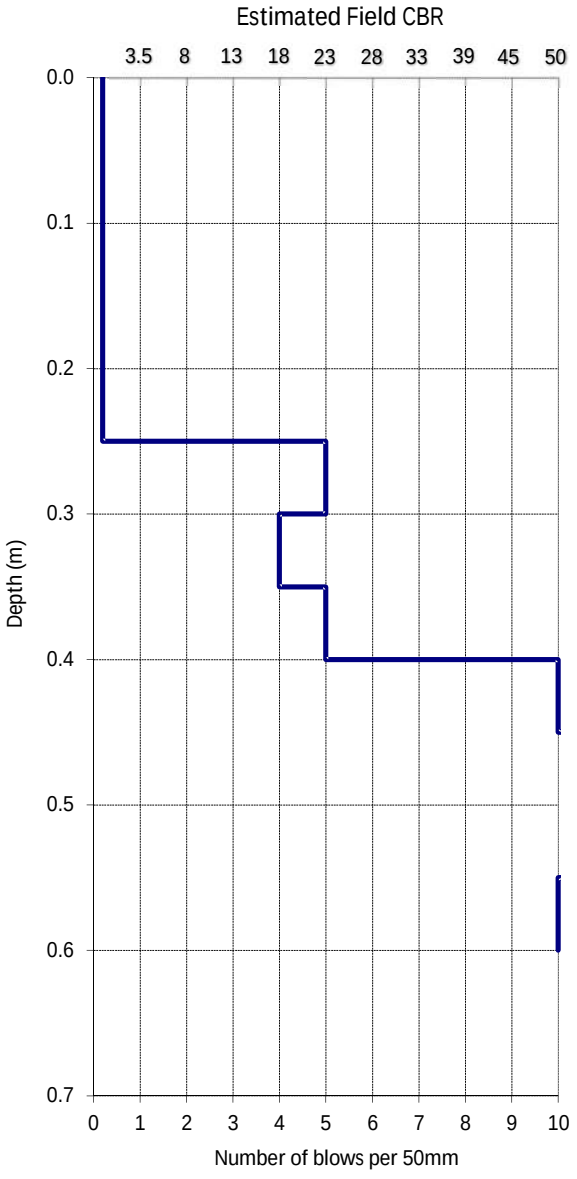
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 461 borehole log.	Test Series	Terrace Views/141218/SC460-463
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 461 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.2	1050	1050	
100	100	0.2	1100	1100	
150	150	0.2	1150	1150	
200	200	0.2	1200	1200	
250	250	0.2	1250	1250	
300	300	5	1300	1300	
350	350	4	1350	1350	
400	400	5	1400	1400	
450	450	10	1450	1450	
500	500	13	1500	1500	
550	550	11	1550	1550	
600	600	10	1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	14/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

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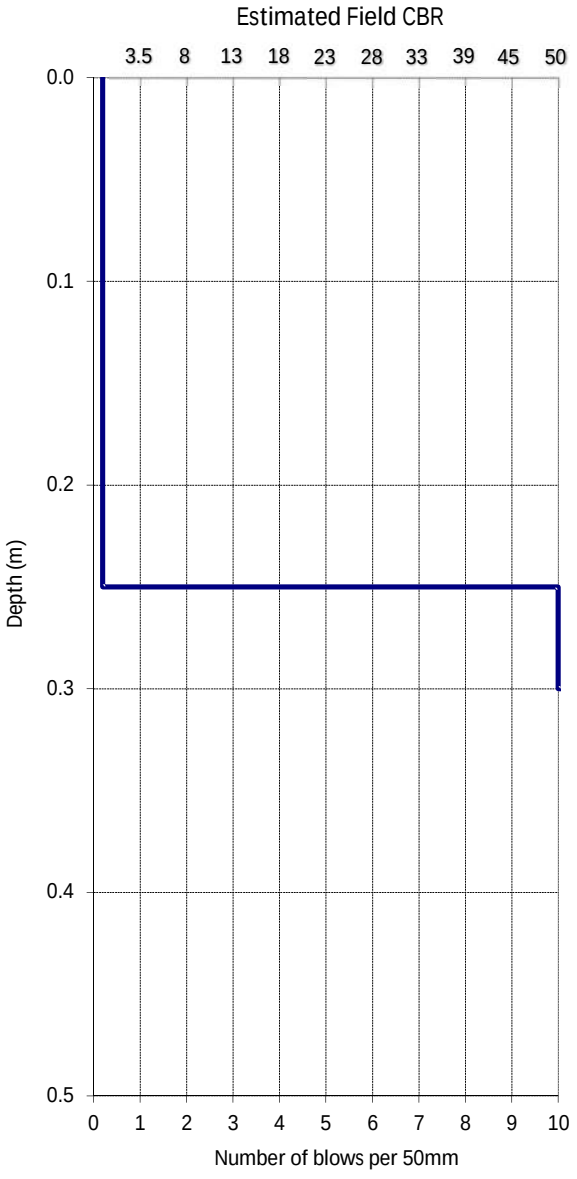
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 461 borehole log.	Test Series	Terrace Views/141218/SC460-463
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 461 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.2	1050	1050	
100	100	0.2	1100	1100	
150	150	0.2	1150	1150	
200	200	0.2	1200	1200	
250	250	0.2	1250	1250	
300	300	10	1300	1300	
350	350	12	1350	1350	
400	400	13	1400	1400	
450	450	14	1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	14/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC301286 - Pg 246 of 406 - 9/07/2020 - bwoo

GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 462**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 14/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: EWDA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
				2				0.0	TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
				8				0.5			VD		Fine to coarse SAND, with trace silt and gravel; light orange brown. Very dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
				10				1.0					
				11 >>				1.5					
				10				2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 5:12:21 p.m. - Produced with Core-GS by GeRoc

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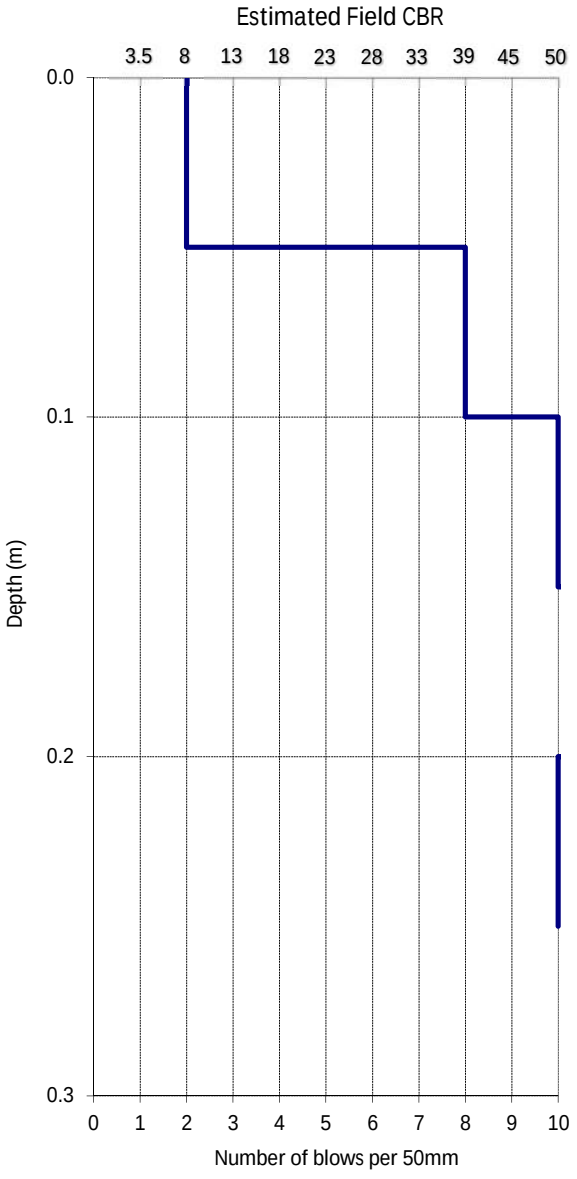
Lab Ref/URN: 021/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 462 borehole log.	Test Series	Terrace Views/141218/SC460-463
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 462 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	8	1100	1100	
150	150	10	1150	1150	
200	200	11	1200	1200	
250	250	10	1250	1250	
300	300		1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	14/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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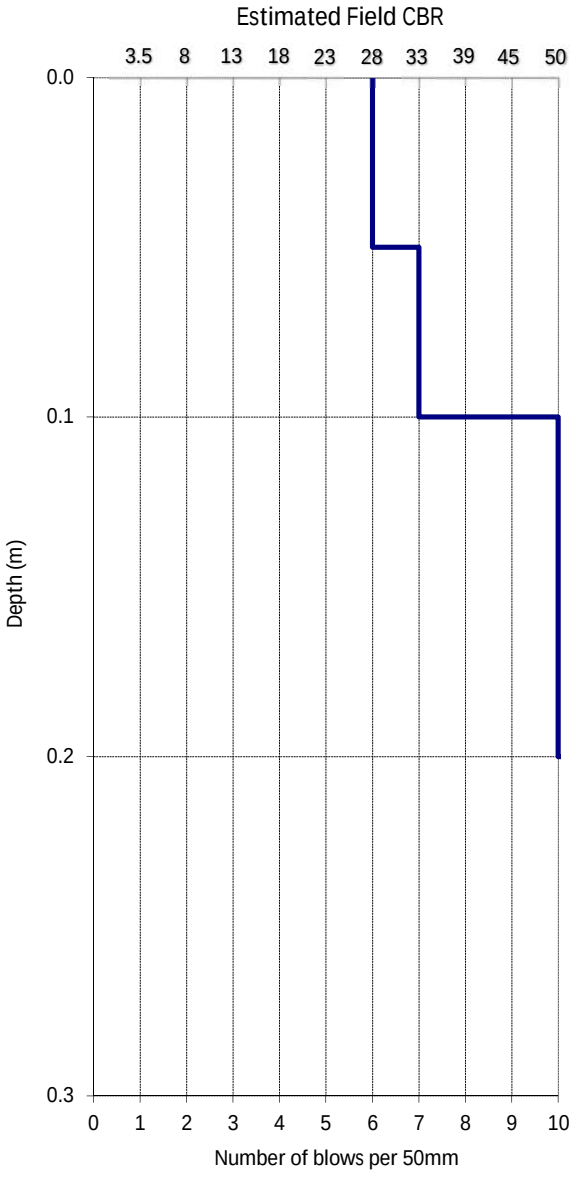
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 462 borehole log.	Test Series	Terrace Views/141218/SC460-463
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 462 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	6	1050	1050	
100	100	7	1100	1100	
150	150	10	1150	1150	
200	200	10	1200	1200	
250	250	11	1250	1250	
300	300		1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	14/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 463**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 10/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 14/12/2018	100	HA	3				0.0	TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, low plastic; sand, fine to coarse.
				5							D		Fine to coarse SAND, with trace silt and gravel; light orange brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
				5				0.5					
				6									
				6									
				8							VD		0.6m: Changes to very dense.
				12 >>				1.0					
				10									1.1m: Changes to yellowish brown.
				10						M-W			1.2m: Changes to moist to wet.
								1.5					
										M			1.5m: Changes to moist.
								2.0					End of borehole at 2.00 mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 5:12:23 p.m. - Produced with Core-GS by GeRoc

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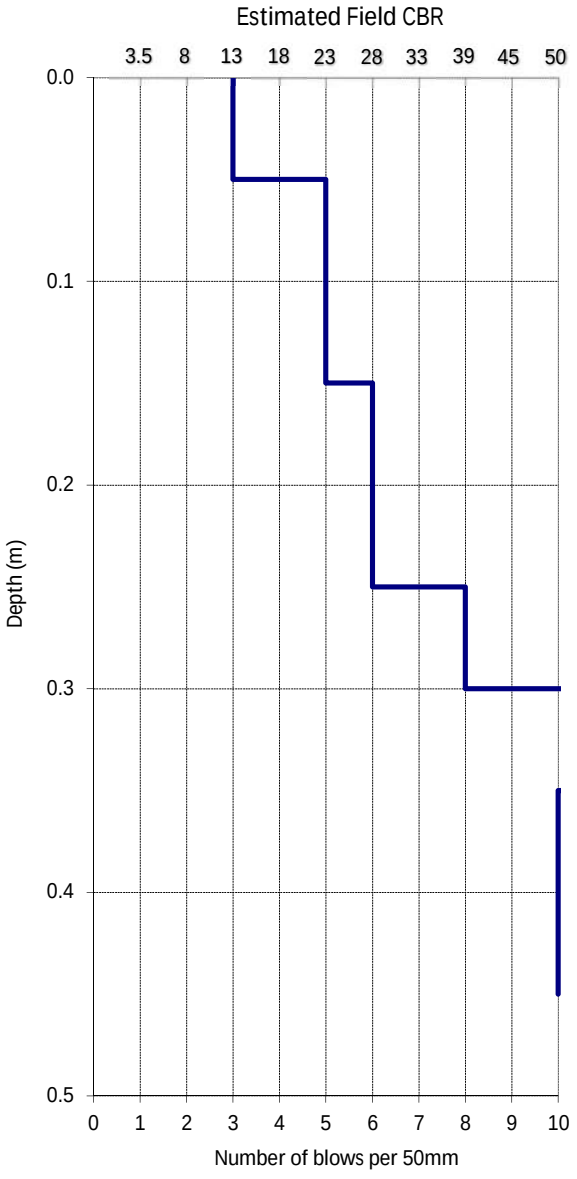
Lab Ref/URN: 021/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 463 borehole log.	Test Series	Terrace Views/141218/SC460-463
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 463 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	3	1050	1050	
100	100	5	1100	1100	
150	150	5	1150	1150	
200	200	6	1200	1200	
250	250	6	1250	1250	
300	300	8	1300	1300	
350	350	12	1350	1350	
400	400	10	1400	1400	
450	450	10	1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	14/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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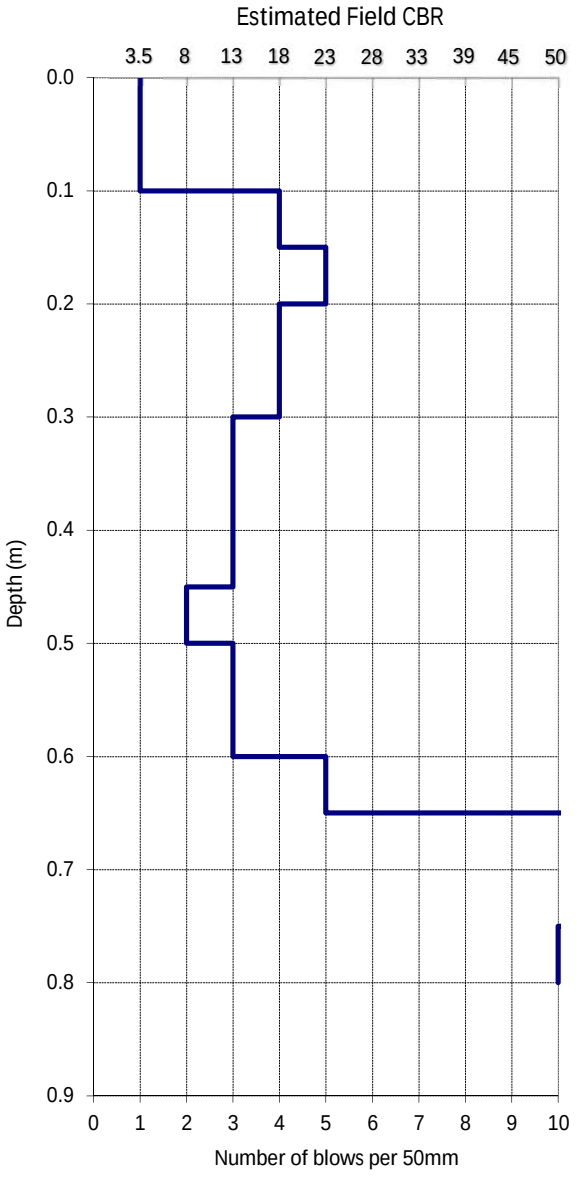
Lab Ref/URN
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 463 borehole log.	Test Series	Terrace Views/141218/SC460-463
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 463 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	4	1150	1150	
200	200	5	1200	1200	
250	250	4	1250	1250	
300	300	4	1300	1300	
350	350	3	1350	1350	
400	400	3	1400	1400	
450	450	3	1450	1450	
500	500	2	1500	1500	
550	550	3	1550	1550	
600	600	3	1600	1600	
650	650	5	1650	1650	
700	700	11	1700	1700	
750	750	11	1750	1750	
800	800	10	1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	14/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 464**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 08/01/2019	100	HA	2, 3, 6, 5, 6, 5, 6, 8, 8, 6, 5, 6, 9, 11 >>, 12 >>, 17 >>				0.5, 1.0, 1.5, 2.0	TS	D-M / M	St / D / VD	10, 25, 50, 100, 200	Organic SILT, with some sand; dark brownish black. Stiff, dry to moist, non-plastic; sand, fine to coarse. Fine to coarse SAND, with trace silt and gravel; light yellowish brown. Dense, moist, well graded gravel, fine to medium, subangular to subrounded, pumiceous. 0.85m: Changes to very dense. 1.2m: Changes to greyish brown. End of hole at 2.00 mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:56:24 p.m. - Produced with Core-GS by GeRoc

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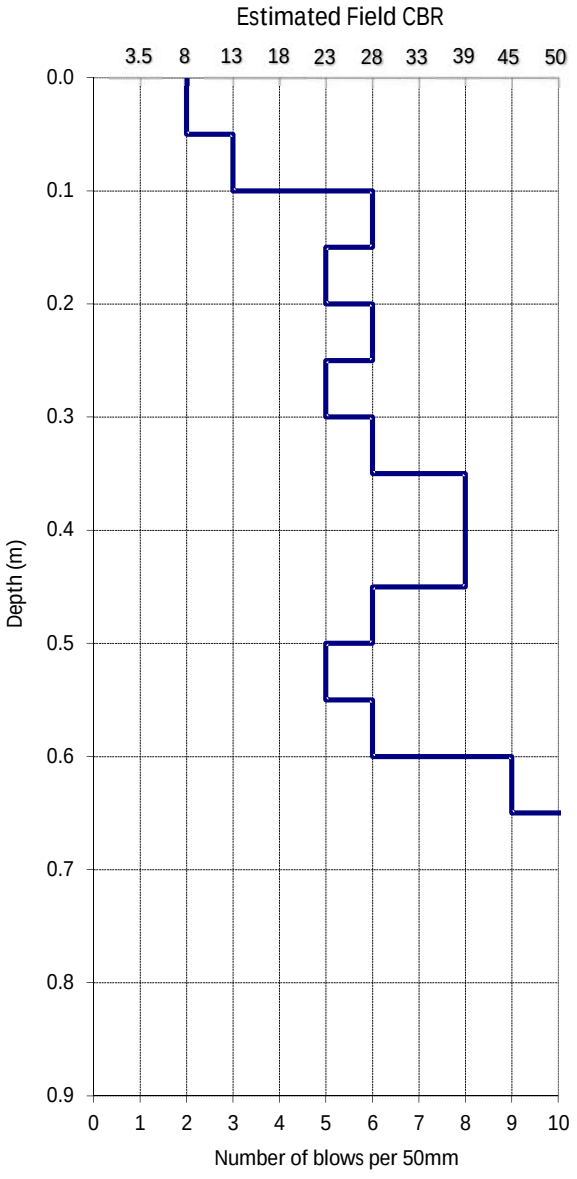
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 464 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 464 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	3	1100	1100	
150	150	6	1150	1150	
200	200	5	1200	1200	
250	250	6	1250	1250	
300	300	5	1300	1300	
350	350	6	1350	1350	
400	400	8	1400	1400	
450	450	8	1450	1450	
500	500	6	1500	1500	
550	550	5	1550	1550	
600	600	6	1600	1600	
650	650	9	1650	1650	
700	700	11	1700	1700	
750	750	12	1750	1750	
800	800	17	1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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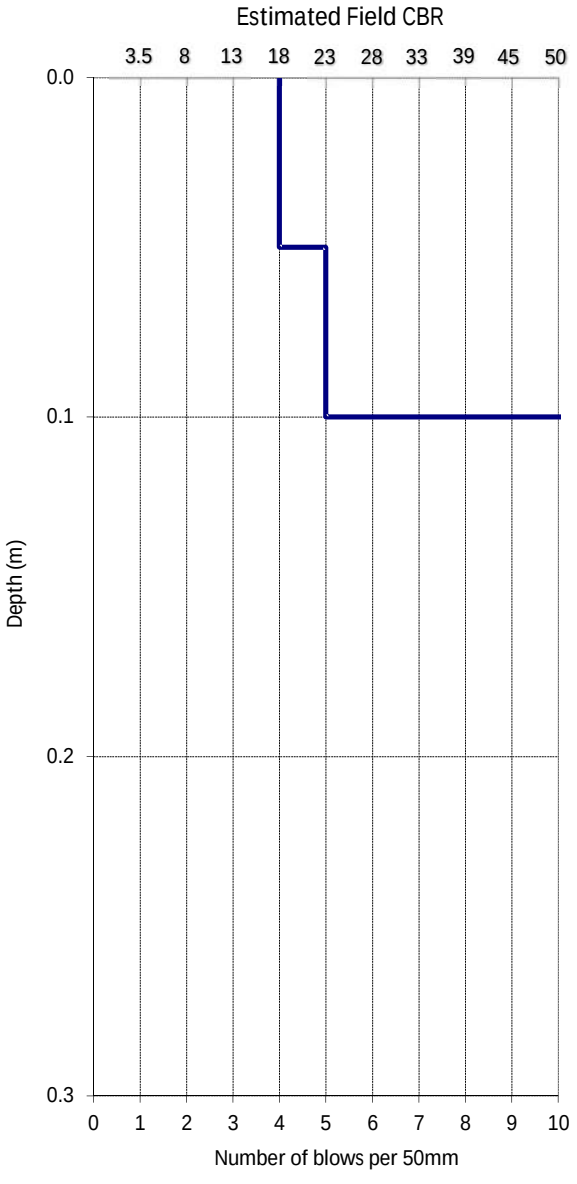
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 464 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 464 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	4	1050	1050	
100	100	5	1100	1100	
150	150	11	1150	1150	
200	200	12	1200	1200	
250	250	14	1250	1250	
300	300		1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC301286 - Pg 255 of 406 - 9/07/2020 - bwoo

HOLE Id: **Lot 465**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
				6					TS	M	St		SILT, with some sand; dark brownish black. Stif moist, non-plastic; sand, fine to coarse.
				8							D		Fine to coarse SAND, with trace silt and gravel; light yellowish brown. Dense, moist, well graded gravel, fine to medium, subangular to subrounded, pumiceous.
				7				0.5					
				7									
				8									
				8									
				8									
				8									
				8									
				8									
				6									
				6				1.0					
				4									
				5									
				4									
				5									
				7									
				7									
				8						M-W			1.3m: Changes to moist to wet.
				7									
				8									
				7				1.5					
				8									
				7									
				6									
				5									
				6									
				6									
				6						W			1.8m: Changes to wet.
				6									
	DRY 08/01/2019	100	HA	7									
				9							VD		1.95m: Changes to very dense.
				7				2.0					End of hole at 2.00 mbgl.
				10									No standing groundwater encountered.
				11 >>									
				10									

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC301286 - Pg 256 of 406 - 9/07/2020 - bwoo

HandAugerLog - 11/02/2019 3:56:26 p.m. - Produced with Core-GS by GeRoc

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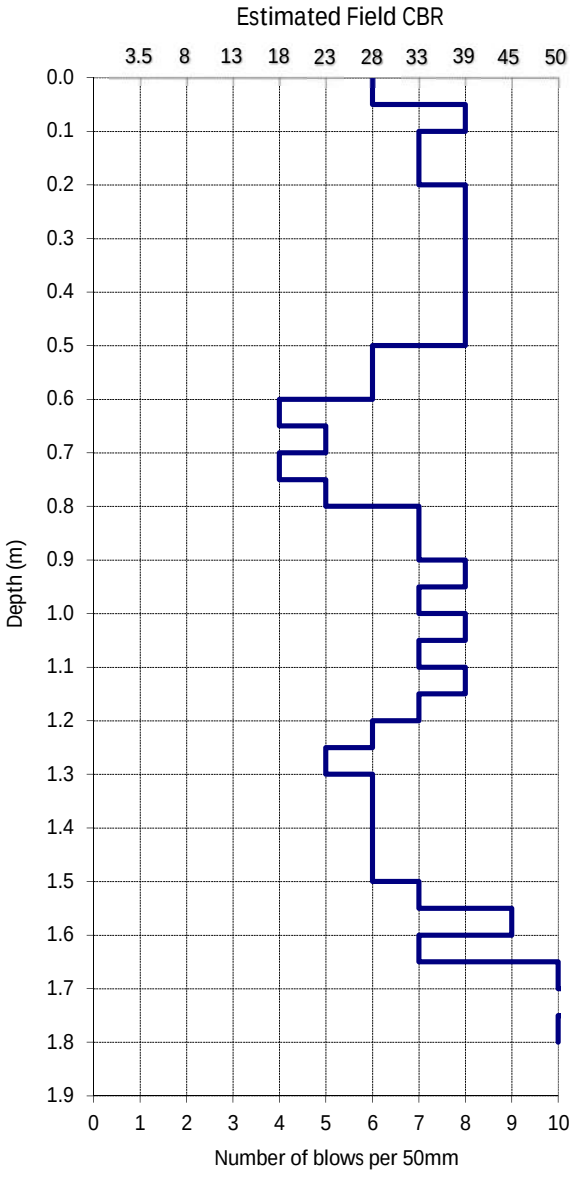
Lab Ref/URN: 019/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 465 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 465 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	6	1050	1050	8
100	100	8	1100	1100	7
150	150	7	1150	1150	8
200	200	7	1200	1200	7
250	250	8	1250	1250	6
300	300	8	1300	1300	5
350	350	8	1350	1350	6
400	400	8	1400	1400	6
450	450	8	1450	1450	6
500	500	8	1500	1500	6
550	550	6	1550	1550	7
600	600	6	1600	1600	9
650	650	4	1650	1650	7
700	700	5	1700	1700	10
750	750	4	1750	1750	11
800	800	5	1800	1800	10
850	850	7	1850	1850	
900	900	7	1900	1900	
950	950	8	1950	1950	
1000	1000	7	2000	2000	



Test Remarks

Tested By	EWDA	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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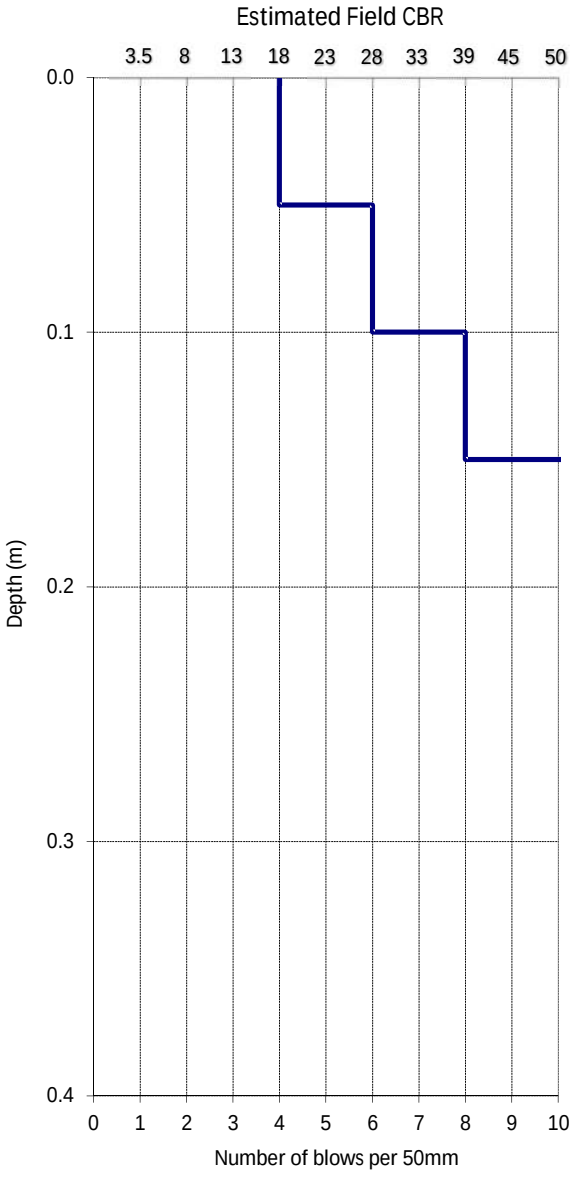
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 465 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 465 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	4	1050	1050	
100	100	6	1100	1100	
150	150	8	1150	1150	
200	200	12	1200	1200	
250	250	14	1250	1250	
300	300	12	1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 466**

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
				4					TS	M	F		Sandy SILT; dark brownish black. Firm, moist, non-plastic; sand, fine to coarse.
				10					TS		VD		Fine to coarse SAND, with minor silt, trace gravel; light yellowish brown. Very dense, moist gravel, fine, subangular to subrounded, pumiceous.
				9				0.5					
				10						W			0.9m: Changes to yellowish brown; wet.
				12 >>				1.0					
	DRY 08/01/2019			11 >>				1.5					1.7m: Changes to brown.
													1.9m: Changes to greyish brown.
								2.0					End of hole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:56:29 p.m. - Produced with Core-GS by GeRoc

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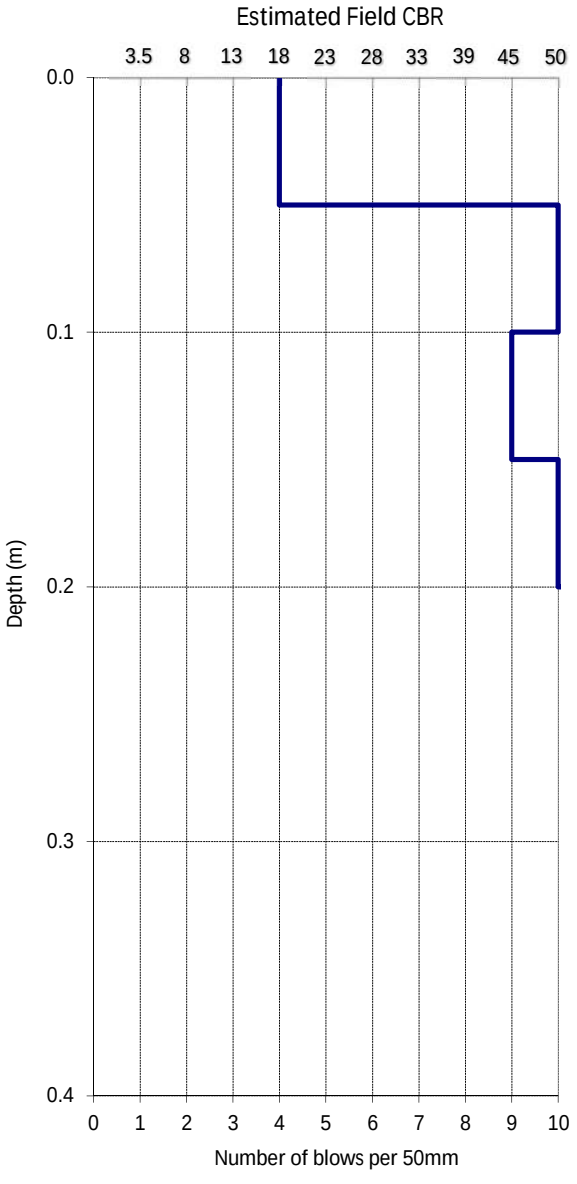
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 466 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 466 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	4	1050	1050	
100	100	10	1100	1100	
150	150	9	1150	1150	
200	200	10	1200	1200	
250	250	12	1250	1250	
300	300	11	1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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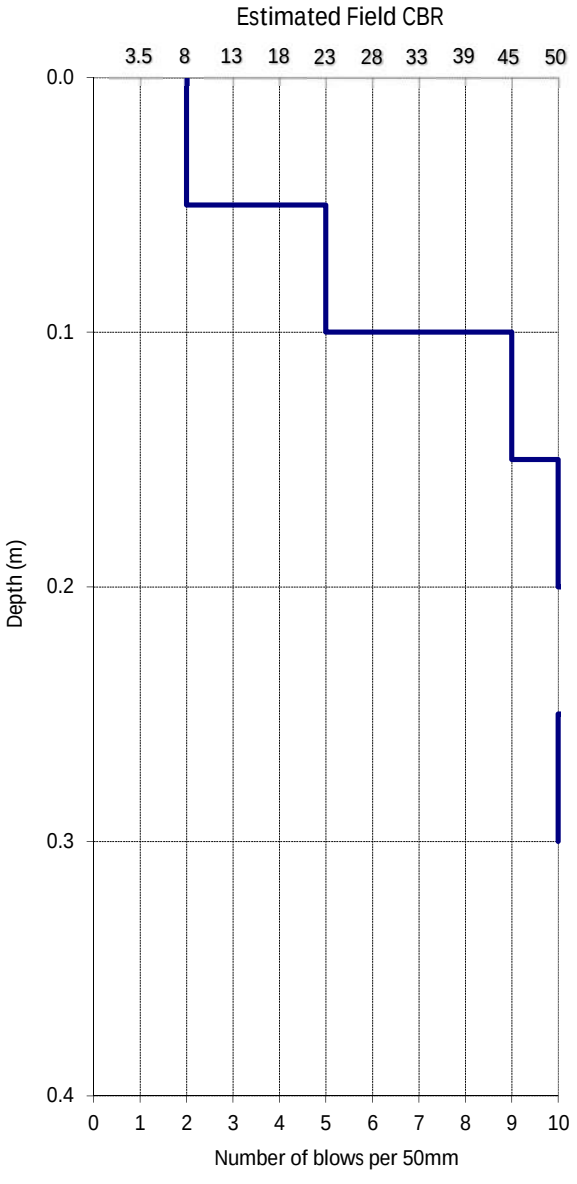
Lab Ref/URN: 019/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 466 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 466 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	5	1100	1100	
150	150	9	1150	1150	
200	200	10	1200	1200	
250	250	11	1250	1250	
300	300	10	1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 467**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 10/12/2018

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
									TS	M-W	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, non-plastic.
				5						M	D		Organic SAND, with minor gravel, trace silt; light yellowish brown. Dense, moist, well graded; sand, fine to coarse; gravel, fine, subangular to subrounded, Pumiceous.
				5									
				9							VD		0.4m: Changes to very dense.
				12 >>				0.5					
				15 >>									
				12 >>									
								1.0					
	DRY 08/01/2019									W			1.15m: Changes to dark greyish brown; wet.
								1.5					
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:56:31 p.m. - Produced with Core-GS by GeRoc

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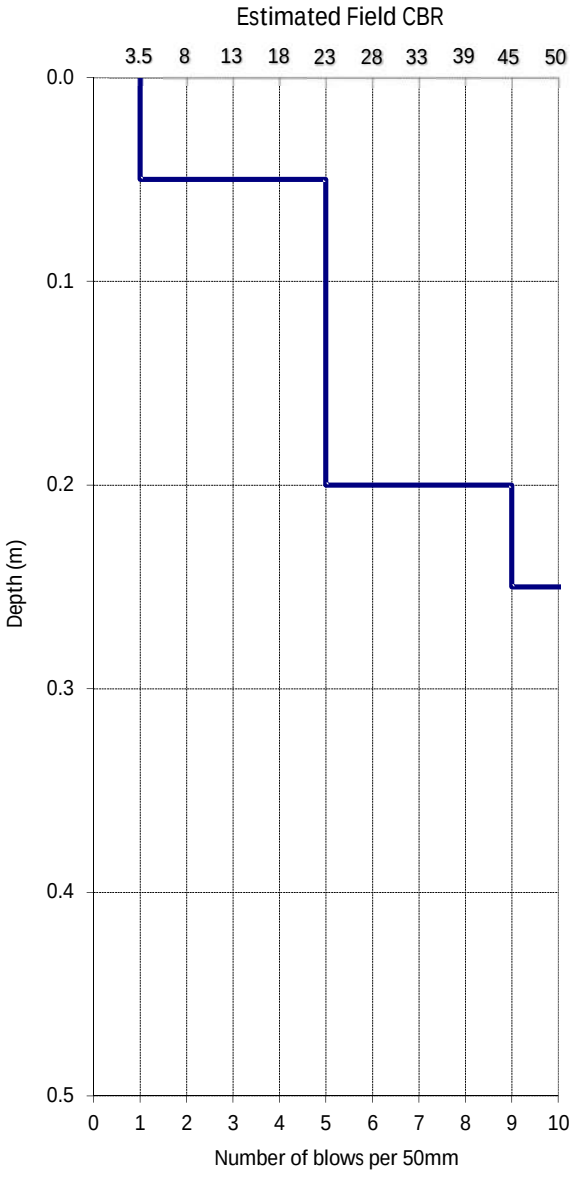
Lab Ref/URN
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 467 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 467 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	5	1100	1100	
150	150	5	1150	1150	
200	200	5	1200	1200	
250	250	9	1250	1250	
300	300	12	1300	1300	
350	350	15	1350	1350	
400	400	12	1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	4/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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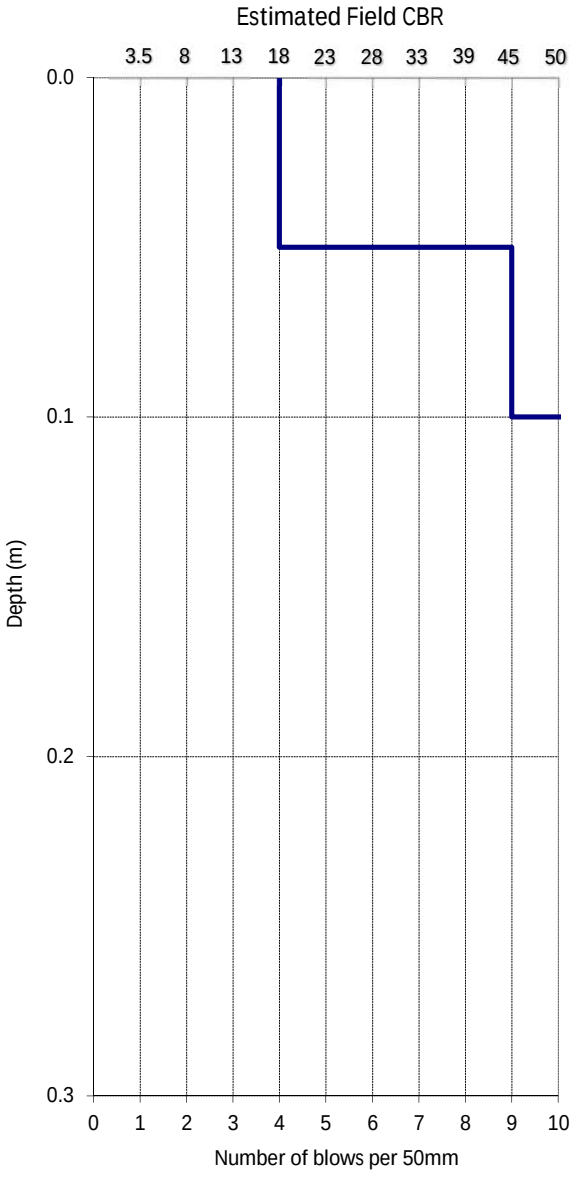
Lab Ref/URN: 019/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 467 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 467 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	4	1050	1050	
100	100	9	1100	1100	
150	150	11	1150	1150	
200	200	11	1200	1200	
250	250	11	1250	1250	
300	300		1300	1300	
350	350		1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	4/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC301286 - Pg 264 of 406 - 9/07/2020 - bwoo

HOLE Id: **Lot 468**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
								0	TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to medium.
				5							D		Fine to medium SAND, with minor gravel, trace silt; light yellowish brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
				7				0.5					
				7							VD		0.55m: Changes to very dense.
				8									
				11 >>									
				12 >>									
				17 >>									
	DRY 08/01/2019							1.0		M-W			1.0m: Changes to moist - wet.
								1.5					1.55m: Changes to dark greyish brown.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:56:34 p.m. - Produced with Core-GS by GeRoc

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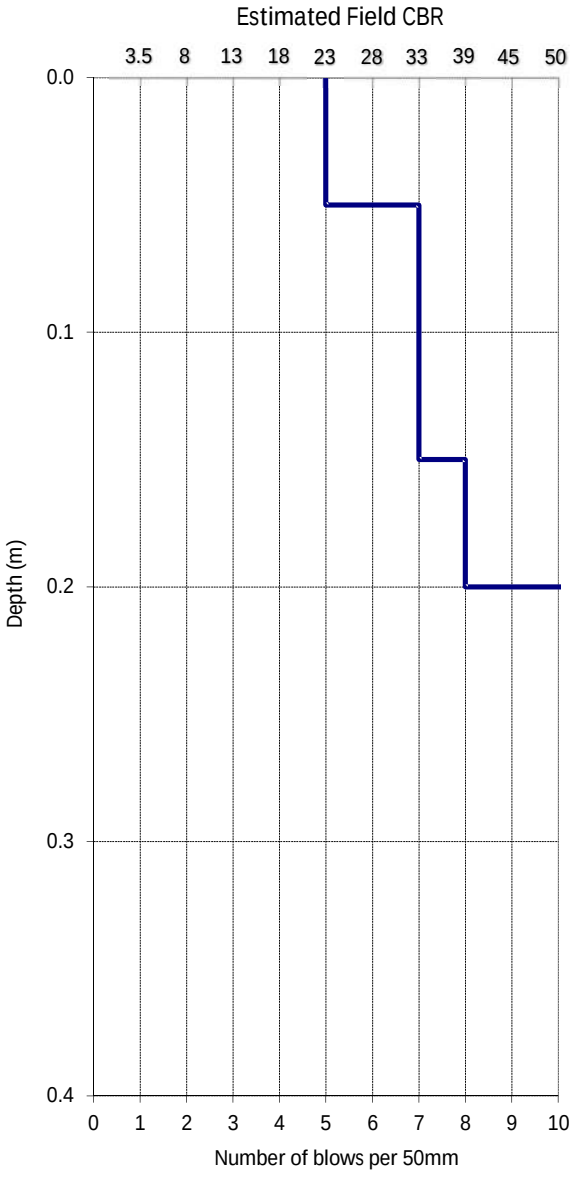
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019/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 468 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 468 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	5	1050	1050	
100	100	7	1100	1100	
150	150	7	1150	1150	
200	200	8	1200	1200	
250	250	11	1250	1250	
300	300	12	1300	1300	
350	350	17	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	18/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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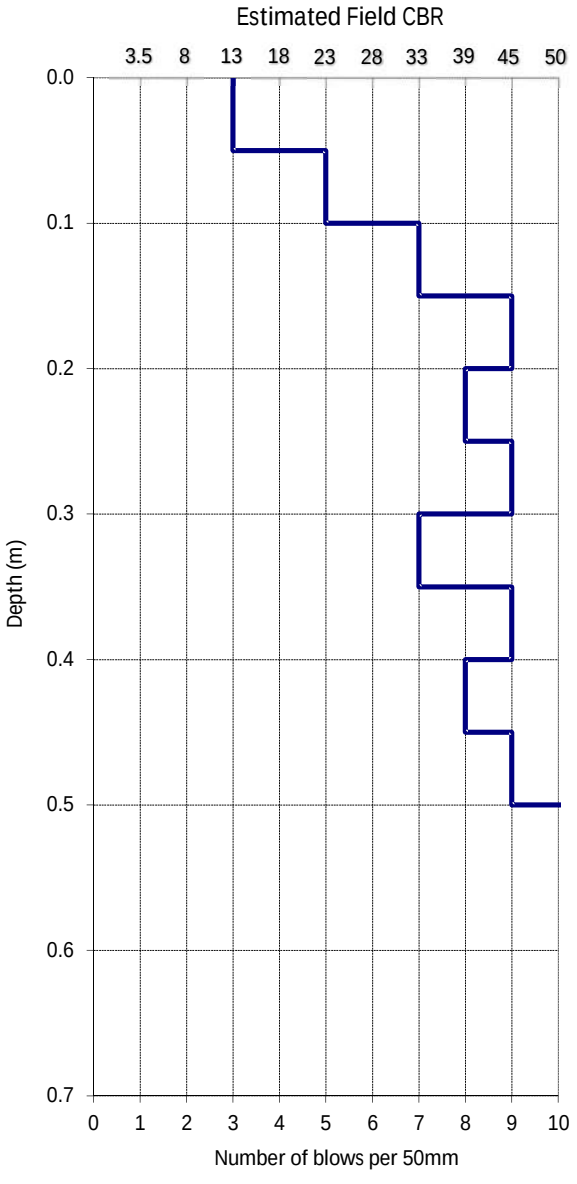
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 468 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 468 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	3	1050	1050	
100	100	5	1100	1100	
150	150	7	1150	1150	
200	200	9	1200	1200	
250	250	8	1250	1250	
300	300	9	1300	1300	
350	350	7	1350	1350	
400	400	9	1400	1400	
450	450	8	1450	1450	
500	500	9	1500	1500	
550	550	14	1550	1550	
600	600	16	1600	1600	
650	650	16	1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC301286 - Pg 267 of 406 - 9/07/2020 - bwoo

HOLE Id: **Lot 469**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
				2					TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, dry to moist, non-plastic; gravel, fine to medium, subangular to subrounded.
				5				0.5			D		Fine to coarse SAND, with trace silt and gravel; light yellowish brown. Dense, moist, well graded gravel, fine to medium, subangular to subrounded, pumiceous.
				6							VD		0.55m: Changes to very dense.
				9									
				8									
				13 >>									
				11 >>				1.0					
				9							VSt		Sandy SILT, with trace gravel; dark brown. Very stiff, moist, non-plastic; sand, fine to coarse; gravel, fine, subangular to subrounded, pumiceous.
				8									
				10				1.5			VD		Fine to coarse SAND, with trace silt and gravel; light yellowish brown. Very dense, moist to wet, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
				10									
				10									
	DRY 08/01/2019	100	HA					2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:56:36 p.m. - Produced with Core-GS by GeRoc

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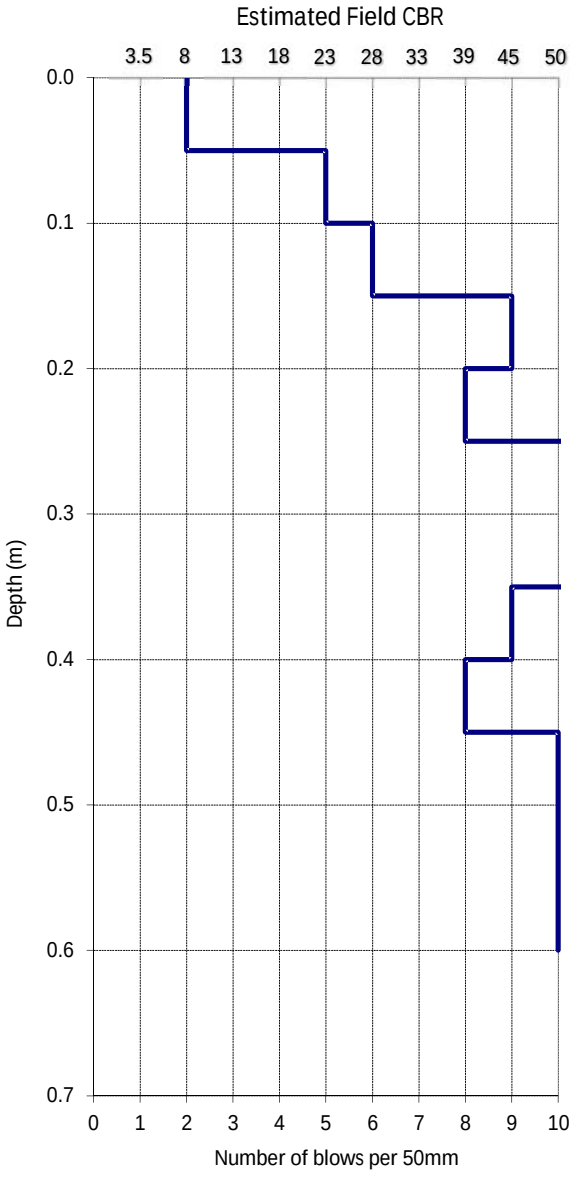
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 469 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 469 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	5	1100	1100	
150	150	6	1150	1150	
200	200	9	1200	1200	
250	250	8	1250	1250	
300	300	13	1300	1300	
350	350	11	1350	1350	
400	400	9	1400	1400	
450	450	8	1450	1450	
500	500	10	1500	1500	
550	550	10	1550	1550	
600	600	10	1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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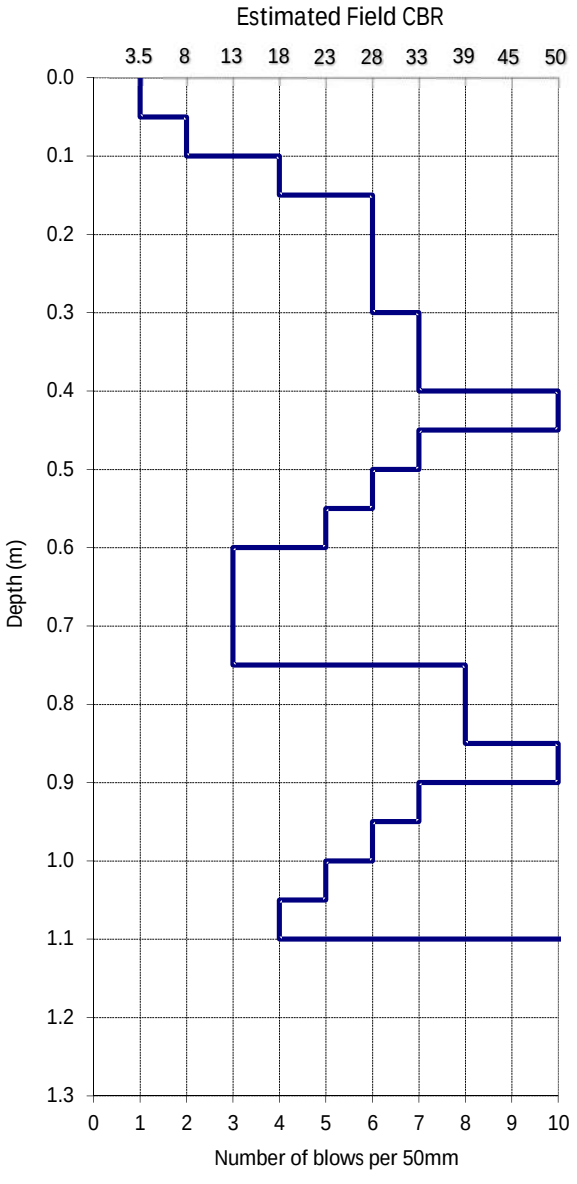
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 469 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 469 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	5
100	100	2	1100	1100	4
150	150	4	1150	1150	11
200	200	6	1200	1200	20
250	250	6	1250	1250	
300	300	6	1300	1300	
350	350	7	1350	1350	
400	400	7	1400	1400	
450	450	10	1450	1450	
500	500	7	1500	1500	
550	550	6	1550	1550	
600	600	5	1600	1600	
650	650	3	1650	1650	
700	700	3	1700	1700	
750	750	3	1750	1750	
800	800	8	1800	1800	
850	850	8	1850	1850	
900	900	10	1900	1900	
950	950	7	1950	1950	
1000	1000	6	2000	2000	



Test Remarks

Tested By	PIFA	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 470**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 08/01/2019	100	HA	4, 4, 4, 6, 9, 8, 9, 9, 8, 8, 10, 13 >>, 13 >>				0.5	TS	M	St		Organic sandy SILT, dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
											D		Fine to coarse SAND, with trace silt and gravel; yellowish brown. Dense, moist; gravel, fine, subangular to subrounded, pumiceous.
								1.0		M-W			0.6m: Changes to moist to wet.
								1.5		W			1.0m: Changes to minor silt.
								2.0					1.3m: Changes to wet.
													End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:56:38 p.m. - Produced with Core-GS by GeRoc

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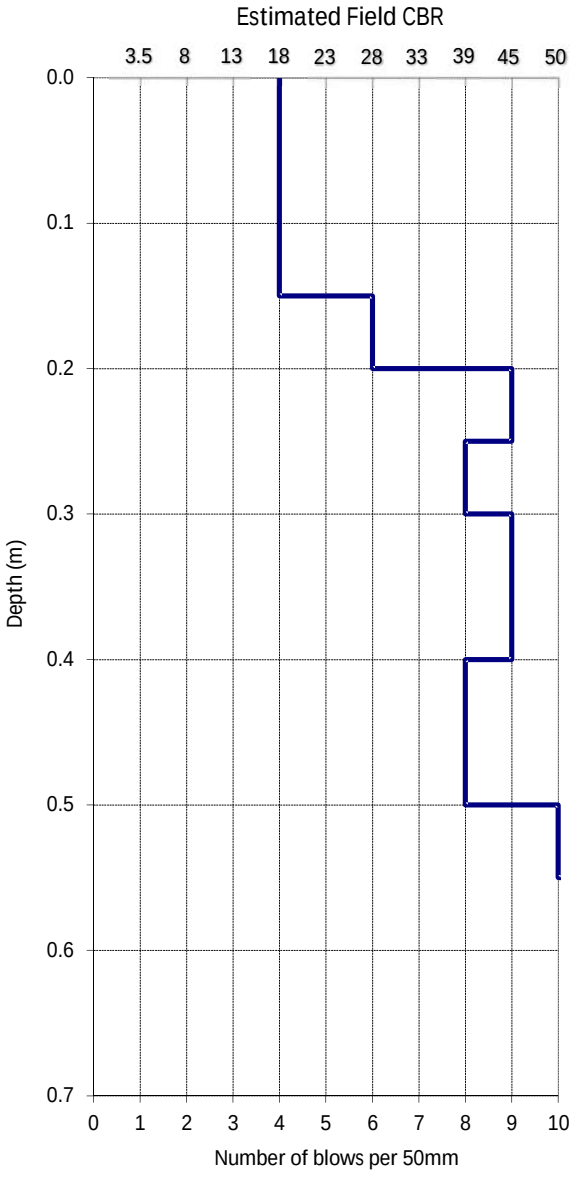
Lab Ref/URN: 019/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 470 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 470 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	4	1050	1050	
100	100	4	1100	1100	
150	150	4	1150	1150	
200	200	6	1200	1200	
250	250	9	1250	1250	
300	300	8	1300	1300	
350	350	9	1350	1350	
400	400	9	1400	1400	
450	450	8	1450	1450	
500	500	8	1500	1500	
550	550	10	1550	1550	
600	600	13	1600	1600	
650	650	13	1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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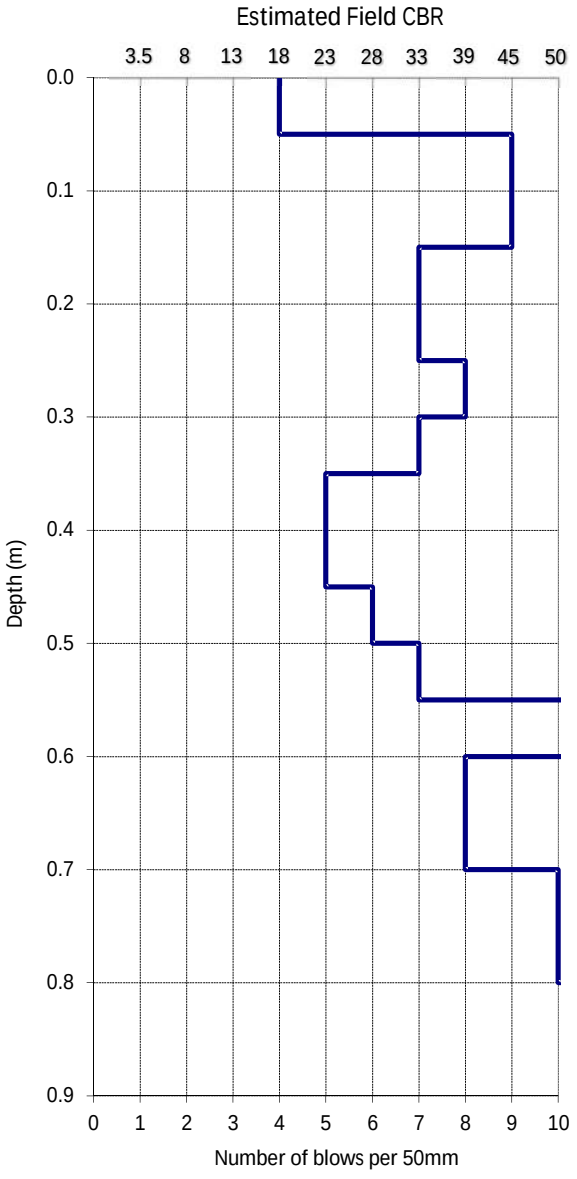
Lab Ref/URN: 019/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 470 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 470 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	4	1050	1050	
100	100	9	1100	1100	
150	150	9	1150	1150	
200	200	7	1200	1200	
250	250	7	1250	1250	
300	300	8	1300	1300	
350	350	7	1350	1350	
400	400	5	1400	1400	
450	450	5	1450	1450	
500	500	6	1500	1500	
550	550	7	1550	1550	
600	600	11	1600	1600	
650	650	8	1650	1650	
700	700	8	1700	1700	
750	750	10	1750	1750	
800	800	10	1800	1800	
850	850	16	1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	11/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 471**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
								0	TS	M-W	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, non-plastic; sand, fine to medium.
	DRY 08/01/2019	100	HA	3, 7, 6, 6, 6, 8, 9, 7, 8, 5, 4, 3, 4, 6, 8, 9, 9, 13 >>, 17 >>, 14 >>				0.5		M	D		Fine to coarse SAND, with minor gravel, trace silt; light yellowish brown. Dense, moist, well graded; gravel, fine, subangular to subrounded, pumiceous.
										W			0.7m: Changes to wet.
								1.0			VD		1.15m: Changes to very dense.
								1.5					1.5m: Changes to dark greyish brown.
								2.0					End of borehole at 2.00 mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:56:40 p.m. - Produced with Core-GS by GeRoc

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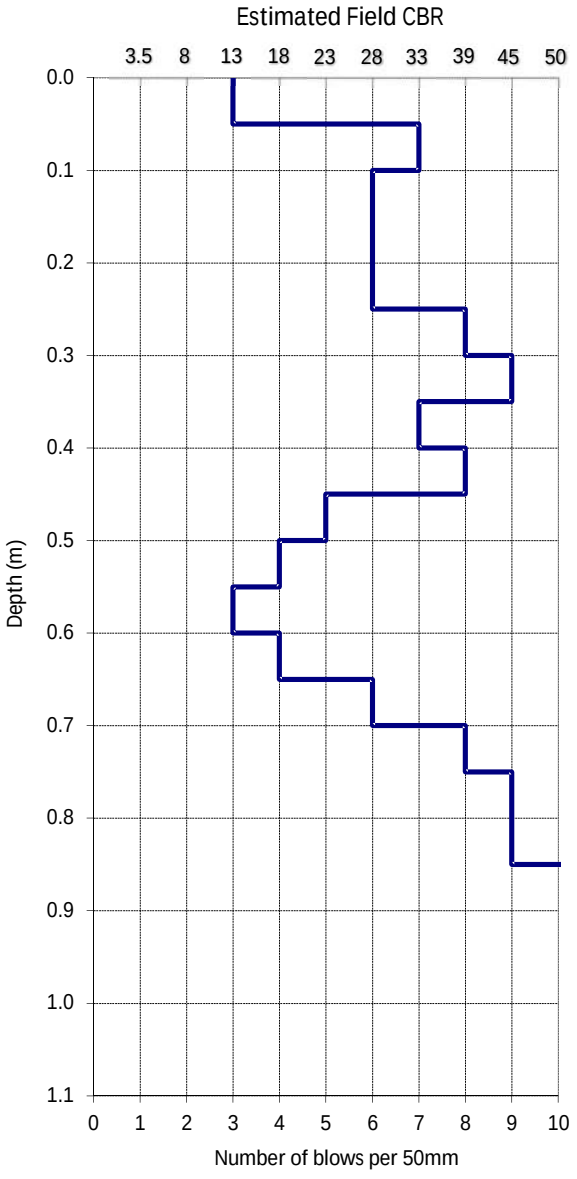
Lab Ref/URN: 019/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 471 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 471 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	3	1050	1050	
100	100	7	1100	1100	
150	150	6	1150	1150	
200	200	6	1200	1200	
250	250	6	1250	1250	
300	300	8	1300	1300	
350	350	9	1350	1350	
400	400	7	1400	1400	
450	450	8	1450	1450	
500	500	5	1500	1500	
550	550	4	1550	1550	
600	600	3	1600	1600	
650	650	4	1650	1650	
700	700	6	1700	1700	
750	750	8	1750	1750	
800	800	9	1800	1800	
850	850	9	1850	1850	
900	900	13	1900	1900	
950	950	17	1950	1950	
1000	1000	14	2000	2000	



Test Remarks

Tested By	PIFA	Date	4/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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Page 1 of 1

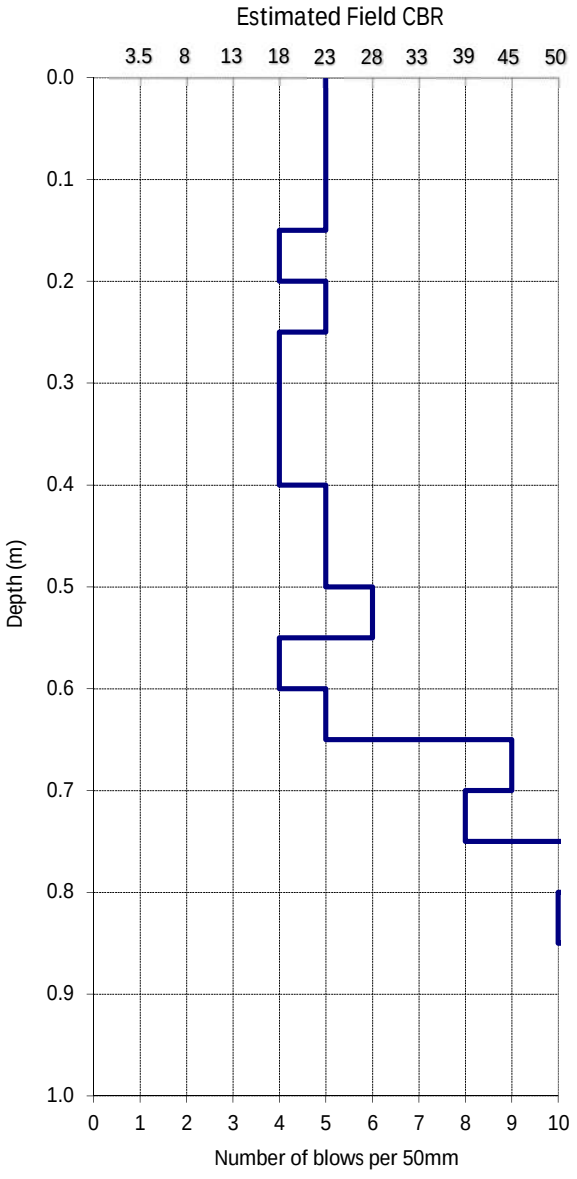
Lab Ref/URN
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 471 borehole log.	Test Series	Terrace Views/111218/SC447-448,451-453,4[illegible]4-466,468-470
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 471 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	5	1050	1050	
100	100	5	1100	1100	
150	150	5	1150	1150	
200	200	4	1200	1200	
250	250	5	1250	1250	
300	300	4	1300	1300	
350	350	4	1350	1350	
400	400	4	1400	1400	
450	450	5	1450	1450	
500	500	5	1500	1500	
550	550	6	1550	1550	
600	600	4	1600	1600	
650	650	5	1650	1650	
700	700	9	1700	1700	
750	750	8	1750	1750	
800	800	11	1800	1800	
850	850	10	1850	1850	
900	900	11	1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	4/12/2018
Data Entry By	ALDE	Date	17/12/2018
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 472**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				1 2 3 4 5 6 7 8 9				0.0	TS	D-M	St	10 25 50 100 200	Organic SILT, with some sand; dark brownish black. Stiff, dry to moist, non-plastic; sand, fine to coarse.
				1									
				3									
				13 >>									
				10						M	D		Fine to coarse SAND, with trace silt and gravel; light yellowish brown. Dense, moist, well graded gravel, fine to medium, subangular to subrounded, pumiceous.
				11 >>				0.5					
				11 >>									
				11 >>									
				9									
				10									
				9									
				16 >>				1.0					
				13 >>									
				12 >>									
				20 >>						M-W	VD		1.3m: Changes to very dense, moist to wet.
				23 >>									
				21 >>				1.5					1.5m: Changes to dark brown.
				34 >>									
				34 >>									
				31 >>									
				22 >>				2.0					End of borehole at 2.00mbgl.
	DRY 08/01/2019	100	HA										No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from Aurecon.

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC301286 - Pg 277 of 406 - 9/07/2020 - bwoo

HandAugerLog - 11/02/2019 3:56:43 p.m. - Produced with Core-GS by GeRoc

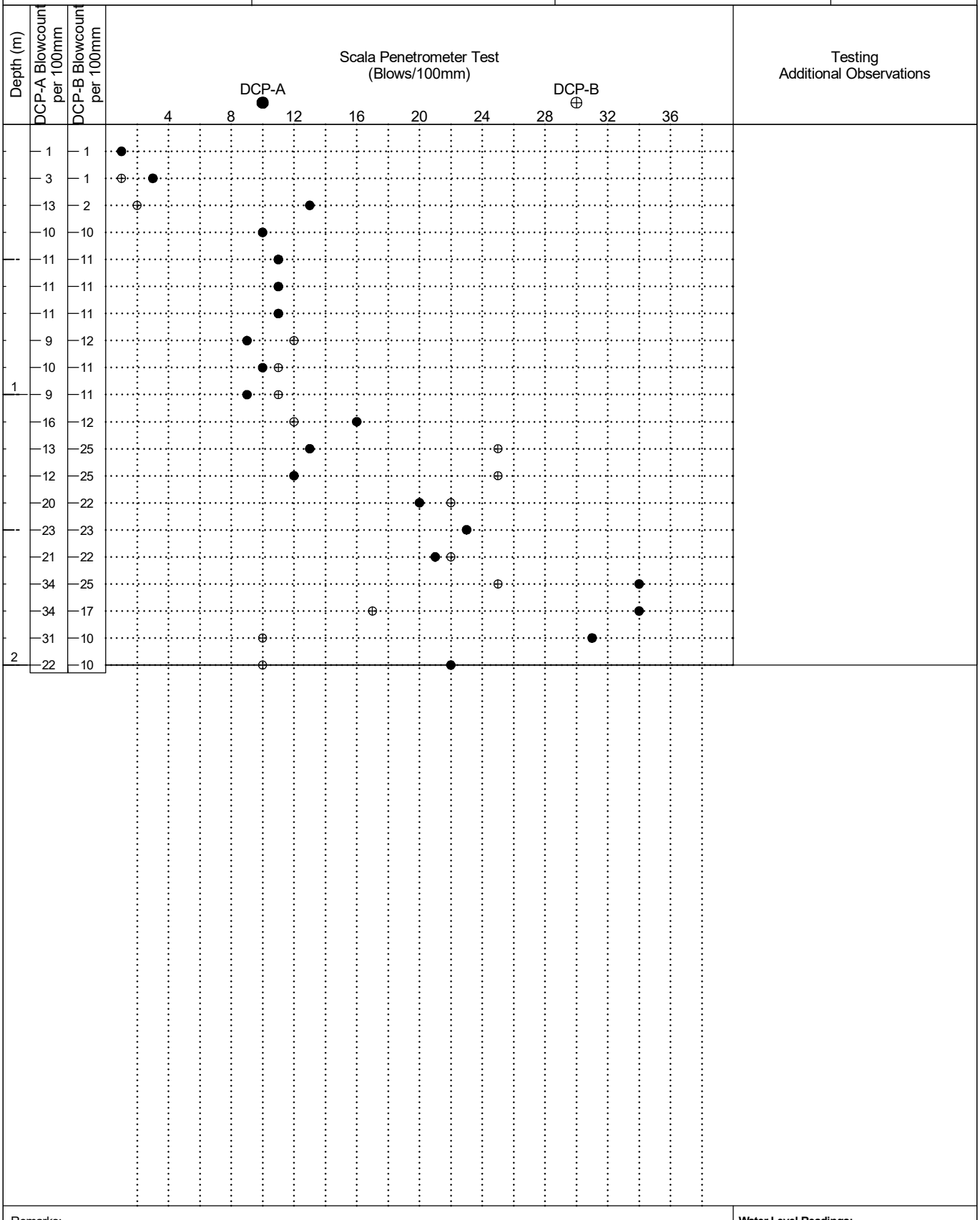
aurecon
Ground Floor, 247 Cameron Road
PO Box 2292, Tauranga
New Zealand
Tel: +64 7 578 6183
www.aurecongroup.com

Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

Lot 472

Sheet **1** of **1**

DRILLING INFORMATION	**CO-ORDINATES: N/A**		
Method: Scala	Easting: N/A	Date started: 19/12/2018	Logged by: AY
Equipment: Scala	Northing: N/A	Date completed: 19/12/2018	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG



Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

TCC - Approved Building Consent Document - BC301286 - Pg 278 of 406 - 9/07/2020 - bwoo

Last Generated: 25/01/2019 10:38:07 AM
Database File: 181220-LOT BY LOT TESTS.GPJ Library file: AURECON AKL 20130827V1 (2).GLB Template: GINT STD US LAB.GDT Report File: AURECON TWO SCALA LOG 1.0 Date Generated: 25/01/2019

HOLE Id: **Lot 473**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
				1				0.0	TS	D-M	St		Sandy SILT, with trace gravel; dark brownish black. Stiff, dry to moist; sand, fine to coarse; gravel, fine, subangular to subrounded.
				5					TS				
				15 >>					TS	M			0.2m: Changes to moist.
				17 >>							D		Fine to coarse SAND, trace gravel and silt; light yellowish grey. Dense, moist; gravel, fine, subangular to subrounded, pumiceous.
				16 >>				0.5					
				15 >>									
				14 >>									
				13 >>									
				14 >>									
				14 >>									
				15 >>				1.0					
				20 >>							VD		1.1m: Changes to very dense.
				14 >>							D		1.2m: Changes to dense.
				10						M-W			1.3m: Changes to moist to wet.
				12 >>									
				23 >>				1.5			VD		1.5m: Changes to very dense.
				18 >>									1.6m: Changes to minor silt.
				18 >>						W			1.7m: Changes to wet.
				23 >>									
	DRY 08/01/2019	100	HA	24 >>									
								2.0					End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from Aurecon.

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:56:44 p.m. - Produced with Core-GS by GeRoc

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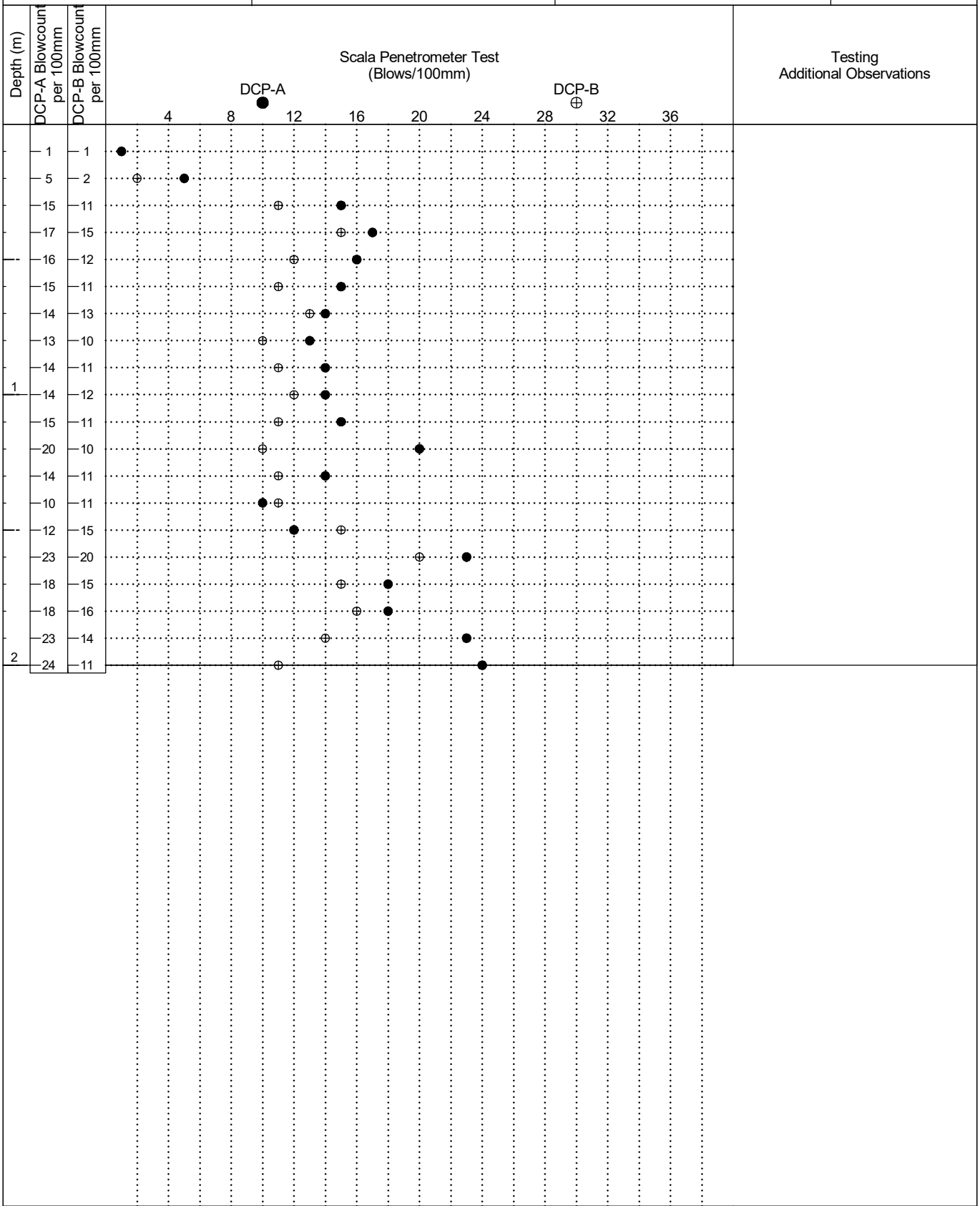
aurecon
Ground Floor, 247 Cameron Road
PO Box 2292, Tauranga
New Zealand
Tel: +64 7 578 6183
www.aurecongroup.com

Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

Lot 473

Sheet **1** of **1**

DRILLING INFORMATION	CO-ORDINATES: N/A		
Method: Scala	Easting: N/A	Date started: 19/12/2018	Logged by: AY
Equipment: Scala	Northing: N/A	Date completed: 19/12/2018	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG



Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

TCC - Approved Building Consent Document - BC301286 - Pg 280 of 406 - 9/07/2020 - bwoo

Last Generated: 25/01/2019 10:38:07 AM
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HOLE Id: **Lot 474**

Hole Location: See Location Plan

SHEET: 1 OF 1

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL										ENGINEERING DESCRIPTION				
GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
				1 4 10 16 >> 16 >> 15 >> 15 >> 16 >> 13 >> 11 >> 11 >> 13 >> 11 >> 8 10 10 9 13 >> 25 >> 20 >>				0.5 1.0 1.5 2.0	TS TS TS	M W	St D VD		Organic SILT, with minor sand; dark blackish brown. Stiff, moist, non-plastic; sand, fine to medium. Fine to coarse SAND, with trace silt and gravel; light yellowish brown. Dense, moist, well graded gravel, fine, subangular to subrounded, pumiceous. Fine to coarse SAND, with minor sand, trace gravel; yellowish brown. Dense, wet, well graded; gravel, fine, subangular to subrounded, pumiceous. 1.8m: Changes to very dense. End of borehole at 2.00mbgl. No standing groundwater encountered.
	DRY 31/01/2019	100	HA										

COMMENTS: Scala Penetrometer results obtained from Aurecon.

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:56:47 p.m. - Produced with Core-GS by GeRoc

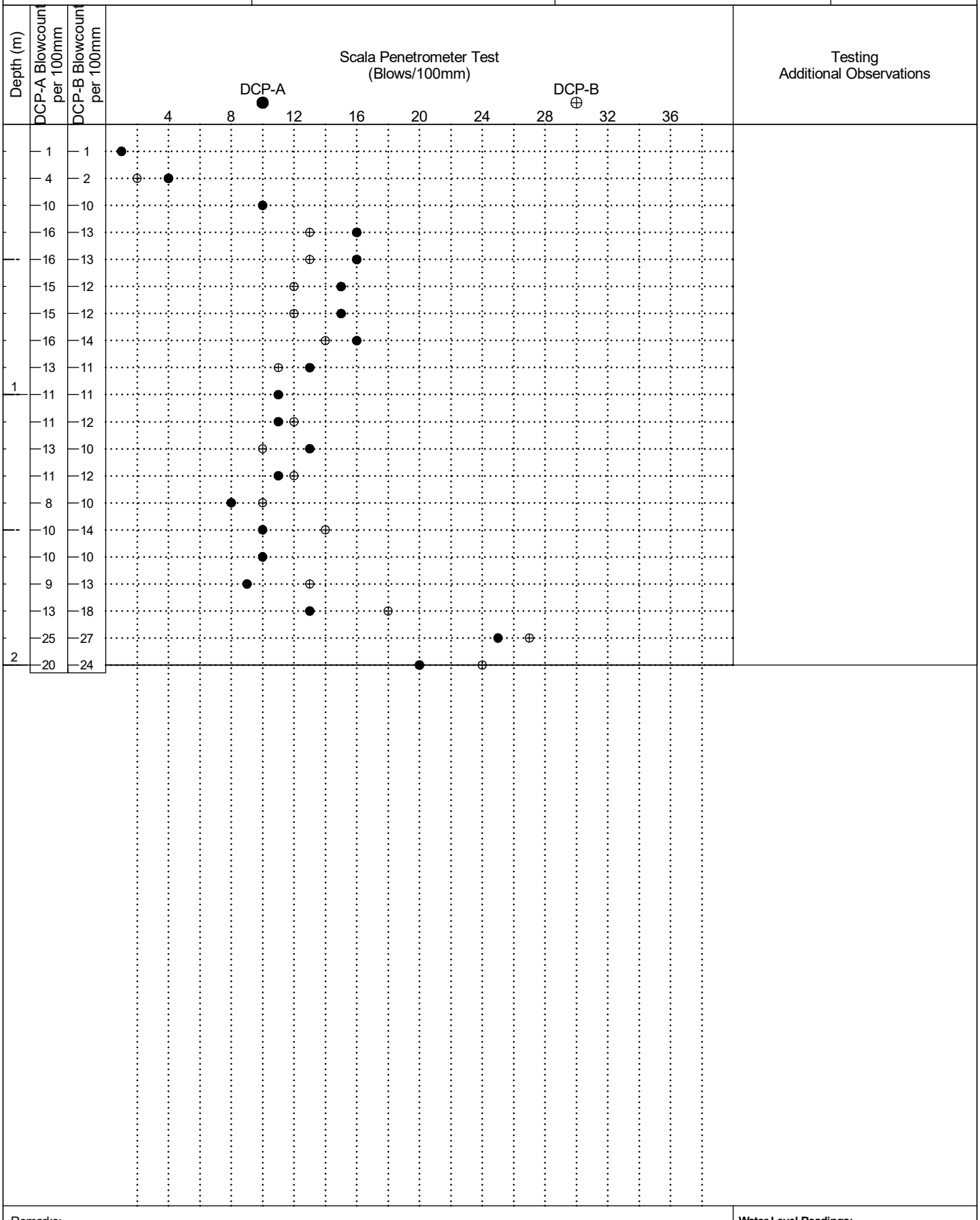
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Tel: +64 7 578 6183
www.aurecongroup.com

Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

Lot 474

Sheet **1** of **1**

DRILLING INFORMATION	CO-ORDINATES: N/A		
Method: Scala	Easting: N/A	Date started: 19/12/2018	Logged by: AY
Equipment: Scala	Northing: N/A	Date completed: 19/12/2018	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG



Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

TCC - Approved Building Consent Document - BC301286 - Pg 282 of 406 - 9/07/2020 - bwoo

Last Generated: 25/01/2019 10:38:08 AM
Database File: 181220-LOT BY LOT TESTS.GPJ Library file: AURECON AKL 20130827V1 (2).GLB Template: GINT STD US LAB.GDT Report File: AURECON TWO SCALA LOG 1.0 Date Generated: 25/01/2019

HOLE Id: **Lot 475**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/100mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				1					TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, low plastic; sand, fine to medium.
				4							D		Fine to coarse SAND, with trace silt and gravel; light greyish brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
				4				0.5					
				11 >>									
				17 >>									
				14 >>									
				9									
				7				1.0					
				12 >>									
				12 >>									
				10									
				12 >>									
				15 >>									1.4m: Changes to light brown.
				16 >>									
				14 >>				1.5					1.6m: Changes to light greyish brown.
				9									
				9							MD		1.7m: Changes to medium dense.
				5									
				10							D		1.8m: Changes to dense.
	DRY 15/01/2019			15 >>				2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from Aurecon.

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:56:49 p.m. - Produced with Core-GS by GeRoc

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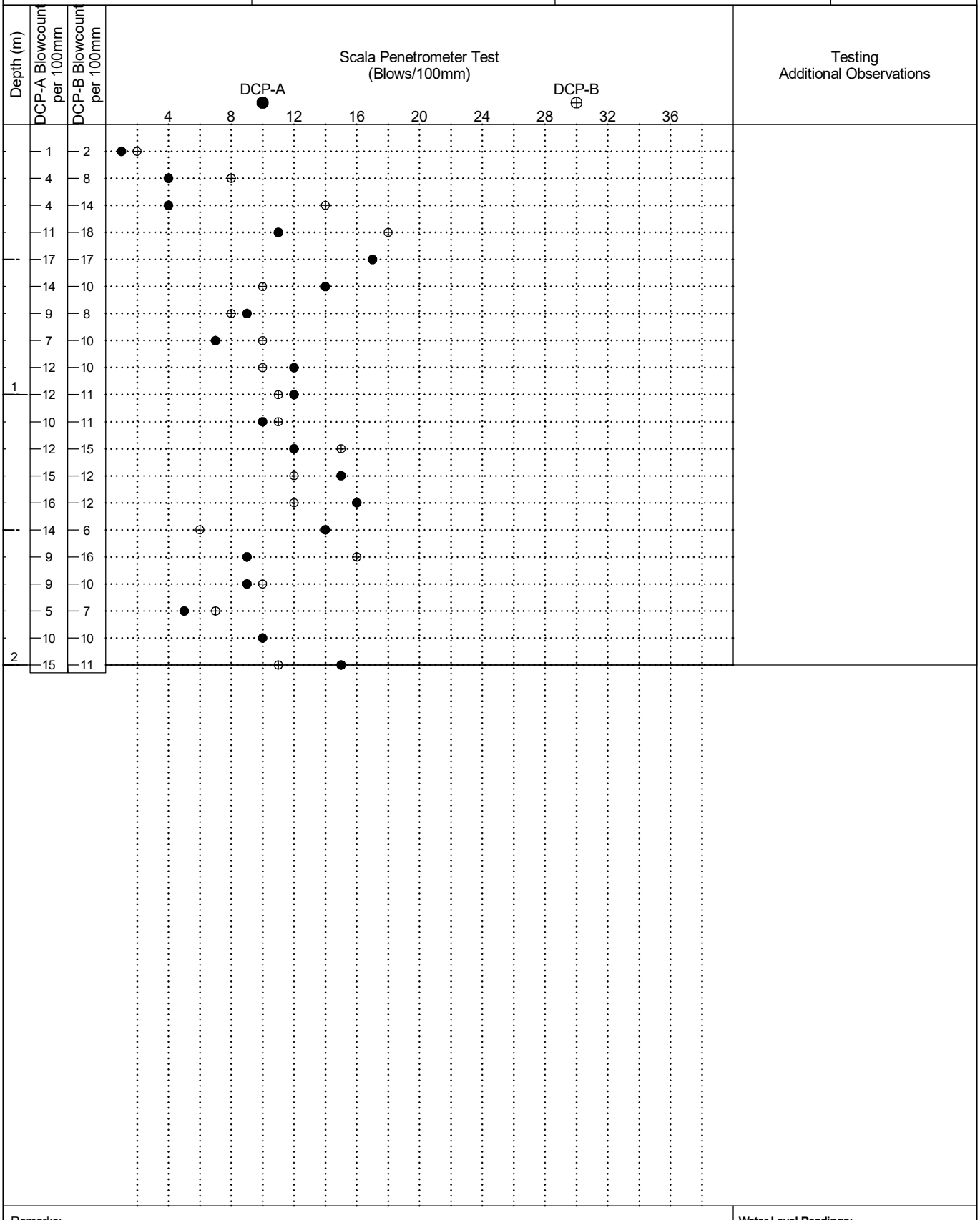
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www.aurecongroup.com

Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

Lot 475

Sheet **1** of **1**

DRILLING INFORMATION	CO-ORDINATES: N/A		
Method: Scala	Easting: N/A	Date started: 18/01/2019	Logged by: AC
Equipment: Scala	Northing: N/A	Date completed: 18/01/2019	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG



Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Last Generated: 25/01/2019 10:38:08 AM
Database File: 181220-LOT BY LOT TESTS.GPJ Library file: AURECON AKL 20130827V1 (2).GLB Template: GINT STD US LAB.GDT Report File: AURECON TWO SCALA LOG 1.0 Date Generated: 25/01/2019

GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 476**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/100mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 15/01/2019	100	HA	5; 8; 13 >>; 29 >>				0.0	TS	M-W	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, non-plastic; sand, fine to medium.
								0.5			D		Fine to coarse SAND, with minor silt, trace gravel; light greyish yellow. Dense, moist to wet; well graded; gravel, fine, subangular to subrounded, pumiceous.
											VD		0.5m: Changes to very dense.
								1.0					0.9 - 0.95m: Changes to light greyish yellow with some orange brown mottling.
										W			1.1m: Changes to minor gravel; greyish brown; wet.
								1.5					1.65m: Changes to pinkish brown.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from Aurecon.

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:56:51 p.m. - Produced with Core-GS by GeRoc

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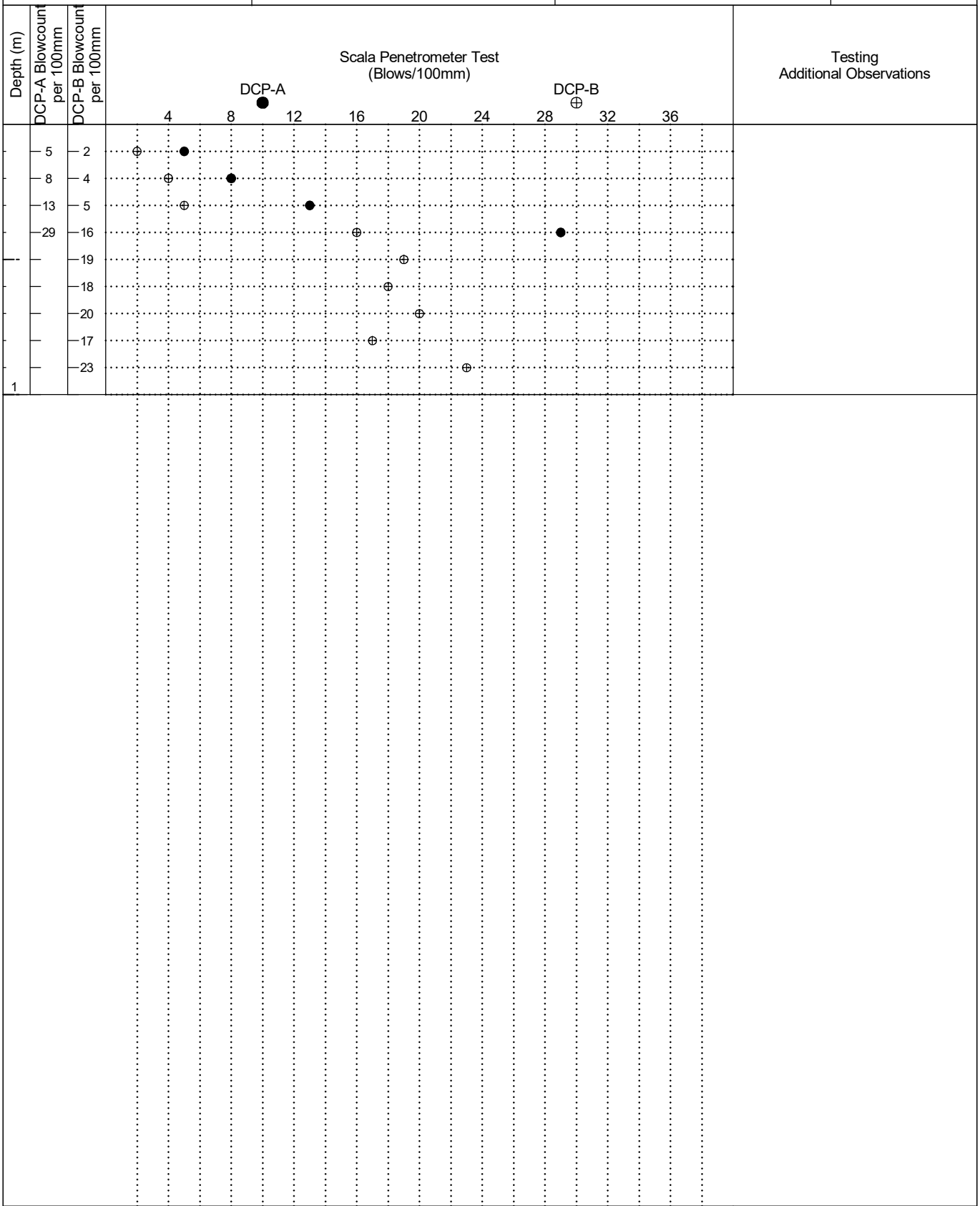
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Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

Lot 476

Sheet **1** of **1**

DRILLING INFORMATION	CO-ORDINATES: N/A		
Method: Scala	Easting: N/A	Date started: 18/01/2019	Logged by: AC
Equipment: Scala	Northing: N/A	Date completed: 18/01/2019	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG



Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Last Generated: 25/01/2019 10:38:09 AM

TCC - Approved Building Consent Document - BC301286 - Pg 286 of 406 - 9/07/2020 - bwoo

Database File: 181220-LOT BY LOT TESTS.GPJ Library file: AURECON AKL 20130827V1 (2).GLB Template: GINT STD US LAB.GDT Report File: AURECON TWO SCALA LOG 1.0 Date Generated: 25/01/2019

HOLE Id: **Lot 477**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/100mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 15/01/2019	100	HA	4				0.0	TS	M	St		Organic sandy SILT, with trace gravel; dark brownish black. Stiff, moist, non-plastic; sand, fine; gravel, fine, subangular to subrounded, pumiceous.
				9							D		Fine to coarse SAND, with trace gravel and silt; light yellowish brown. Dense, moist, well graded gravel, fine, subangular to subrounded, pumiceous.
				7				0.5			VD		0.5m: Changes to very dense.
				18 >>									
				27 >>									0.8m: Changes to minor silt; yellowish brown.
								1.0					
								1.5		W			1.8m: Changes to wet; gravel, fine to medium.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from Aurecon.

Hole Depth 2m

Scale 1:13

Rev.: A

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Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

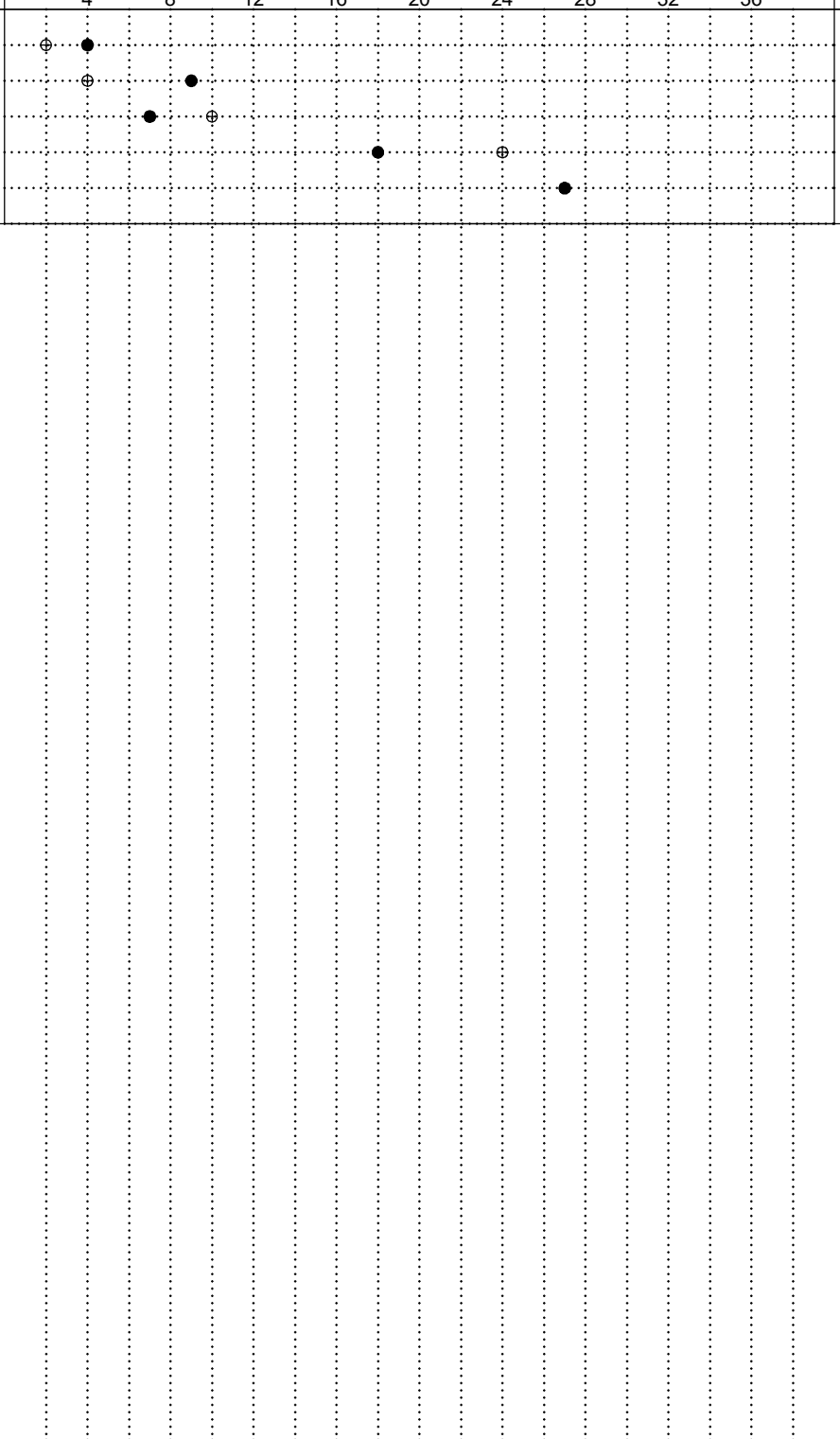
Lot 477

Sheet **1** of **1**

DRILLING INFORMATION	CO-ORDINATES: N/A		
Method: Scala	Easting: N/A	Date started: 18/01/2019	Logged by: AC
Equipment: Scala	Northing: N/A	Date completed: 18/01/2019	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG

Depth (m)	DCP-A Blowcount per 100mm	DCP-B Blowcount per 100mm
	4	2
	9	4
	7	10
	18	24
	27	

Scala Penetrometer Test (Blows/100mm)



Testing
Additional Observations

Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 478**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/100mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 15/01/2019	100	HA	2, 7, 4				0	TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
				10							D		Fine to coarse SAND,with trace silt and gravel; light greyish brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
				15 >>				0.5					
				14 >>							VD		0.6m: Changes to very dense.
				18 >>				1.0					
				27 >>						M-W			1.5m: Changes to moist to wet.
								1.5					
								2.0					End of borehole at 2.00 mbgl. No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from Aurecon.

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:56:56 p.m. - Produced with Core-GS by GeRoc

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Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

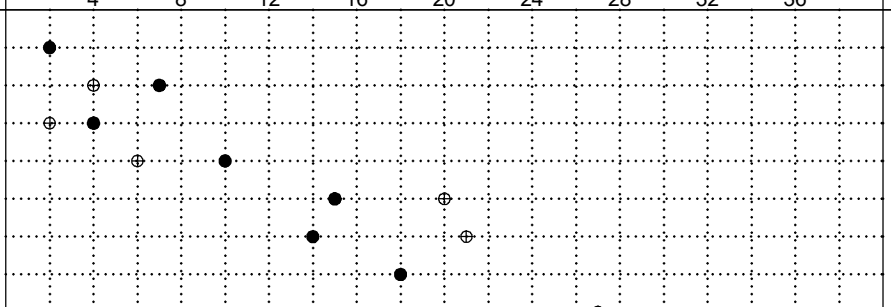
Lot 478

Sheet **1** of **1**

DRILLING INFORMATION	CO-ORDINATES: N/A		
Method: Scala	Easting: N/A	Date started: 18/01/2019	Logged by: AC
Equipment: Scala	Northing: N/A	Date completed: 18/01/2019	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG

Depth (m)	DCP-A Blowcount per 100mm	DCP-B Blowcount per 100mm
	2	2
	7	4
	4	2
	10	6
	15	20
	14	21
	18	
	27	

Scala Penetrometer Test (Blows/100mm)



Testing
Additional Observations

Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Last Generated: 25/01/2019 10:38:10 AM

HOLE Id: **Lot 479**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/100mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 31/01/2019	100	HA	4; 13 >>; 5; 11 >>; 23 >>				0.5; 1.0; 1.5; 2.0	TS; TS	D-M	St		Organic SILT, with minor sand, trace gravel; dark brownish black. Stiff, dry to moist, non-plastic; sand, fine to medium; gravel, fine, subangular to subrounded, pumiceous.
										M	D		Fine to coarse SAND, with minor sand, trace gravel; light yellowish brown. Dense, moist, well graded; gravel, fine, subangular to subrounded, pumiceous.
											VD		0.4m: Changes to very dense.
													End of borehole at 2.00mbgl.
													No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from Aurecon.

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:56:58 p.m. - Produced with Core-GS by GeRoc

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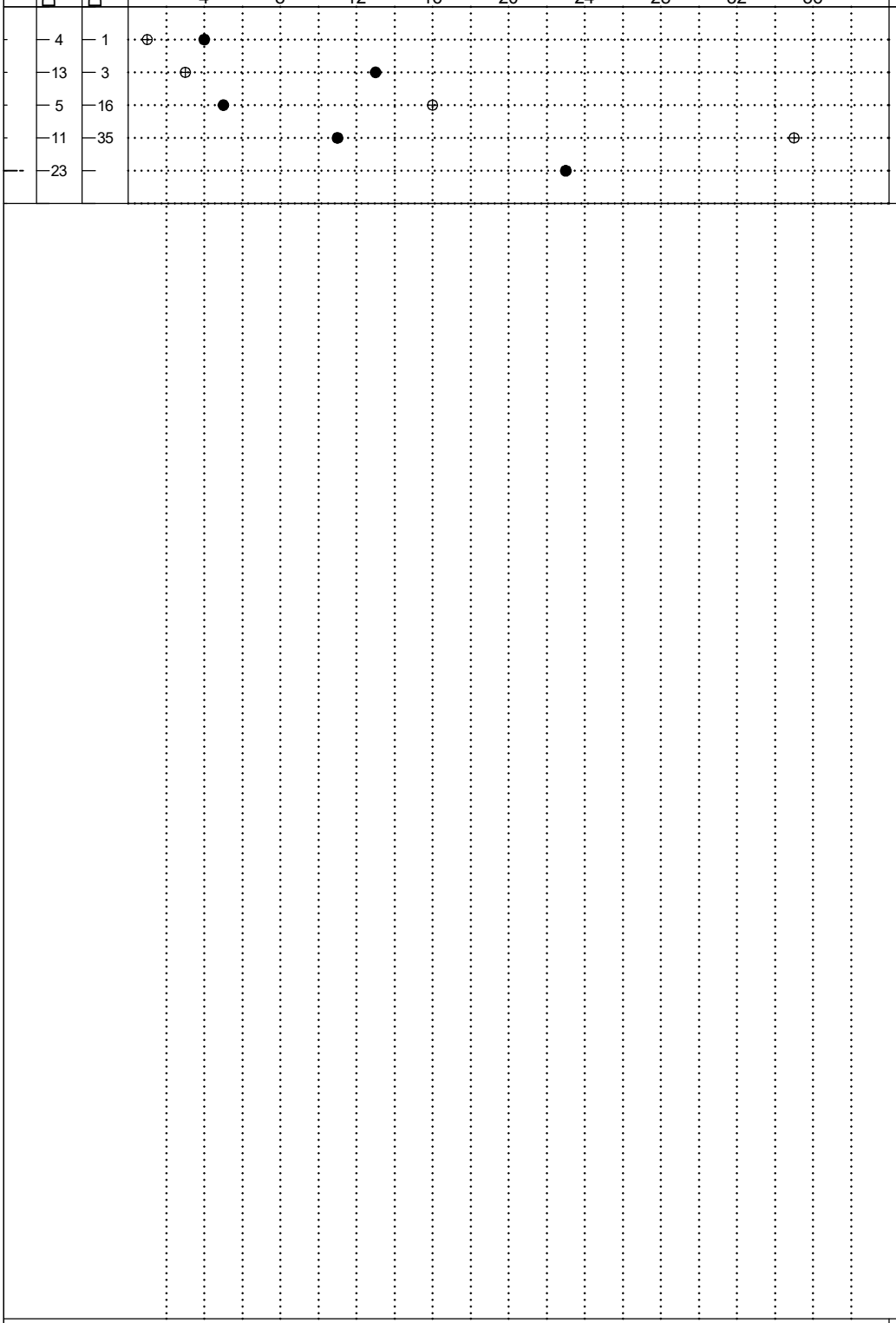
Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

Lot 479

Sheet **1** of **1**

DRILLING INFORMATION	CO-ORDINATES: N/A		
Method: Scala	Easting: N/A	Date started: 18/01/2019	Logged by: AC
Equipment: Scala	Northing: N/A	Date completed: 18/01/2019	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG

Depth (m)	DCP-A Blowcount per 100mm	DCP-B Blowcount per 100mm	Scala Penetrometer Test (Blows/100mm)	Testing Additional Observations
	4	1		
	13	3		
	5	16		
	11	35		
	23			



Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

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Database File: 181220-LOT BY LOT TESTS.GPJ Library file: AURECON AKL 20130827V1 (2).GLB Template: GINT STD US LAB.GDT Report File: AURECON TWO SCALA LOG 1.0 Date Generated: 25/01/2019

HOLE Id: **Lot 480**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/100mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 31/01/2019	100	HA	3, 5, 4				0.0	TS	M	St		Organic SILT, with some sand, trace gravel; dark brownish black. Stiff, moist, non-plastic; sand, fine to medium; gravel, fine, subangular to subrounded, pumiceous.
				9, 8, 6, 12 >>, 10, 7, 12 >>, 14 >>, 24 >>				0.5			D		Fine to coarse SAND, trace silt and gravel; light yellowish brown. Dense, moist, well graded; gravel, fine, subangular to subrounded, pumiceous.
								1.0		M-W	VD		1.1m: Changes to yellowish brown; very dense, moist to wet.
								1.5					
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from Aurecon.

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:57:01 p.m. - Produced with Core-GS by GeRoc

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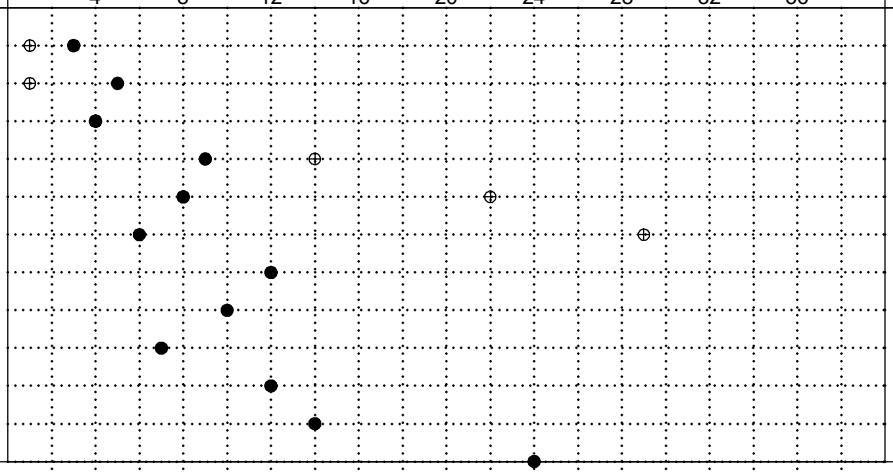
Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

Lot 480

Sheet **1** of **1**

DRILLING INFORMATION		CO-ORDINATES: N/A					
Method:	Scala	Easting:	N/A	Date started:	18/01/2019	Logged by:	AC
Equipment:	Scala	Northing:	N/A	Date completed:	18/01/2019	Input by:	MB
Contractor:	Aurecon	Ground level:	N/A	Inclination:	90°	Checked by:	MB
				Orientation:	N/A	Verified by:	RG

Depth (m)	DCP-A Blowcount per 100mm	DCP-B Blowcount per 100mm	Scala Penetrometer Test (Blows/100mm)	Testing Additional Observations
	3	1		
	5	1		
	4	4		
	9	14		
	8	22		
	6	29		
	12			
	10			
	7			
1	12			
	14			
	24			



Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

TCC - Approved Building Consent Document - BC301286 - Pg 294 of 406 - 9/07/2020 - bwoo

Last Generated: 1/02/2019 9:12:31 AM
Database File: 181220-LOT BY LOT TESTS.GPJ Library file: AURECON AKL 20130827V1 (2).GLB Template: GINT STD US LAB.GDT Report File: AURECON TWO SCALA LOG 1.0 Date Generated: 1/02/2019

HOLE Id: **Lot 481**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/100mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				2					TS	M-W	St		Organic SILT, with some sand, trace gravel; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse; gravel, fine to medium, subangular to subrounded.
				3					TS				
				18 >>					TS				
				32 >>						M	VD		Fine to coarse SAND, with trace silt and gravel; light greyish brown. Very dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
	DRY 15/01/2019							0.5					
								1.0					
								1.5					
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from Aurecon.

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC301286 - Pg 295 of 406 - 9/07/2020 - bwoo

HandAugerLog - 11/02/2019 3:57:04 p.m. - Produced with Core-GS by GeRoc

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Tel: +64 7 578 6183
www.aurecongroup.com

Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

Lot 481

Sheet **1** of **1**

DRILLING INFORMATION	CO-ORDINATES: N/A		
Method: Scala	Easting: N/A	Date started: 18/01/2019	Logged by: AC
Equipment: Scala	Northing: N/A	Date completed: 18/01/2019	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG

Depth (m)	DCP-A Blowcount per 100mm	DCP-B Blowcount per 100mm	Scala Penetrometer Test (Blows/100mm)	Testing Additional Observations
	2	1		
	3	4		
	18	17		
	32	25		

DCP-A ● DCP-B ⊕

4 8 12 16 20 24 28 32 36

Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Last Generated: 25/01/2019 10:38:10 AM

TCC - Approved Building Consent Document - BC301286 - Pg 296 of 406 - 9/07/2020 - bwoo

Database File: 181220-LOT BY LOT TESTS.GPJ Library file: AURECON AKL 20130827V1 (2).GLB Template: GINT STD US LAB.GDT Report File: AURECON TWO SCALA LOG 1.0 Date Generated: 25/01/2019

HOLE Id: **Lot 482**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/100mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 15/01/2019	100	HA	2, 4, 17 >>, 25 >>				0.5	TS	M	St		Organic sandy SILT, with trace gravel; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse; gravel, fine, subangular to subrounded.
											VD		Fine to coarse SAND, with trace gravel and silt; light greyish brown. Very dense, moist, well graded; gravel, fine, subangular to subrounded, pumiceous.
								1.0		M-W			1.2m: Changes to greyish brown; moist to wet.
								1.5		W			1.7m: Changes to light brownish grey; wet.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS: Scala Penetrometer results obtained from Aurecon.

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:57:06 p.m. - Produced with Core-GS by GeRoc

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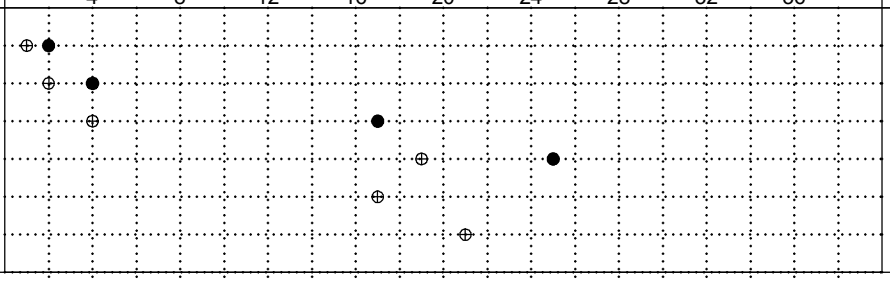
Client: **Zariba Properties Limited**
Project: **Terrace Views**
Location: **Terrace Views, Papamoa - Stage 3D/3E**
Project Reference: **247593**

Lot 482

Sheet **1** of **1**

DRILLING INFORMATION	CO-ORDINATES: N/A		
Method: Scala	Easting: N/A	Date started: 18/01/2019	Logged by: AC
Equipment: Scala	Northing: N/A	Date completed: 18/01/2019	Input by: AY
Contractor: Aurecon	Ground level: N/A	Inclination: 90°	Checked by: MB
		Orientation: N/A	Verified by: RG

Depth (m)	DCP-A Blowcount per 100mm	DCP-B Blowcount per 100mm	Scala Penetrometer Test (Blows/100mm)	Testing Additional Observations
	2	1		
	4	2		
	17	4		
	25	19		
		17		
		21		



Remarks:
*Note: Scalas were offset from the Hand Auger conducted in the centre of the lot by ~5 metres on either side

Water Level Readings:
Date Time | Hole Depth | Water Level
No water level recorded

Last Generated: 25/01/2019 10:38:11 AM

TCC - Approved Building Consent Document - BC301286 - Pg 298 of 406 - 9/07/2020 - bwoo

Database File: 181220-LOT BY LOT TESTS.GPJ Library file: AURECON AKL 20130827V1 (2).GLB Template: GINT STD US LAB.GDT Report File: AURECON TWO SCALA LOG 1.0 Date Generated: 25/01/2019

GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 483**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 15/01/2019	100	HA	1 1 1 1 1 1 1				0.0	TS TS TS	M-W	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, non-plastic; sand, fine to medium.
				5 10 16 >>				0.5		M	VD		Fine to coarse SAND, with trace gravel and silt; light greyish brown. Very dense, moist, well graded; gravel, fine, subangular to subrounded, pumiceous.
								1.0		M-W			1.3m: Changes to greyish brown; moist to wet.
								1.5					
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:57:08 p.m. - Produced with Core-GS by GeRoc

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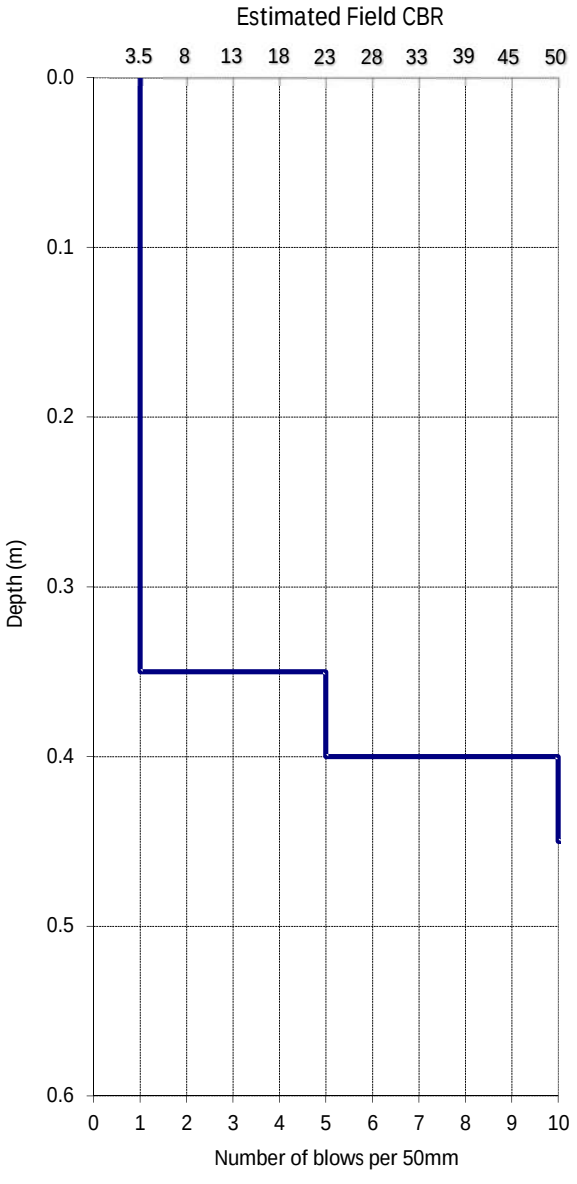
Lab Ref/URN: 024/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 483 borehole log.	Test Series	Terrace Views/310119/SC483-488
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 483 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	1	1150	1150	
200	200	1	1200	1200	
250	250	1	1250	1250	
300	300	1	1300	1300	
350	350	1	1350	1350	
400	400	5	1400	1400	
450	450	10	1450	1450	
500	500	16	1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	31/01/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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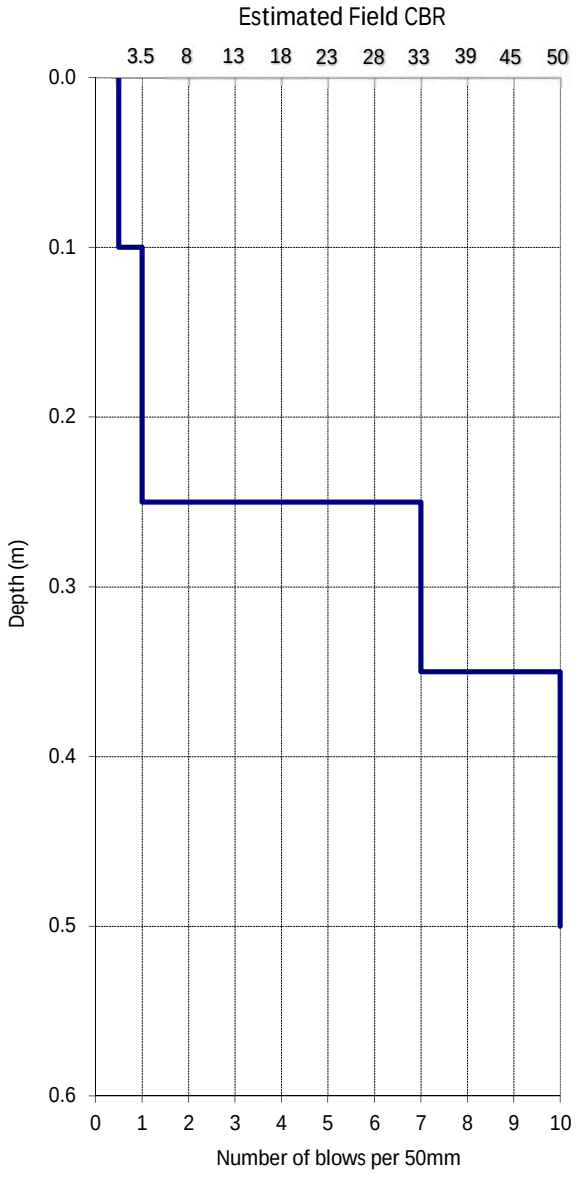
Lab Ref/URN: 024/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 483 borehole log.	Test Series	Terrace Views/310119/SC483-488
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 483 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	
100	100	0.5	1100	1100	
150	150	1	1150	1150	
200	200	1	1200	1200	
250	250	1	1250	1250	
300	300	7	1300	1300	
350	350	7	1350	1350	
400	400	10	1400	1400	
450	450	10	1450	1450	
500	500	10	1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 484**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL											ENGINEERING DESCRIPTION
GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
	DRY 31/01/2019	100	HA	1 2 1 1 1 9 16 >>				0.5 1.0 1.5 2.0	TS TS TS	D-M M M-W	St VD		Organic SILT, with some sand, trace gravel; dar brownish black. Stiff, dry to moist, non-plastic; sand, fine to medium; gravel, fine, subangular t subrounded. Fine to coarse SAND, with minor silt and gravel light yellowish brown. Very dense, moist, well graded; gravel, fine, subangular to subrounded, pumiceous. 1.3m: Changes to moist to wet. 1.6m: Changes to trace gravel. End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:57:11 p.m. - Produced with Core-GS by GeRoc

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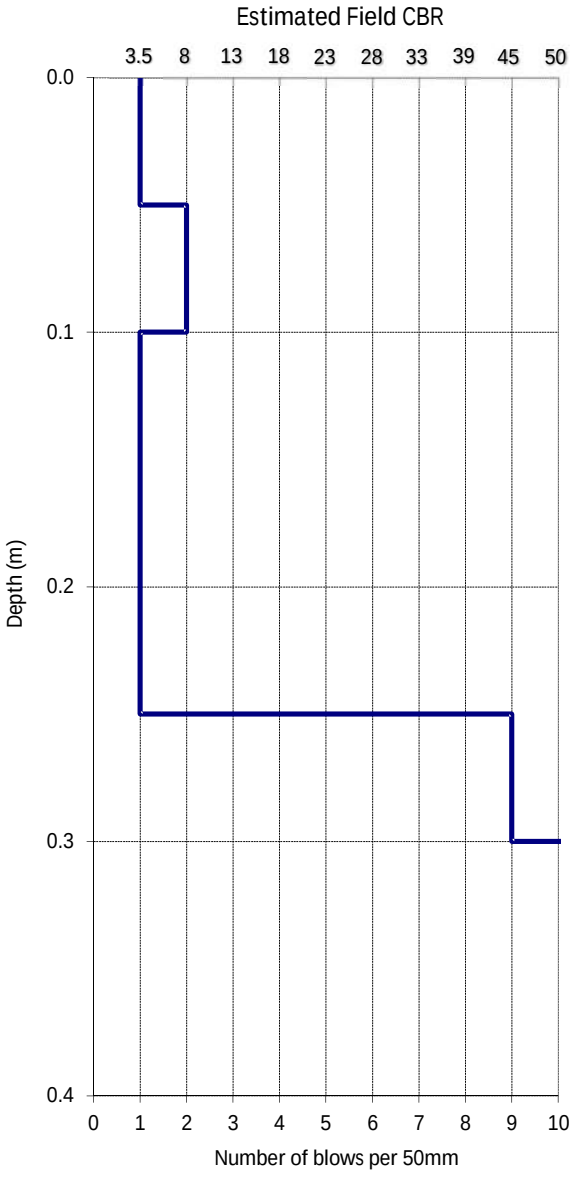
Lab Ref/URN
024/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 484 borehole log.	Test Series	Terrace Views/310119/SC483-488
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 484 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	2	1100	1100	
150	150	1	1150	1150	
200	200	1	1200	1200	
250	250	1	1250	1250	
300	300	9	1300	1300	
350	350	16	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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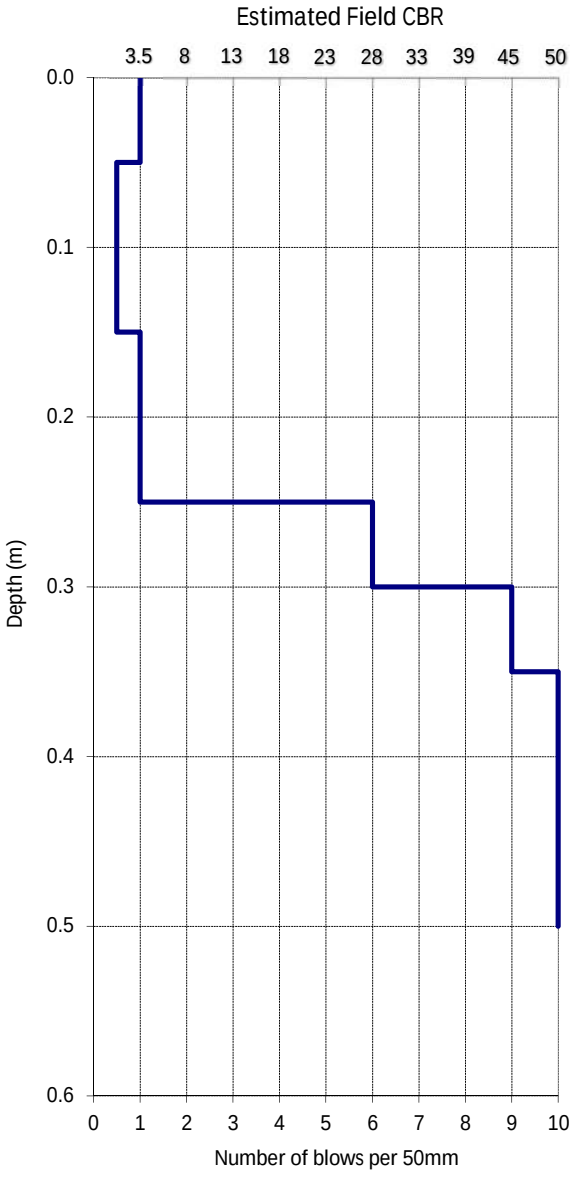
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 484 borehole log.	Test Series	Terrace Views/310119/SC483-488
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 484 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	0.5	1100	1100	
150	150	0.5	1150	1150	
200	200	1	1200	1200	
250	250	1	1250	1250	
300	300	6	1300	1300	
350	350	9	1350	1350	
400	400	10	1400	1400	
450	450	10	1450	1450	
500	500	10	1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC301286 - Pg 304 of 406 - 9/07/2020 - bwoo

HOLE Id: **Lot 485**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL									ENGINEERING DESCRIPTION				
GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 15/01/2019	100	HA	1, 2, 2, 1, 1, 5, 9, 10, 11 >>, 13 >>				0.0	TS	M-W	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, non-plastic; sand, fine to coarse.
								0.5		M	VD		Fine to coarse SAND, with trace silt and gravel; light greyish brown. Very dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
								1.0					1.4m: Changes to moist to wet.
								1.5					
								2.0					End of borehole at 2.00 mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:57:13 p.m. - Produced with Core-GS by GeRoc

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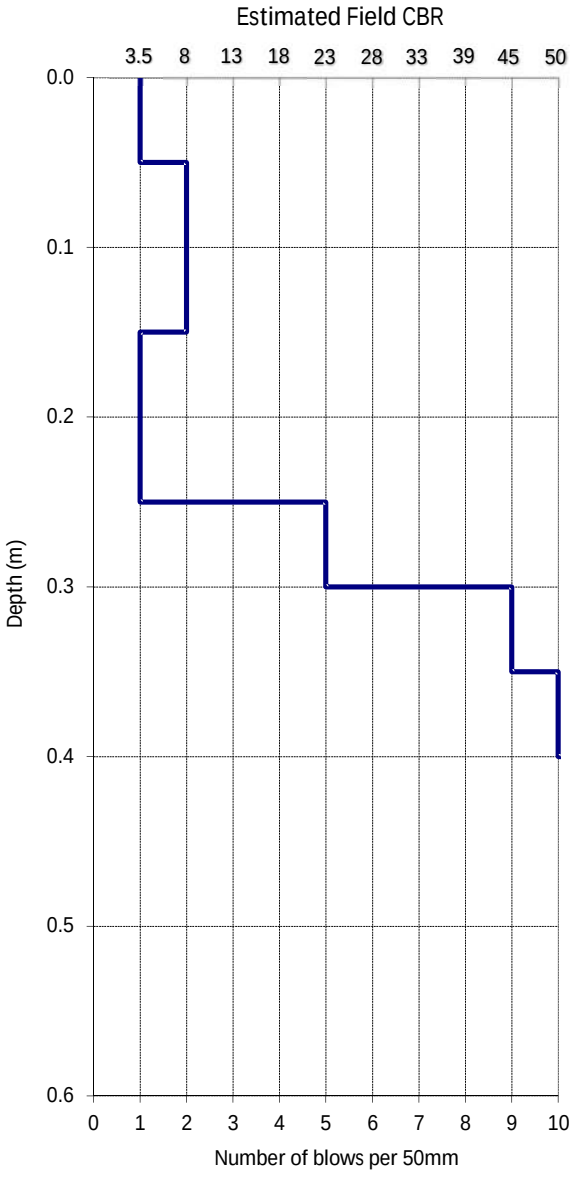
Lab Ref/URN: 024/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 485 borehole log.	Test Series	Terrace Views/310119/SC483-488
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 485 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	2	1100	1100	
150	150	2	1150	1150	
200	200	1	1200	1200	
250	250	1	1250	1250	
300	300	5	1300	1300	
350	350	9	1350	1350	
400	400	10	1400	1400	
450	450	11	1450	1450	
500	500	13	1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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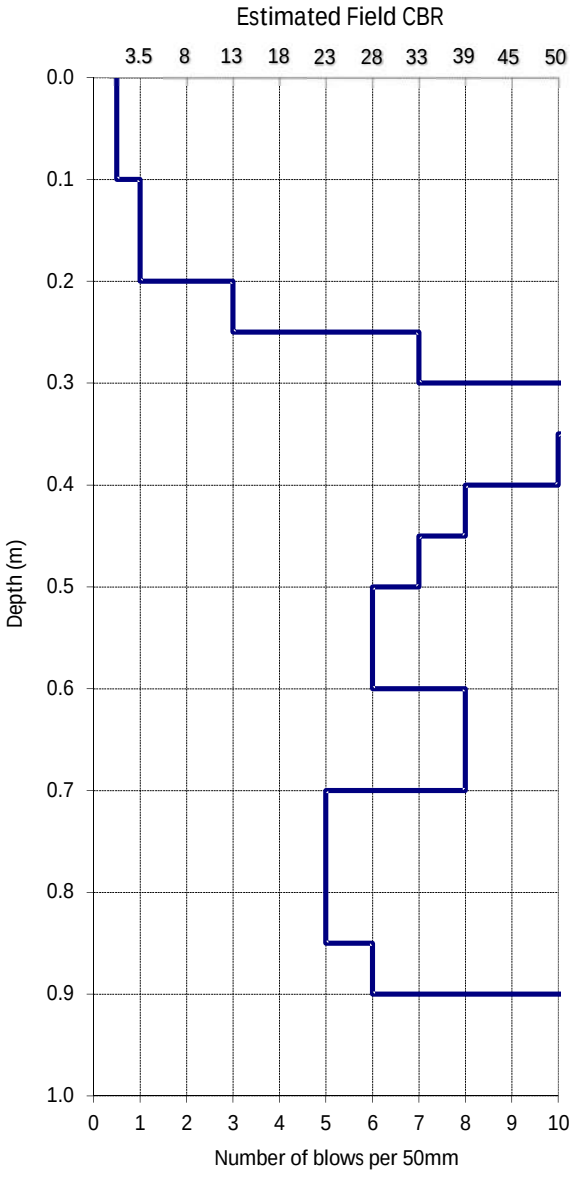
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 485 borehole log.	Test Series	Terrace Views/310119/SC483-488
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 485 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	
100	100	0.5	1100	1100	
150	150	1	1150	1150	
200	200	1	1200	1200	
250	250	3	1250	1250	
300	300	7	1300	1300	
350	350	11	1350	1350	
400	400	10	1400	1400	
450	450	8	1450	1450	
500	500	7	1500	1500	
550	550	6	1550	1550	
600	600	6	1600	1600	
650	650	8	1650	1650	
700	700	8	1700	1700	
750	750	5	1750	1750	
800	800	5	1800	1800	
850	850	5	1850	1850	
900	900	6	1900	1900	
950	950	16	1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 486**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL										ENGINEERING DESCRIPTION				
GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm) 1 2 3 4 5 6 7 8 9	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa) 10 25 50 100 200	Description and Additional Observations
	DRY 31/01/2019	100	HA	1 1 1 1 1				0	TS TS	W	St		Organic SILT, with some sand; dark brownish black. Stiff, wet, non-plastic; sand, fine to medium.
				7						M-W	VD		Fine to coarse SAND, with trace silt and gravel; light greyish brown. Very dense, moist to wet, well graded; gravel, fine, subangular to subrounded, pumiceous.
				12 >>				0.5					
				11 >>									0.65m: Changes to light brownish grey.
				10				1.0					
										W			1.2m: Changes to light brown; wet.
								1.5					
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:57:15 p.m. - Produced with Core-GS by GeRoc

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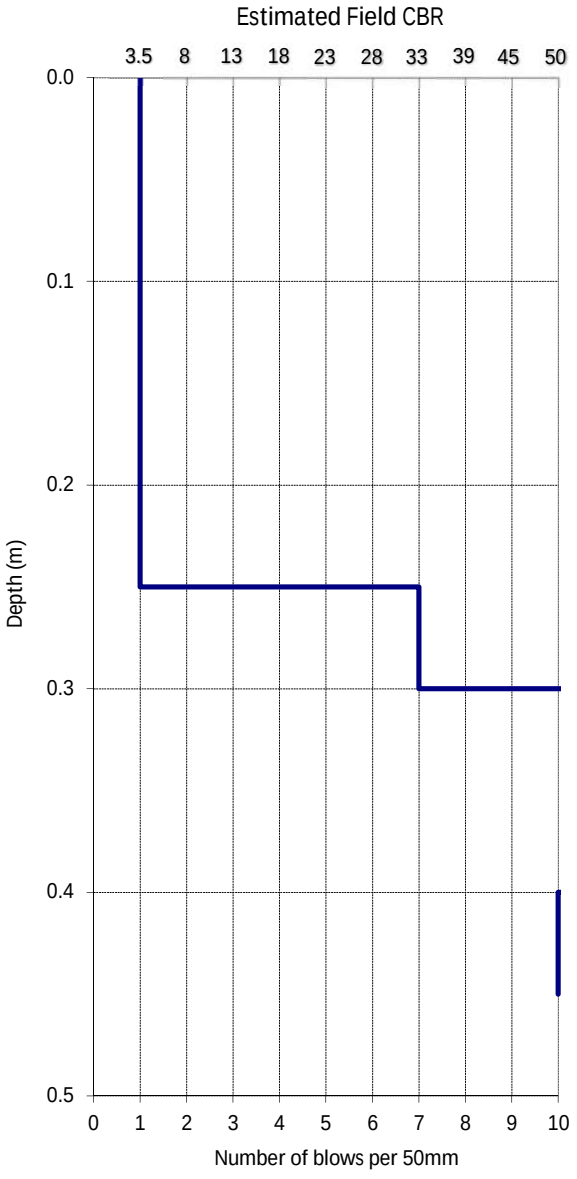
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 486 borehole log.	Test Series	Terrace Views/310119/SC483-488
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 486 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	1	1150	1150	
200	200	1	1200	1200	
250	250	1	1250	1250	
300	300	7	1300	1300	
350	350	12	1350	1350	
400	400	11	1400	1400	
450	450	10	1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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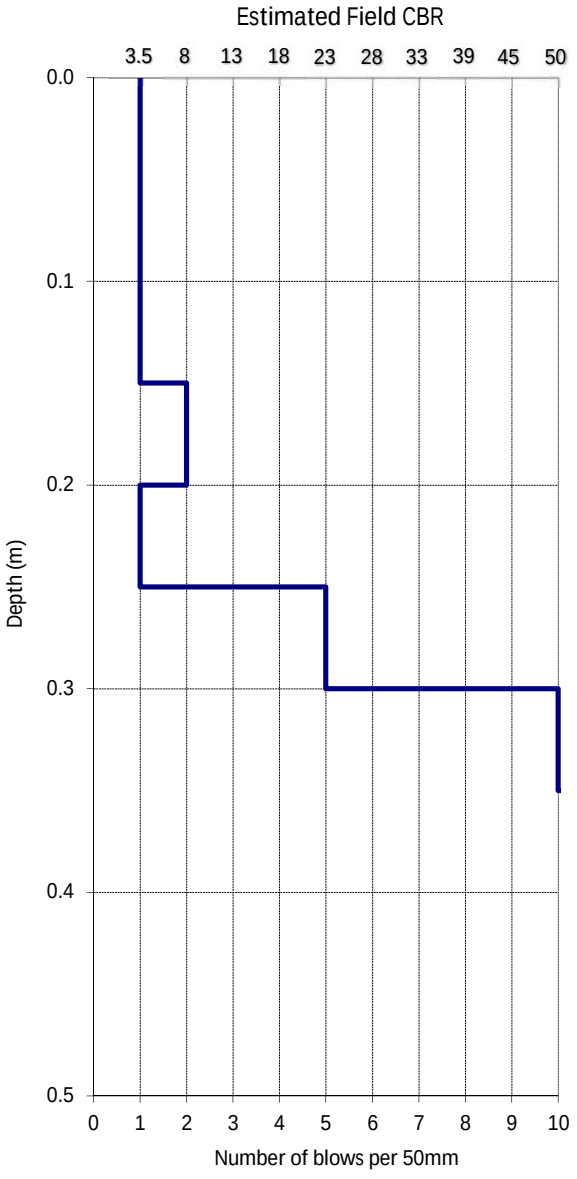
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 486 borehole log.	Test Series	Terrace Views/310119/SC483-488
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 486 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	1	1150	1150	
200	200	2	1200	1200	
250	250	1	1250	1250	
300	300	5	1300	1300	
350	350	10	1350	1350	
400	400	12	1400	1400	
450	450	12	1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 487**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 31/01/2019	100	HA	0.5, 0.5, 1, 1, 1, 4, 9, 11 >>, 10, 11 >>				0.5	TS	W	St		Organic SILT, with some sand; dark brownish black. Stiff, wet, non-plastic; sand, fine to medium.
										M	D		Fine to coarse SAND, with trace silt and gravel; light brownish grey. Dense, moist, well graded; gravel, fine, subangular to subrounded, pumiceous.
											VD		0.3m: Changes to very dense.
								1.0		M-W			0.75m: Changes to moist to wet.
													1.15m: Changes to minor silt; light brown.
								1.5		W			1.8m: Changes to wet.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:57:17 p.m. - Produced with Core-GS by GeRoc

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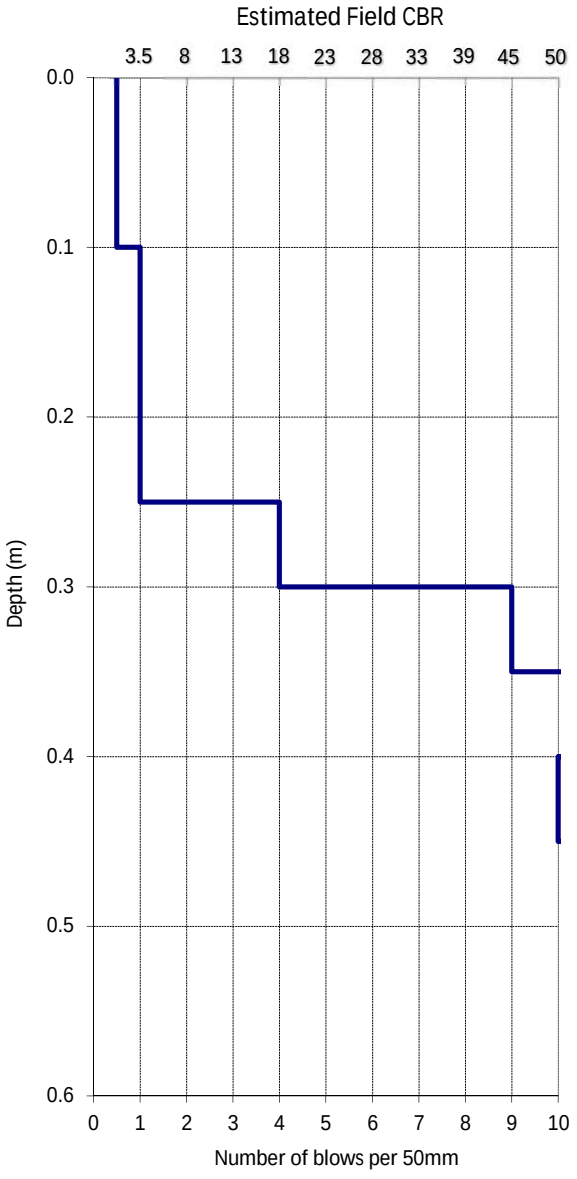
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 487 borehole log.	Test Series	Terrace Views/310119/SC483-488
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 487 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	
100	100	0.5	1100	1100	
150	150	1	1150	1150	
200	200	1	1200	1200	
250	250	1	1250	1250	
300	300	4	1300	1300	
350	350	9	1350	1350	
400	400	11	1400	1400	
450	450	10	1450	1450	
500	500	11	1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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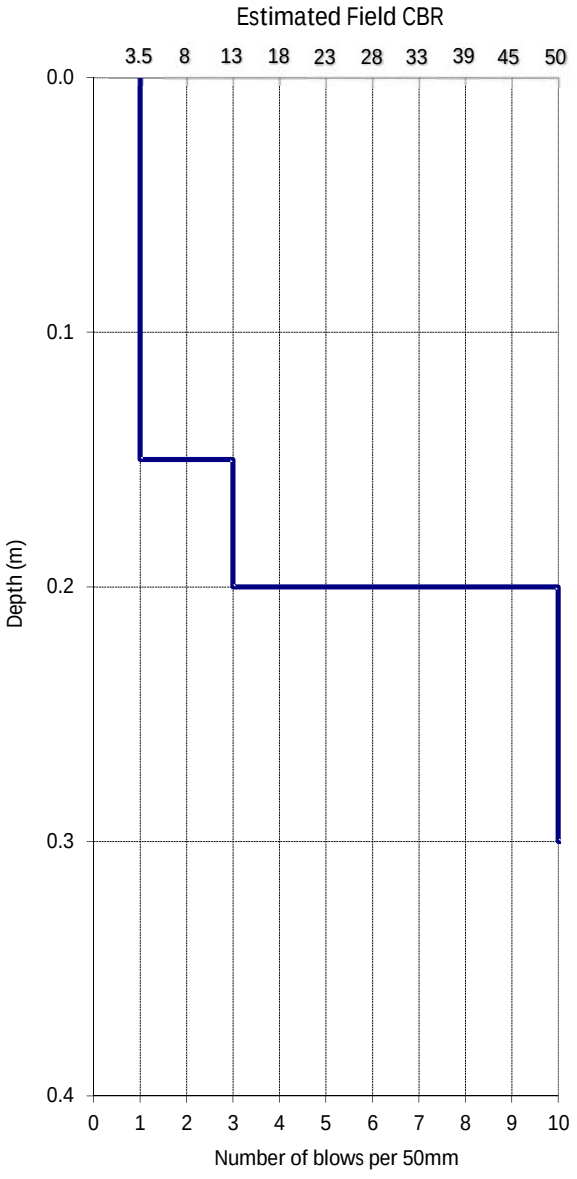
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 487 borehole log.	Test Series	Terrace Views/310119/SC483-488
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 487 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	1	1150	1150	
200	200	3	1200	1200	
250	250	10	1250	1250	
300	300	10	1300	1300	
350	350	16	1350	1350	
400	400		1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 488**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 31/01/2019	100	HA	1, 1, 1, 1, 6, 7, 8, 9, 9, 8, 8, 8, 7, 7, 8, 7, 7, 9, 10, 12 >>, 14 >>				0.5	TS	W	St		Organic SILT, with some sand; dark brownish black. Stiff, wet, non-plastic; sand, fine to medium.
								1.0		M-W	D		Fine to coarse SAND, with trace silt and gravel; brownish grey. Dense, moist to wet, well graded gravel, fine, subangular to subrounded, pumiceous.
								1.5		M-W	VD		0.85m: Changes to very dense. 1.5m: Change to moist to wet.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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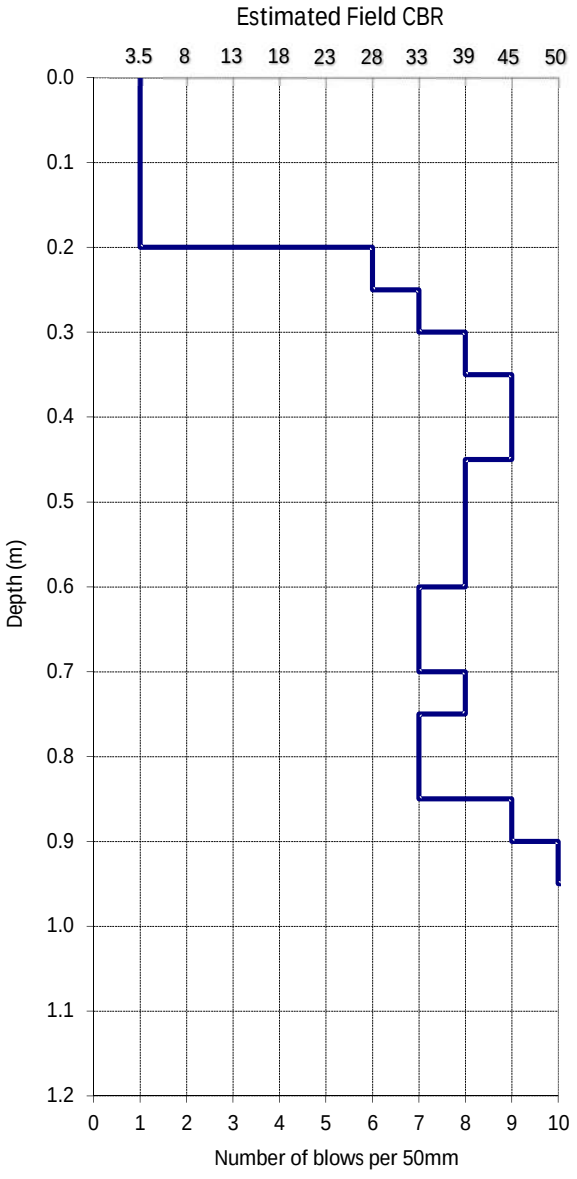
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 488 borehole log.	Test Series	Terrace Views/310119/SC483-488
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 488 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	14
100	100	1	1100	1100	
150	150	1	1150	1150	
200	200	1	1200	1200	
250	250	6	1250	1250	
300	300	7	1300	1300	
350	350	8	1350	1350	
400	400	9	1400	1400	
450	450	9	1450	1450	
500	500	8	1500	1500	
550	550	8	1550	1550	
600	600	8	1600	1600	
650	650	7	1650	1650	
700	700	7	1700	1700	
750	750	8	1750	1750	
800	800	7	1800	1800	
850	850	7	1850	1850	
900	900	9	1900	1900	
950	950	10	1950	1950	
1000	1000	12	2000	2000	



Test Remarks

Tested By	PIFA	Date	31/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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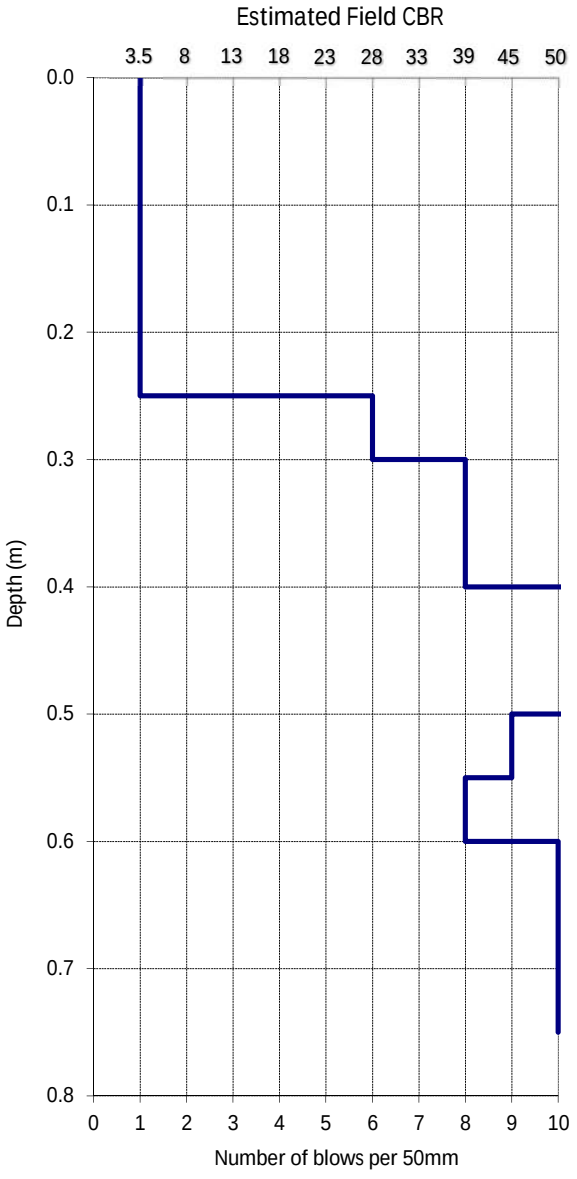
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 488 borehole log.	Test Series	Terrace Views/310119/SC483-488
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 488 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	1	1150	1150	
200	200	1	1200	1200	
250	250	1	1250	1250	
300	300	6	1300	1300	
350	350	8	1350	1350	
400	400	8	1400	1400	
450	450	11	1450	1450	
500	500	11	1500	1500	
550	550	9	1550	1550	
600	600	8	1600	1600	
650	650	10	1650	1650	
700	700	10	1700	1700	
750	750	10	1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	31/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 489**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 31/01/2019	100	HA	0.5, 0.5, 1, 1, 1, 5, 6, 7, 7, 7, 7, 6, 7, 7, 6, 6, 6, 7, 4, 8, 9, 18 >>				0.5	TS	M	St		Organic SILT, minor sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to medium.
											D		Fine to coarse SAND, with trace silt and gravel; light brownish grey. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
								1.0			VD		1.05m: Changes to light yellowish brown; very dense.
										M-W			1.2m: Changes to light brownish grey; moist to wet.
								1.5					1.5m: Changes to light greyish brown.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:57:22 p.m. - Produced with Core-GS by GeRoc

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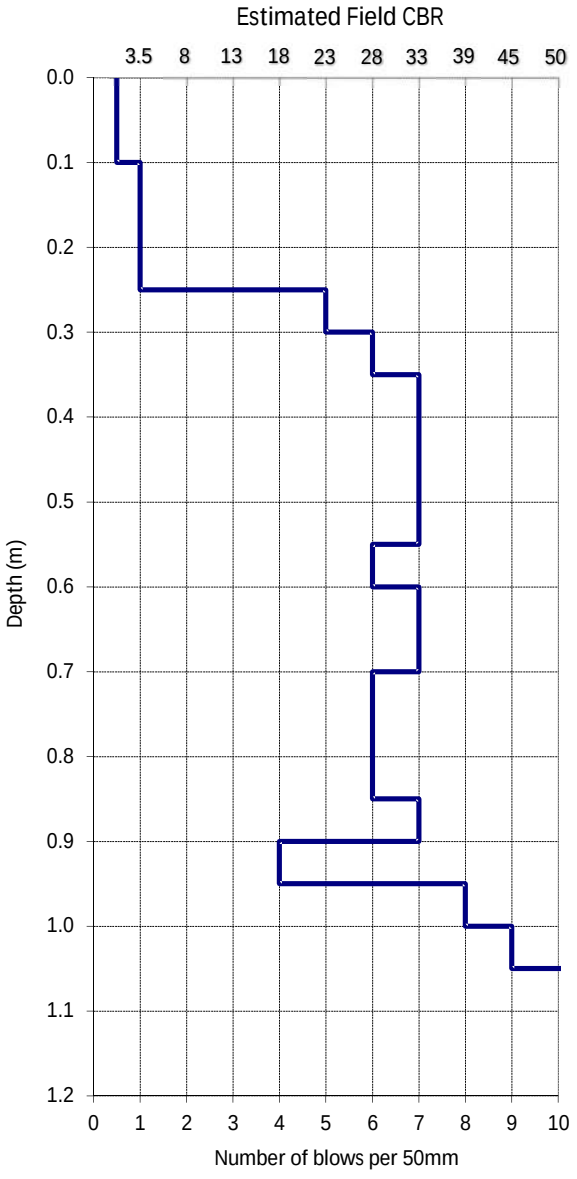
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023/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 489 borehole log.	Test Series	Terrace Views/160119/SC489-492
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 489 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	9
100	100	0.5	1100	1100	18
150	150	1	1150	1150	
200	200	1	1200	1200	
250	250	1	1250	1250	
300	300	5	1300	1300	
350	350	6	1350	1350	
400	400	7	1400	1400	
450	450	7	1450	1450	
500	500	7	1500	1500	
550	550	7	1550	1550	
600	600	6	1600	1600	
650	650	7	1650	1650	
700	700	7	1700	1700	
750	750	6	1750	1750	
800	800	6	1800	1800	
850	850	6	1850	1850	
900	900	7	1900	1900	
950	950	4	1950	1950	
1000	1000	8	2000	2000	



Test Remarks

Tested By	EWDA	Date	16/01/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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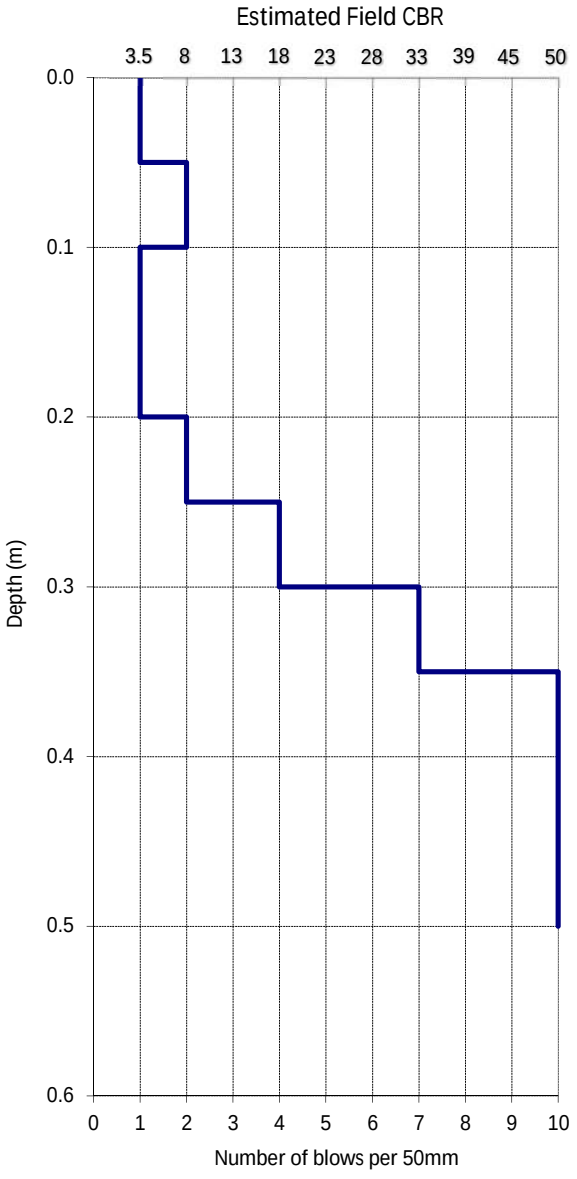
Lab Ref/URN: 023/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 489 borehole log.	Test Series	Terrace Views/160119/SC489-492
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 489 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	2	1100	1100	
150	150	1	1150	1150	
200	200	1	1200	1200	
250	250	2	1250	1250	
300	300	4	1300	1300	
350	350	7	1350	1350	
400	400	10	1400	1400	
450	450	10	1450	1450	
500	500	10	1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	16/01/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 490**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 31/01/2019	100	HA	0.5, 0.5, 0.5, 0.5, 2, 8, 7, 7, 8, 7, 8, 7, 6, 6, 6, 9, 10, 10, 12 >>				0.5	TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to medium.
											D		Fine to coarse SAND, with trace silt and gravel; light brownish grey. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
								1.0			VD		0.75m: Changes to very dense.
								1.5		M-W			1.6m: Changes to moist to wet.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:57:24 p.m. - Produced with Core-GS by GeRoc

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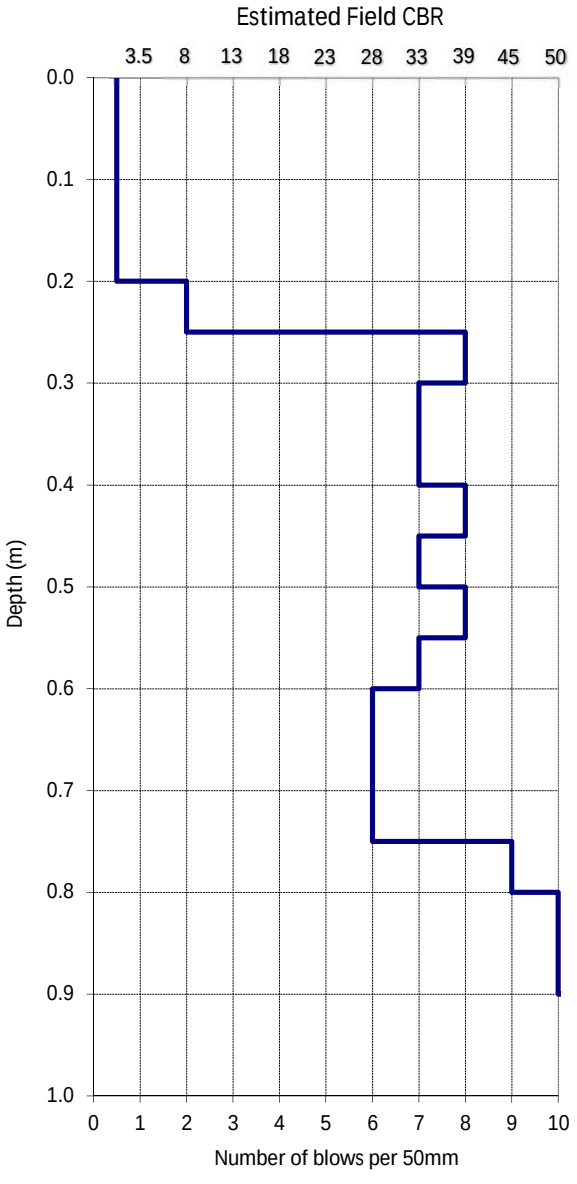
Lab Ref/URN
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 490 borehole log.	Test Series	Terrace Views/160119/SC489-492
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 490 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	
100	100	0.5	1100	1100	
150	150	0.5	1150	1150	
200	200	0.5	1200	1200	
250	250	2	1250	1250	
300	300	8	1300	1300	
350	350	7	1350	1350	
400	400	7	1400	1400	
450	450	8	1450	1450	
500	500	7	1500	1500	
550	550	8	1550	1550	
600	600	7	1600	1600	
650	650	6	1650	1650	
700	700	6	1700	1700	
750	750	6	1750	1750	
800	800	9	1800	1800	
850	850	10	1850	1850	
900	900	10	1900	1900	
950	950	12	1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	16/01/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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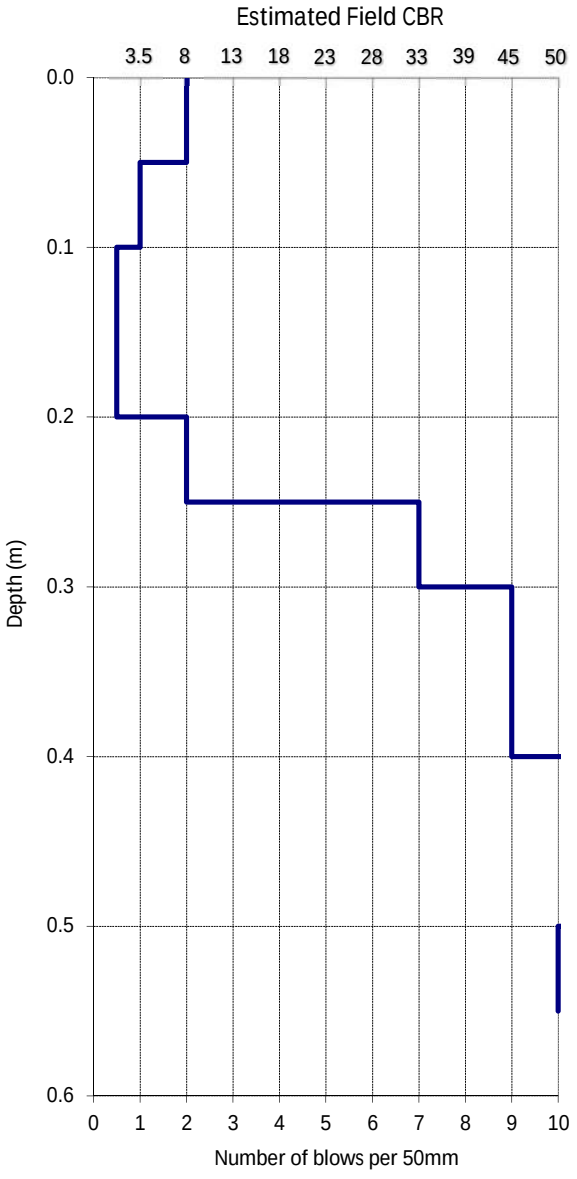
Lab Ref/URN: 023/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 490 borehole log.	Test Series	Terrace Views/160119/SC489-492
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 490 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	1	1100	1100	
150	150	0.5	1150	1150	
200	200	0.5	1200	1200	
250	250	2	1250	1250	
300	300	7	1300	1300	
350	350	9	1350	1350	
400	400	9	1400	1400	
450	450	12	1450	1450	
500	500	12	1500	1500	
550	550	10	1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	16/01/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 491**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 31/01/2019	100	HA	1, 0.5, 0.5, 1, 1, 2, 5, 5, 5, 7, 7, 6, 6, 5, 3, 4, 4, 7, 7, 8, 7, 7, 9, 18 >>				0.5, 1.0, 1.5, 2.0	TS	M	St		Organic SILT, with minor sand; dark brownish black. Stiff, moist, low plasticity; sand, fine to medium.
											D		Fine to coarse SAND, with trace silt and gravel; light greyish brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
											VD		1.1m: Changes to very dense.
													1.55m: Changes to minor silt.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:57:26 p.m. - Produced with Core-GS by GeRoc

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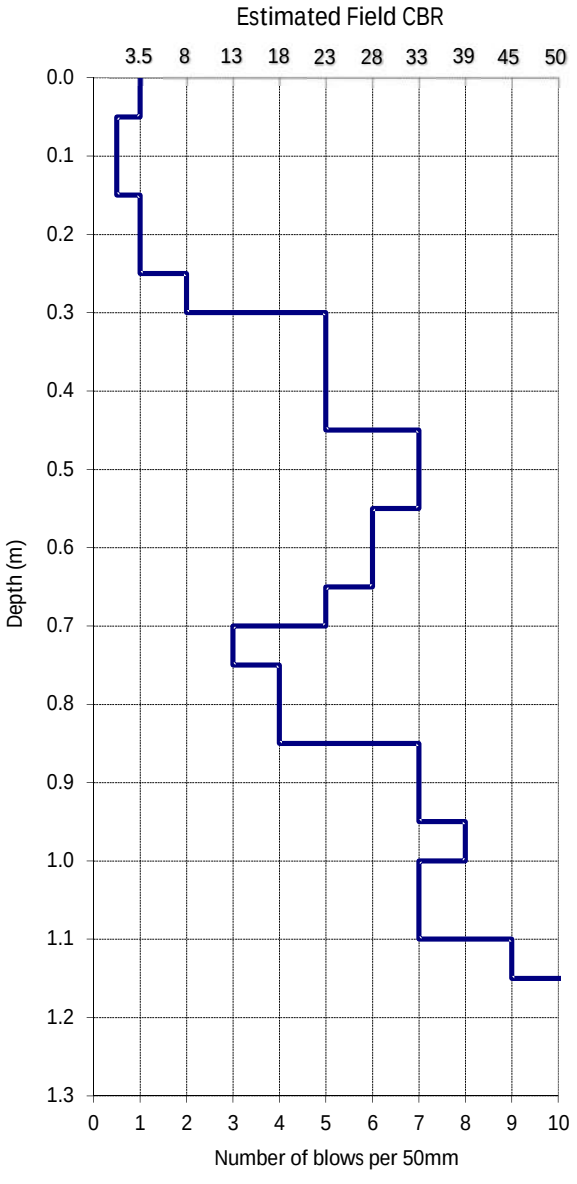
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 491 borehole log.	Test Series	Terrace Views/160119/SC489-492
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 491 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	7
100	100	0.5	1100	1100	7
150	150	0.5	1150	1150	9
200	200	1	1200	1200	18
250	250	1	1250	1250	
300	300	2	1300	1300	
350	350	5	1350	1350	
400	400	5	1400	1400	
450	450	5	1450	1450	
500	500	7	1500	1500	
550	550	7	1550	1550	
600	600	6	1600	1600	
650	650	6	1650	1650	
700	700	5	1700	1700	
750	750	3	1750	1750	
800	800	4	1800	1800	
850	850	4	1850	1850	
900	900	7	1900	1900	
950	950	7	1950	1950	
1000	1000	8	2000	2000	



Test Remarks

Tested By	EWDA	Date	16/01/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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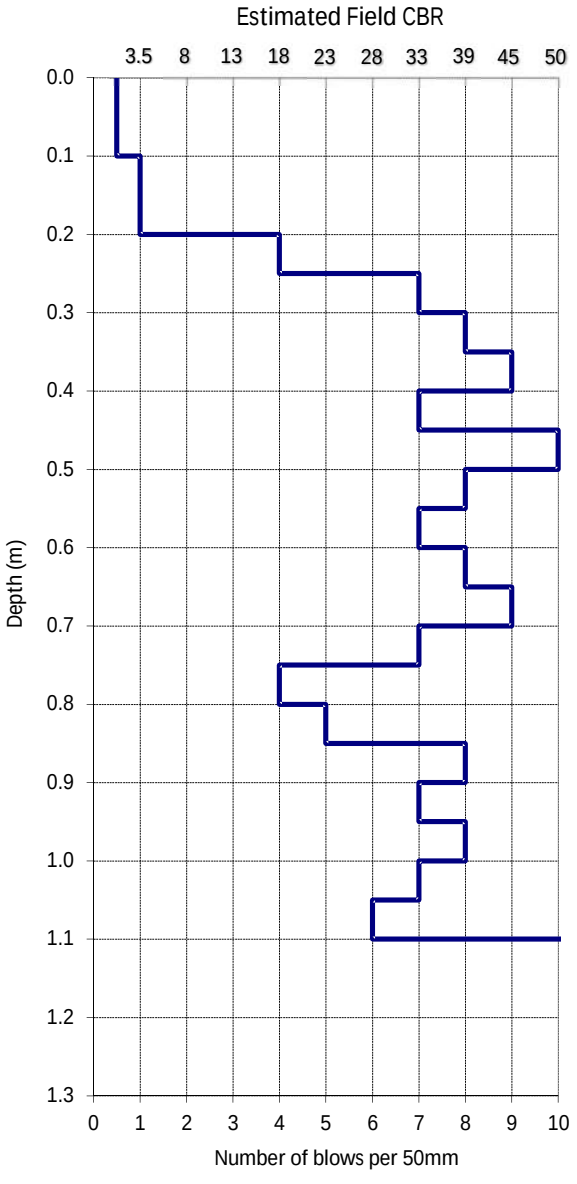
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 491 borehole log.	Test Series	Terrace Views/160119/SC489-492
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 491 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	7
100	100	0.5	1100	1100	6
150	150	1	1150	1150	11
200	200	1	1200	1200	18
250	250	4	1250	1250	
300	300	7	1300	1300	
350	350	8	1350	1350	
400	400	9	1400	1400	
450	450	7	1450	1450	
500	500	10	1500	1500	
550	550	8	1550	1550	
600	600	7	1600	1600	
650	650	8	1650	1650	
700	700	9	1700	1700	
750	750	7	1750	1750	
800	800	4	1800	1800	
850	850	5	1850	1850	
900	900	8	1900	1900	
950	950	7	1950	1950	
1000	1000	8	2000	2000	



Test Remarks

Tested By	EWDA	Date	16/01/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 492**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 31/01/2019	100	HA	0.5, 0.5, 1, 1, 1, 5, 4, 5, 6, 4, 5, 5, 5, 6, 6, 6, 6, 5, 7, 9, 8, 7, 8, 14 >>, 14 >>, 13 >>				0.5	TS, TS	M	St	10, 25, 50, 100, 200	Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to medium.
											D		Fine to coarse SAND, with trace silt and gravel; light greyish brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
								1.0			VD		1.15m: Changes to very dense.
								1.5					
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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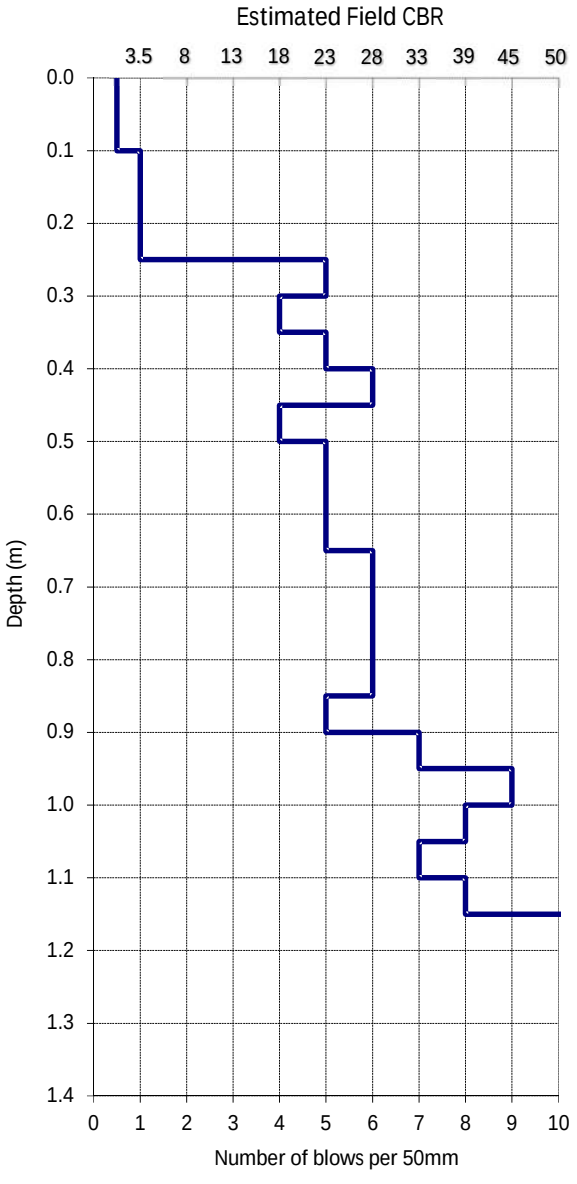
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 492 borehole log.	Test Series	Terrace Views/160119/SC489-492
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 492 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	8
100	100	0.5	1100	1100	7
150	150	1	1150	1150	8
200	200	1	1200	1200	14
250	250	1	1250	1250	14
300	300	5	1300	1300	13
350	350	4	1350	1350	
400	400	5	1400	1400	
450	450	6	1450	1450	
500	500	4	1500	1500	
550	550	5	1550	1550	
600	600	5	1600	1600	
650	650	5	1650	1650	
700	700	6	1700	1700	
750	750	6	1750	1750	
800	800	6	1800	1800	
850	850	6	1850	1850	
900	900	5	1900	1900	
950	950	7	1950	1950	
1000	1000	9	2000	2000	



Test Remarks

Tested By	EWDA	Date	16/01/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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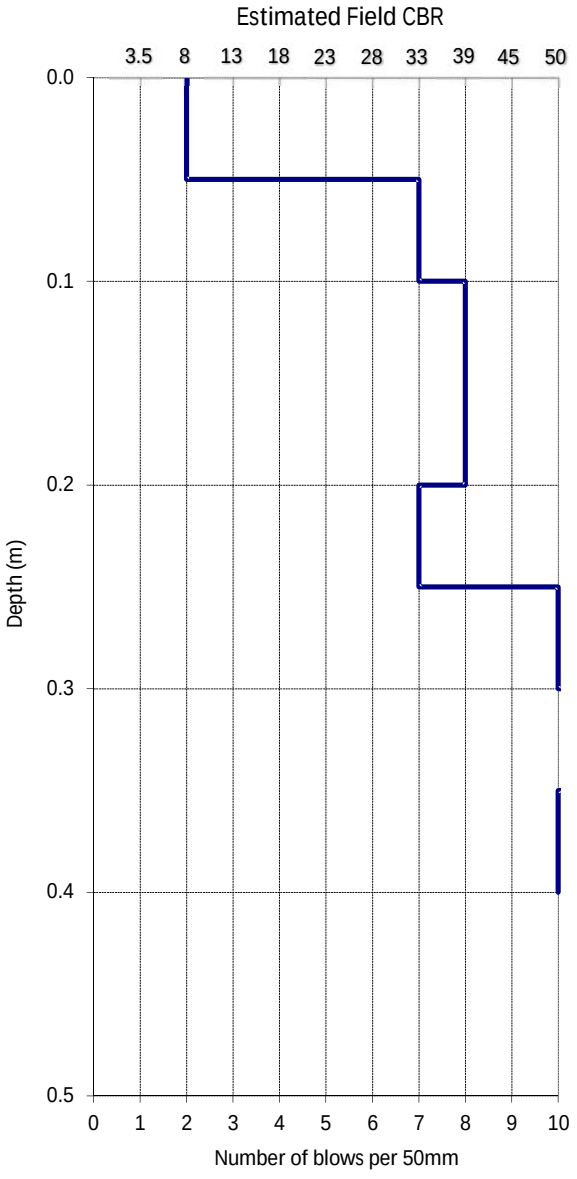
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 492 borehole log.	Test Series	Terrace Views/160119/SC489-492
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 492 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	7	1100	1100	
150	150	8	1150	1150	
200	200	8	1200	1200	
250	250	7	1250	1250	
300	300	10	1300	1300	
350	350	13	1350	1350	
400	400	10	1400	1400	
450	450		1450	1450	
500	500		1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	EWDA	Date	16/01/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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Document prepared by

Aurecon New Zealand Limited
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LYSAGHT

Our Ref: 152870

1 February 2019

Tauranga City Council
Private Bag 12022
Tauranga 3143

Attention: TCC Development Engineer

RE: Soakage Assessment for Proposed Residential Dwellings in Stage 3D and 3E at Terrace Views, Te Okuroa Drive, Papamoa

1.0 INTRODUCTION

Lysaght Consultants Ltd (LCL) was engaged by Zariba Properties Ltd to provide typical soakage system design details for Stage 3D and 3E of the Terrace Views residential development. This report provides a standardised soakage design which can be incorporated into Building Consent applications without the need for site specific engineering design (where the soakage system complies with the requirements of this report and attached drawings). Proposals outside of these report parameters will require specific design by a suitably experienced Chartered Professional Engineer.

This soakage assessment is for both area Stage 3D and Stage 3E and include the following lots:

Table 1 – Lots included in Stage 3D and 3E

Lot Numbers – Stage 3D									
391	392	393	394	395	396	397	398	399	400
439	440	441	442	443	444	445	446	447	448
449	450	451	452	453	454	455	456	457	458
459	-	-	-	-	-	-	-	-	-
Lot Numbers – Stage 3E									
460	461	462	463	464	465	466	467	468	469
470	471	472	473	474	475	476	477	478	479
480	481	482	483	484	485	486	487	488	489
490	491	492	-	-	-	-	-	-	-

No stormwater connections are provided to lots within the Terrace Views development. All stormwater runoff from private roofs and hardstand areas is to be collected and discharged to stormwater soakage within each lot boundary in accordance with the following recommendations.

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2.0 DESIGN RECCOMENDATIONS

Aurecon's Soakage Memorandum *'Terrace Views Subdivision – Stage 3D/3E Soakage Testing and Assessment'* dated 21 January 2019 recommends the following a design soakage rates:

Table 2 – Design soakage rates

Area	Design Soakage Rate (L/min/m^2)
Stage 3D and 3E	0.72

Stage 3D and 3E Area 1 has generally been undercut to the natural dune sand to +3.0mRL and then filled with imported pumice sand to finished subgrade level. Stage 3D and 3E Area 2 was undercut of peat to approximately +1.5mRL. This area then filled to +3.0mRL with dune sand cut from other areas of the site and further filled with imported pumice fill from +3.0mRL to finished subgrade level.

Due to this pumice fill above +3.0mRL the soakage rate applies to dune sand material below +3.0mRL only. All soakage systems shall be founded at/or below +3.0mRL within dune sands.

3.0 STORMWATER SOAKAGE DESIGN

As per Aurecon's soakage testing, LCL has adopted the design soakage rate of 0.72 L/min/m^2 for system design calculations for both Stage 3D and Stage 3E.

The final ground level (FGL) across Stages 3D and 3E ranges from RL 5.15m to RL5.9m. Due to the varying pumice fill thickness above RL3.0m, separate standardized designs for Stage 3D and Stage 3E have been provided.

LCL's calculations confirm the following designs:

3.1 Stage 3D

3.1.1 Porous Soak holes

1 x 2.0m deep 1200mmø (ID) soak hole per 37m^2 of roof area. Note; where calculations indicate part systems (e.g. 2.4 soak hole systems) the number of soak holes shall be rounded up to the next whole number.

1 x 2.0m deep 900mmø (ID) soak hole per 21m^2 of roof area. Note; where calculations indicate part systems (e.g. 2.4 soak hole systems) the number of soak holes shall be rounded up to the next whole number.

3.1.2 Storage Cells

A proprietary cell system with a base area of 4.19m^2 (1.22m width x 3.43m length x 1.72m depth) per 100m^2 of roof/hardstand (based on Atlantis Flo Tank or approved equivalent). Note; where calculations indicate part systems (e.g 2.4 cells long) the number of cells shall be rounded up to the next whole cell number.

A '*Cell*' refers to a proprietary system made up of crates equalling the following dimensions, 1.22m width x 3.43m length x 1.72 m depth (3 crates width by 5 crates length x 4 crates depth).

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3.2 Stage 3E

3.2.3 Porous Soak holes

1 x 1.5m deep 1200mmø (ID) soak hole per 29m^2 of roof area. Note; where calculations indicate part systems (e.g. 2.4 soak hole systems) the number of soak holes shall be rounded up to the next whole number.

1 x 1.5m deep 900mmø (ID) soak hole per 16m^2 of roof area. Note; where calculations indicate part systems (e.g. 2.4 soak hole systems) the number of soak holes shall be rounded up to the next whole number.

3.2.4 Storage Cells

A proprietary cells with a base area of 5.03m^2 (1.22m width x 4.11m length x 1.31m depth) per 100m^2 of roof/hardstand (based on Atlantis Flo Tank or approved equivalent). Note; where calculations indicate part systems (e.g 2.4 cells long) the number of cells shall be rounded up to the next whole cell number.

A '*Cell*' refers to a proprietary system made up of crates equalling the following dimensions, 1.22m width x 4.11m length x 1.31 m depth (3 crates width by 6 crates length x 3 crates depth).

3.3 Groundwater

The generic design assumes the base of the system is located at the high winter ground water level which is assumed to be RL +3.0m based on previous stage designs. No freeboard allowance has been provided to the groundwater. This departure from the IDC freeboard allowance has been accounted for in Aurecon's design soakage rates.

4.0 CONSTRUCTION AND MAINTENANCE REQUIREMENTS

Typical construction details are provided below for the selected soakage options.

4.1 System Installation

Due to the several meters of low permeability compacted pumiced fill across Stage 3D and 3E, the base of soakage systems are to be located on the underlying dune sands located at approximately RL +3.0m. Additional soak rings/crates may be added to the base of system to intercept this sand layer. However the additional depth shall not be used to reduce the number of soak holes/storage cells (i.e. additional depth is sacrificial). Where these additional soak rings intercept groundwater, this bottom ring shall be constructed of solid concrete (not pumice).

4.2 Porous Soak Holes

Porous soakage rings should be obtained from a reputable manufacturer and be designed for proposed soil loads. A suitable lid should be installed with adequate strength for the expected surcharge loads. Typical details are provided in the Building Codes E1/VM1. Accessible covers are required on all soak holes. Geofabric is only required where sand ingress will occur into the soak hole. Soak holes shall be linked together with a 100ø minimum uPVC pipe. Minimum spacing between soak holes shall be 1.5m edge to edge.

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4.3 Storage Cells

Storage cell systems shall be installed in accordance with the manufacturer's specifications. All cells shall be wrapped in geofabric, additionally the walls and base of the excavation trench shall be lined with geofabric. A number of suitable proprietary systems are available. LCL has undertaken calculations using typical cell dimensions for the Atlantis Flo-Tank system. Alternative products may require slight alteration of the design. The manufacturers of alternative products shall confirm their system complies with LCL's generic design. Multiple storage cell systems shall be no closer than 1.0m edge to edge.

4.4 Setback Requirements

All soakage systems shall be designed in accordance with the following;

Description	Setback Distance (minimum)
Road boundaries	0.5m
Neighbouring property boundaries	1.5m
Buildings	2.0m from building foundations.
Services (sewer etc.)	1.0m
System Cover	0.5m minimum or to manufacturers specifications

4.5 Building Foundation Offset

Aurecon's Geotechnical Completion Report *'Terrace Views Subdivision, Parton Road, Tauranga – Stage 3D/3E Geotechnical Completion Report'* dated January 2019 provides a formula to determine the soakage system offset from building foundations and is shown as follows:

$$\textbf{Foundation Offset Distance} = \frac{D}{\sqrt{3}}$$

D = Depth to base of soakage system measured from ground level

LCL have adopted this formula for the maximum likely soakage system depth installation within Stages 3D and 3E and applied this setback to all lots within these stages. The calculated building foundation offset is 2.0m from edge of soakage system.

4.6 Additional Requirements

- A Chartered professional Engineer shall be engaged to review the design where setbacks, groundwater depths or systems do not comply with the generic design requirements, or where any future design changes increase the hydraulic load on the soakage system.
- LCL's standardised soakage designs assume 0.5m cover over the system. Minimum cover requirements shall be in accordance with the soakage system manufacturer's specifications.
- All cesspit connections shall be directed through a filter to ensure that leaves, debris and sediment are prevented from entering the soakage system. It is recommended that downpipes are also directed through the filter or first flush diverter wherever possible to maintain longevity of the soakage system. The filtration device shall be regularly maintained to ensure effective system operation.

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- A system overflow point shall be located at a low point on the roadside boundary to ensure surcharge is directed to the road. Overland flow is to be directed toward the road without crossing neighbouring boundaries or causing inundation of buildings. Building floor levels shall comply with the NZBC and TCC IDC requirements.

4.7 General Requirements

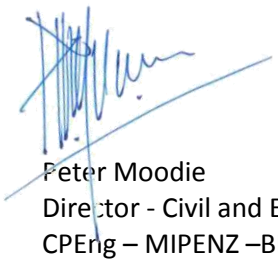
A reputable drain layer experienced in the installation of soakage systems should be engaged for the construction of the site drainage network. System maintenance shall include regular filter cleaning and replacing as necessary. Maintenance frequency should be at least quarterly and after heavy rainfall events. The system has been sized for the selected design storm events. Larger or more intense events may exceed the system's capacity. All construction shall be to TCC's Infrastructure Development Code (IDC) and NZ Building Code requirements.

5.0 LIMITATIONS

It is assumed that the soakage recommendations provided in Aurecon's memo are representative of Stages 3D and 3E soils. There may be special conditions pertaining to specific sites which have not been disclosed by the investigation nor taken into account in this report. This office should be contacted immediately in the event that soils and/or site conditions are found to differ from the observations and assumptions presented in this report. The typical design details are intended for the specific situations described in this report and no responsibility or liability is accepted by LCL to any third party that may use or rely on any part of the content of this document where used in contradiction to the intent of the design. A suitably experienced Chartered Professional Engineer should be engaged to review any designs outside of the scope of this report or where there are any doubts about compliance with the report specifications.

Please contact the undersigned if you have any questions about the above.
Kind Regards

LYSAGHT



Peter Moodie
Director - Civil and Environmental Engineer -
CPEng – MIPENZ –BE Hons Nat Res

Attachments:
Lysaght soakage system calculations
152870-088-SKT – Typical Soakage Sections Stage 3D
152870-089-SKT – Typical Soakage Sections Stage 3E
152870-085-SKT – Stage 3 Soakage Area

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Infiltration Calculation - Soakage Hole 1200mmØ

Project 152870
Address Terrace Views, Stage 3D
Date 24/01/2019

System Calcs

Catchment Area	37	m^2
Volumetric Runoff Coefficient	0.9	
Soil K_h	43.2	mm/hr
No. of Wells	1	
Well Diameter	1.2	m
Depth of Storage	2.00	m
Porosity	1	
Base Area	1.13	m^2

Area Calculation	Include		
Base Infiltration Area	Yes	1.13	m^2
Effective Side Infiltration Area	No	0.00	m^2

Infiltration Requirements

Effective Side Area Factor	0%	
Total Effective Infiltration Area	1.13	m^2
Effective Volume	2.26	m^3

Soakage rate	0.72 L/min/m²
	43.2 L/hr/m²
	43.2 mm/hr

Storm Duration	Storm Mean Intensity (10yr)	Volume in	Volume out (during storm duration period)	Storage Volume Required	Percentage of Storage provided	Test	Actual Depth	Emptying Time (hrs)	Check
(minutes)	(mm/hr)	(m^3)	(m^3)	(m^3)	%				
6		0.000	0.000	0.0		OK	0.00		
10	126	0.699	0.008	0.7	327%	OK	0.61	14.31	OK
20	99	1.099	0.016	1.1	209%	OK	0.96	22.49	OK
30	88	1.465	0.024	1.4	157%	OK	1.27	29.99	OK
45		0.000	0.000	0.0		OK	0.00		
60	65	2.165	0.049	2.1	107%	OK	1.87	44.30	OK
90		0.000	0.000	0.0		OK	0.00		
120	45	2.997	0.098	2.9	78%	Inadequate	2.56	61.34	Increase Area
180		0.000	0.000	0.0		OK	0.00		
240		0.000	0.000	0.0		OK	0.00		
300		0.000	0.000	0.0		OK	0.00		
360	22	4.396	0.293	4.1	55%	Inadequate	3.63	89.97	Increase Area
480		0.000	0.000	0.0		OK	0.00		
600		0.000	0.000	0.0		OK	0.00		
720	13.2	5.275	0.586	4.7	48%	Inadequate	4.15	107.96	Increase Area
840		0.000	0.000	0.0		OK	0.00		
960		0.000	0.000	0.0		OK	0.00		
1080		0.000	0.000	0.0		OK	0.00		
1200		0.000	0.000	0.0		OK	0.00		
1320		0.000	0.000	0.0		OK	0.00		
1440	7.63	6.098	1.173	4.9	46%	Inadequate	4.35	124.81	Increase Area
2160		0.000	0.000	0.0		OK	0.00		
2880	4.41	7.049	2.345	4.7	48%	Inadequate	4.16	144.27	Increase Area
3600		0.000	0.000	0.0		OK	0.00		
4320		0.000	0.000	0.0		OK	0.00		

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Infiltration Calculation - Soakage Hole 900Ø

Project 152870
Address Terrace Views, Stage 3D
Date 24/01/2019

System Calcs

Catchment Area	21	m^2
Volumetric Runoff Coefficient	0.9	
Soil K_h	43.2	*mm/hr*
No. of Wells	1	
Well Diameter	0.9	*m*
Depth of Storage	2.00	
Porosity	1	
Base Area	0.64	m^2

Area Calculation	Include		
Base Infiltration Area	Yes	0.64	m^2
Effective Side Infiltration Area	No	0.00	m^2

Infiltration Requirements

Effective Side Area Factor	0%	
Total Effective Infiltration Area	0.64	m^2
Effective Volume	1.27	m^3

Soakage rate	0.72	L/min/m²
	43.2	L/hr/m²
	43.2	mm/hr

Storm Duration	Storm Mean Intensity (10yr)	Volume in	Volume out (during storm duration period)	Storage Volume Required	Percentage of Storage provided	Test	Actual Depth	Emptying Time (hrs)	Check
(minutes)	(mm/hr)	(m^3)	(m^3)	(m^3)	%				
6		0.000	0.000	0.0		OK	0.00		
10	126	0.397	0.005	0.4	324%	OK	0.62	14.44	OK
20	99	0.624	0.009	0.6	207%	OK	0.97	22.69	OK
30	88	0.832	0.014	0.8	156%	OK	1.29	30.26	OK
45		0.000	0.000	0.0		OK	0.00		
60	65	1.229	0.027	1.2	106%	OK	1.89	44.70	OK
90		0.000	0.000	0.0		OK	0.00		
120	45	1.701	0.055	1.6	77%	Inadequate	2.59	61.89	Increase Area
180		0.000	0.000	0.0		OK	0.00		
240		0.000	0.000	0.0		OK	0.00		
300		0.000	0.000	0.0		OK	0.00		
360	22	2.495	0.165	2.3	55%	Inadequate	3.66	90.78	Increase Area
480		0.000	0.000	0.0		OK	0.00		
600		0.000	0.000	0.0		OK	0.00		
720	13.2	2.994	0.330	2.7	48%	Inadequate	4.19	108.93	Increase Area
840		0.000	0.000	0.0		OK	0.00		
960		0.000	0.000	0.0		OK	0.00		
1080		0.000	0.000	0.0		OK	0.00		
1200		0.000	0.000	0.0		OK	0.00		
1320		0.000	0.000	0.0		OK	0.00		
1440	7.63	3.461	0.660	2.8	45%	Inadequate	4.40	125.93	Increase Area
2160		0.000	0.000	0.0		OK	0.00		
2880	4.41	4.001	1.319	2.7	47%	Inadequate	4.22	145.57	Increase Area
3600		0.000	0.000	0.0		OK	0.00		
4320		0.000	0.000	0.0		OK	0.00		

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Infiltration Calculation - Modular Tank

Project: 152870
Site Address: Terrace Views, Stage 3D
Date: 24/01/2019

LYSAGHT

System Calcs

Catchment Area	100	m^2
Volumetric Runoff Coefficient	0.9	
Soil K_h	43.2	*mm/hr*
Width of Infiltration Area	1.224	*m*
Length of Infiltration Area	3.425	*m*
Depth of Storage	1.72	*m*
Porosity	0.95	
Base Area	4.19	m^2

Area Calculation	**Include**	
Base Infiltration Area	Yes	4.19 m^2
Effective Side Infiltration Area	No	0 m^2

Infiltration Requirements

Total Effective Infiltration Area	4.19	m^2
Effective Volume	6.85	m^3

Atlantis Matrix Quad System

w	3	0.408
l	5	0.685
h	1	1.72

Soakage rate	0.72	L/min/m²
	43.2	L/hr/m²
	43.2	mm/hr

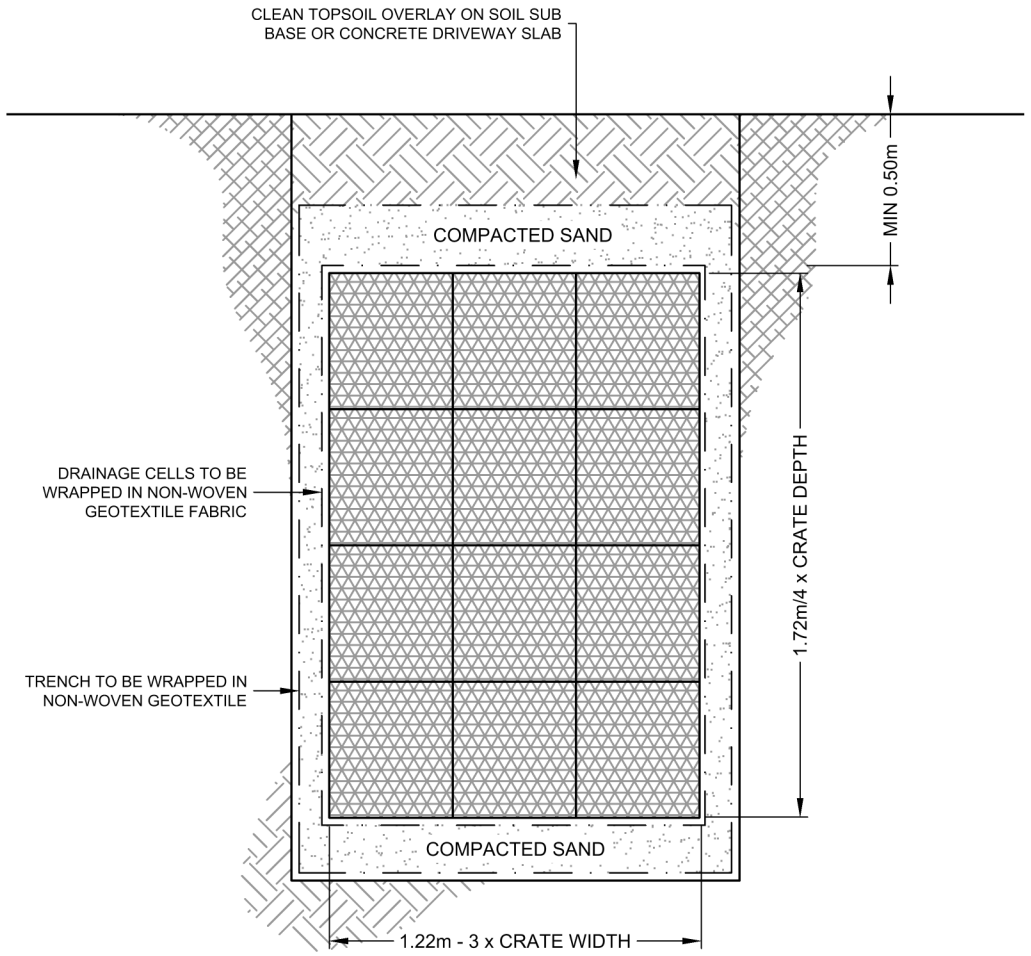
Storm Duration	Storm Mean Intensity (10yr)	Volume in	Volume out (during storm duration period)	Storage Volume Required	Percentage of Storage provided	Test	Actual Depth	Emptying Time (hrs)	Check
(minutes)	(mm/hr)	(m^3)	(m^3)	(m^3)	%				
6		0.000	0.000	0.000		OK	0.00		
10	126	1.890	0.030	1.860	368%	OK	0.47	10.44	OK
20	99	2.970	0.060	2.910	235%	OK	0.73	16.40	OK
30	88	3.960	0.091	3.869	177%	OK	0.97	21.87	OK
45		0.000	0.000	0.000		OK	0.00		
60	65	5.850	0.181	5.669	121%	OK	1.42	32.30	OK
90		0.000	0.000	0.000		OK	0.00		
120	45	8.100	0.362	7.738	89%	Inadequate	1.94	44.73	OK
180		0.000	0.000	0.000		OK	0.00		
240		0.000	0.000	0.000		OK	0.00		
300		0.000	0.000	0.000		OK	0.00		
360	22	11.880	1.087	10.793	63%	Inadequate	2.71	65.60	Increase Area
480		0.000	0.000	0.000		OK	0.00		
600		0.000	0.000	0.000		OK	0.00		
720	13.2	14.256	2.173	12.083	57%	Inadequate	3.03	78.72	Increase Area
840		0.000	0.000	0.000		OK	0.00		
960		0.000	0.000	0.000		OK	0.00		
1080		0.000	0.000	0.000		OK	0.00		
1200		0.000	0.000	0.000		OK	0.00		
1320		0.000	0.000	0.000		OK	0.00		
1440	7.63	16.481	4.346	12.134	56%	Inadequate	3.05	91.00	Increase Area
2160		0.000	0.000	0.000		OK	0.00		
2880	4.41	19.051	8.693	10.358	66%	Inadequate	2.60	105.20	Increase Area
3600		0.000	0.000	0.000		OK	0.00		
4320		0.000	0.000	0.000		OK	0.00		

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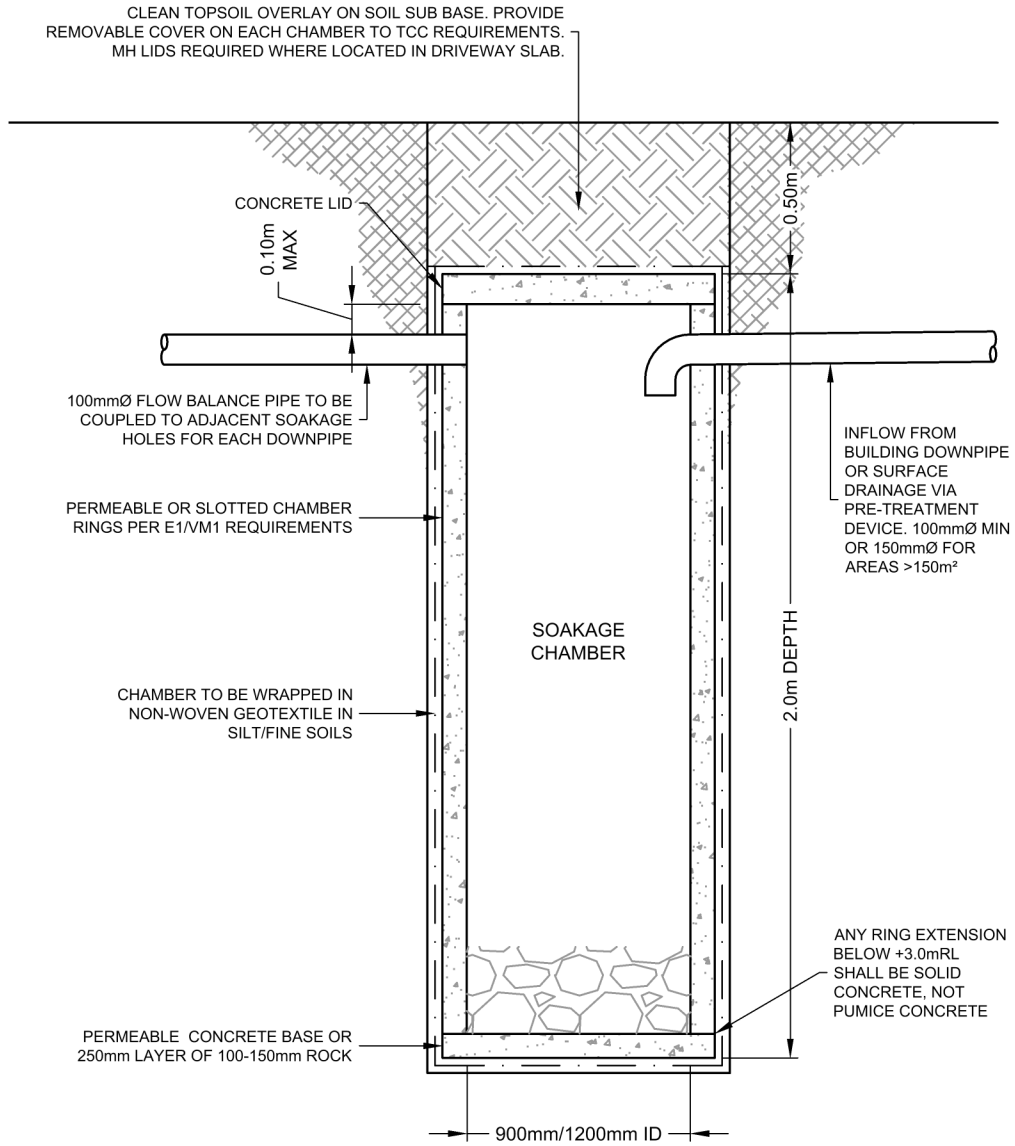
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NOTES

1. ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.
2. ALL WORKS TO COMPLY WITH TCC INFRASTRUCTURE DEVELOPMENT CODE, BOPRC REQUIREMENTS, THE NZ BUILDING CODE AND GOOD CONSTRUCTION PRACTICES.



ATLANTIS FLO-TANK SYSTEM
NOT TO SCALE



SOAKAGE RING
NOT TO SCALE

FOR INFORMATION

No.	Date	Revision Details	By	Ver.	App.
A	24/01/19	FOR INFORMATION	JRG		

Drawn	JRG	Signed	Date 24/01/19
Designed	JRG	Signed	Date 24/01/19
Verified		Signed	Date
Approved		Signed	Date

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
TYPICAL SOAKAGE SECTION
STAGE 3D

Project No. 152870
Scale NOT TO SCALE
Drawing No. 152870-088-SKT
Rev. A

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\SKETCH\152870-088-SKT- Stage 3D Typical soakage sections.dwg

Infiltration Calculation - Soakage Hole 1200mmØ

Project 152870
Address Terrace Views, Stage 3E
Date 24/01/2019

System Calcs

Catchment Area	29	m^2
Volumetric Runoff Coefficient	0.9	
Soil K_h	43.2	mm/hr
No. of Wells	1	
Well Diameter	1.2	m
Depth of Storage	1.50	m
Porosity	1	
Base Area	1.13	m^2

Area Calculation	Include		
Base Infiltration Area	Yes	1.13	m^2
Effective Side Infiltration Area	No	0.00	m^2

Infiltration Requirements

Effective Side Area Factor	0%	
Total Effective Infiltration Area	1.13	m^2
Effective Volume	1.70	m^3

Soakage rate	0.72	L/min/m²
	43.2	L/hr/m²
	43.2	mm/hr

Storm Duration	Storm Mean Intensity (10yr)	Volume in	Volume out (during storm duration period)	Storage Volume Required	Percentage of Storage provided	Test	Actual Depth	Emptying Time (hrs)	Check
(minutes)	(mm/hr)	(m^3)	(m^3)	(m^3)	%				
6		0.000	0.000	0.0		OK	0.00		
10	126	0.548	0.008	0.5	314%	OK	0.48	11.22	OK
20	99	0.861	0.016	0.8	201%	OK	0.75	17.63	OK
30	88	1.148	0.024	1.1	151%	OK	0.99	23.50	OK
45		0.000	0.000	0.0		OK	0.00		
60	65	1.697	0.049	1.6	103%	OK	1.46	34.72	OK
90		0.000	0.000	0.0		OK	0.00		
120	45	2.349	0.098	2.3	75%	Inadequate	1.99	48.08	Increase Area
180		0.000	0.000	0.0		OK	0.00		
240		0.000	0.000	0.0		OK	0.00		
300		0.000	0.000	0.0		OK	0.00		
360	22	3.445	0.293	3.2	54%	Inadequate	2.79	70.51	Increase Area
480		0.000	0.000	0.0		OK	0.00		
600		0.000	0.000	0.0		OK	0.00		
720	13.2	4.134	0.586	3.5	48%	Inadequate	3.14	84.62	Increase Area
840		0.000	0.000	0.0		OK	0.00		
960		0.000	0.000	0.0		OK	0.00		
1080		0.000	0.000	0.0		OK	0.00		
1200		0.000	0.000	0.0		OK	0.00		
1320		0.000	0.000	0.0		OK	0.00		
1440	7.63	4.779	1.173	3.6	47%	Inadequate	3.19	97.82	Increase Area
2160		0.000	0.000	0.0		OK	0.00		
2880	4.41	5.525	2.345	3.2	53%	Inadequate	2.81	113.08	Increase Area
3600		0.000	0.000	0.0		OK	0.00		
4320		0.000	0.000	0.0		OK	0.00		

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Infiltration Calculation - Soakage Hole 900Ø

Project 152870
Address Terrace Views, Stage 3E
Date 24/01/2019

System Calcs

Catchment Area	16	m^2
Volumetric Runoff Coefficient	0.9	
Soil K_h	43.2	mm/hr
No. of Wells	1	
Well Diameter	0.9	m
Depth of Storage	1.50	
Porosity	1	
Base Area	0.64	m^2

Area Calculation	Include		
Base Infiltration Area	Yes	0.64	m^2
Effective Side Infiltration Area	No	0.00	m^2

Infiltration Requirements

Effective Side Area Factor	0%	
Total Effective Infiltration Area	0.64	m^2
Effective Volume	0.95	m^3

Soakage rate	0.72	L/min/m²
	43.2	L/hr/m²
	43.2	mm/hr

Storm Duration	Storm Mean Intensity (10yr)	Volume in	Volume out (during storm duration period)	Storage Volume Required	Percentage of Storage provided	Test	Actual Depth	Emptying Time (hrs)	Check
(minutes)	(mm/hr)	(m^3)	(m^3)	(m^3)	%				
6		0.000	0.000	0.0		OK	0.00		
10	126	0.302	0.005	0.3	320%	OK	0.47	11.00	OK
20	99	0.475	0.009	0.5	205%	OK	0.73	17.29	OK
30	88	0.634	0.014	0.6	154%	OK	0.97	23.05	OK
45		0.000	0.000	0.0		OK	0.00		
60	65	0.936	0.027	0.9	105%	OK	1.43	34.06	OK
90		0.000	0.000	0.0		OK	0.00		
120	45	1.296	0.055	1.2	77%	Inadequate	1.95	47.16	OK
180		0.000	0.000	0.0		OK	0.00		
240		0.000	0.000	0.0		OK	0.00		
300		0.000	0.000	0.0		OK	0.00		
360	22	1.901	0.165	1.7	55%	Inadequate	2.73	69.16	Increase Area
480		0.000	0.000	0.0		OK	0.00		
600		0.000	0.000	0.0		OK	0.00		
720	13.2	2.281	0.330	2.0	49%	Inadequate	3.07	83.00	Increase Area
840		0.000	0.000	0.0		OK	0.00		
960		0.000	0.000	0.0		OK	0.00		
1080		0.000	0.000	0.0		OK	0.00		
1200		0.000	0.000	0.0		OK	0.00		
1320		0.000	0.000	0.0		OK	0.00		
1440	7.63	2.637	0.660	2.0	48%	Inadequate	3.11	95.95	Increase Area
2160		0.000	0.000	0.0		OK	0.00		
2880	4.41	3.048	1.319	1.7	55%	Inadequate	2.72	110.91	Increase Area
3600		0.000	0.000	0.0		OK	0.00		
4320		0.000	0.000	0.0		OK	0.00		

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Infiltration Calculation - Modular Tank

Project: 152870
Site Address: Terrace Views, Stage 3E
Date: 24/01/2019

LYSAGHT

System Calcs		
Catchment Area	100	m^2
Volumetric Runoff Coefficient	0.9	
Soil K_h	43.2	mm/hr
Width of Infiltration Area	1.224	m
Length of Infiltration Area	4.11	m
Depth of Storage	1.31	m
Porosity	0.95	
Base Area	5.03	m^2

Area Calculation	Include		
Base Infiltration Area	Yes	5.03	m^2
Effective Side Infiltration Area	No	0	m^2

Infiltration Requirements		
Total Effective Infiltration Area	5.03	m^2
Effective Volume	6.26	m^3

Atlantis Matrix Triple System		
w	3	0.408
l	6	0.685
h	1	1.31

Soakage rate	0.72	L/min/m²
	43.2	L/hr/m²
	43.2	mm/hr

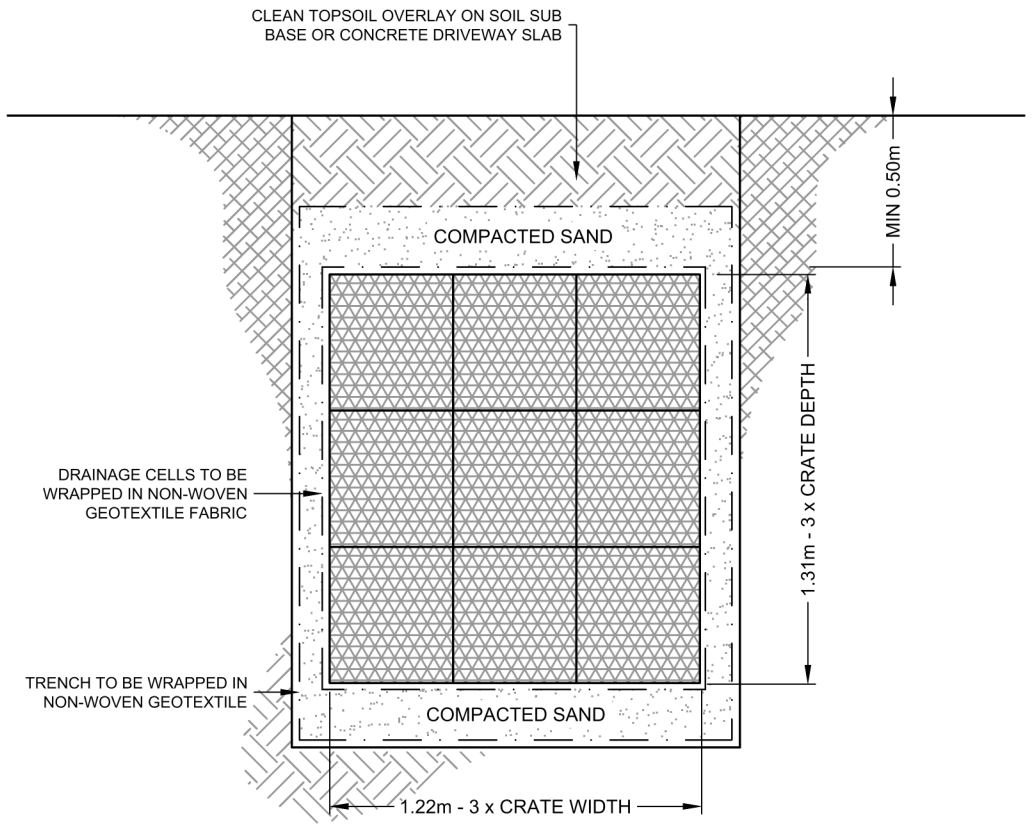
Storm Duration	Storm Mean Intensity (10yr)	Volume in	Volume out (during storm duration period)	Storage Volume Required	Percentage of Storage provided	Test	Actual Depth	Emptying Time (hrs)	Check
(minutes)	(mm/hr)	(m^3)	(m^3)	(m^3)	%				
6		0.000	0.000	0.000		OK	0.00		
10	126	1.890	0.036	1.854	338%	OK	0.39	8.70	OK
20	99	2.970	0.072	2.898	216%	OK	0.61	13.67	OK
30	88	3.960	0.109	3.851	163%	OK	0.81	18.22	OK
45		0.000	0.000	0.000		OK	0.00		
60	65	5.850	0.217	5.633	111%	OK	1.18	26.92	OK
90		0.000	0.000	0.000		OK	0.00		
120	45	8.100	0.435	7.665	82%	Inadequate	1.60	37.27	OK
180		0.000	0.000	0.000		OK	0.00		
240		0.000	0.000	0.000		OK	0.00		
300		0.000	0.000	0.000		OK	0.00		
360	22	11.880	1.304	10.576	59%	Inadequate	2.21	54.67	Increase Area
480		0.000	0.000	0.000		OK	0.00		
600		0.000	0.000	0.000		OK	0.00		
720	13.2	14.256	2.608	11.648	54%	Inadequate	2.44	65.60	Increase Area
840		0.000	0.000	0.000		OK	0.00		
960		0.000	0.000	0.000		OK	0.00		
1080		0.000	0.000	0.000		OK	0.00		
1200		0.000	0.000	0.000		OK	0.00		
1320		0.000	0.000	0.000		OK	0.00		
1440	7.63	16.481	5.216	11.265	56%	Inadequate	2.36	75.84	Increase Area
2160		0.000	0.000	0.000		OK	0.00		
2880	4.41	19.051	10.432	8.620	73%	Inadequate	1.80	87.66	Increase Area
3600		0.000	0.000	0.000		OK	0.00		
4320		0.000	0.000	0.000		OK	0.00		

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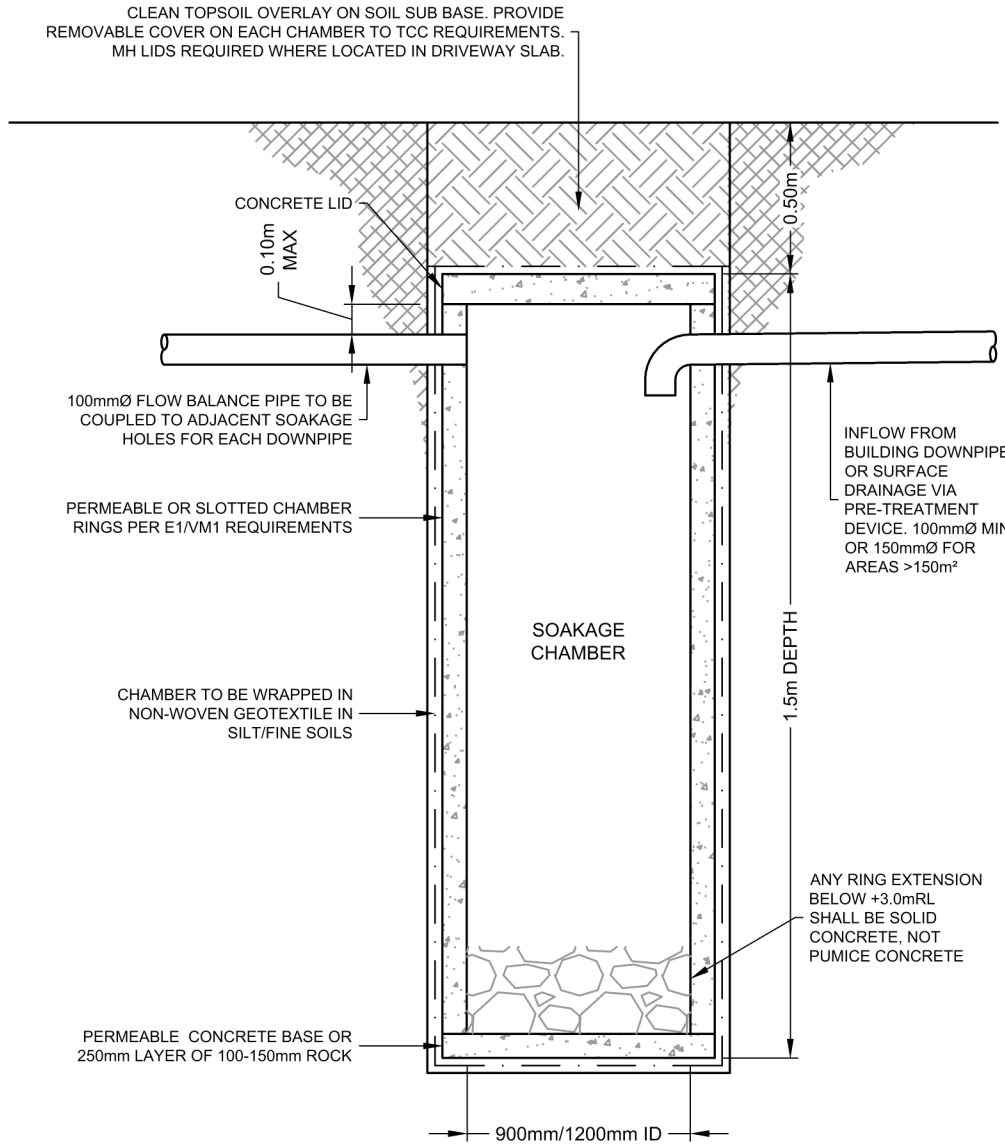
TCC - Approved Building Consent Document - BC3012S6 - Pg 342 of 406 - 9/07/2020 - bwoo

NOTES

1. ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.
2. ALL WORKS TO COMPLY WITH TCC INFRASTRUCTURE DEVELOPMENT CODE, BOPRC REQUIREMENTS, THE NZ BUILDING CODE AND GOOD CONSTRUCTION PRACTICES.



ATLANTIS FLO-TANK SYSTEM
NOT TO SCALE



SOAKAGE RING
NOT TO SCALE

FOR INFORMATION

No.	Date	Revision Details	By	Ver.	App.
A	24/01/19	FOR INFORMATION	JRG		

Drawn	Signed	Date
JRG		24/01/19
Designed	Signed	Date
JRG		24/01/19
Verified	Signed	Date
Approved	Signed	Date

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
TYPICAL SOAKAGE SECTION
STAGE 3E

Project No. 152870
Scale NOT TO SCALE
Drawing No. 152870-089-SKT
Rev. A

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\SKETCH\152870-089-SKT- Stage 3E Typical soakage sections.dwg

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21 January 2019

Dwayne Roper
Zariba Properties Limited
PO Box 2585
715 Cameron Road
Tauranga 3115

Dear Dwayne

Re: Terrace Views Subdivision – Stage 3D/3E Soakage Testing and Assessment

1 Introduction

Discharge of stormwater to ground via soakage is proposed to be employed as part of low-impact stormwater management design for the Zariba Properties Limited Terrace Views residential subdivision development at Parton Road, Papamoa. Testing has been carried out within Stage 3D and 3E of the subdivision to support future storm water design considerations. Aurecon has been engaged by Zariba Properties Limited to undertake ground soakage testing and to derive recommended soakage rates for use in soakage design (by others). The following provides a brief summary of the testing undertaken and our recommended rates for design.

2 Methodology

The capacity of the ground to provide soakage disposal was assessed using a modification on Method E1/VM1 from the NZ Building Code.

The whole area within Stage 3D and 3E is categorized into two different areas according to the cut to fill plan and earthworks history. Refer to Appendix A for Cut/Fill Plan and the original proposed Soakage Testing plan. Appendix B includes the revised soakage testing plan which identifies the differing areas and the test locations.

- Area 1 (Lots 392 – 397, 451 – 452, 456 – 457, 464) has been largely undercut of the natural dune sand to +3.0mRL (for use to fill areas of the site below ground water level). The area was then filled with imported pumice sand to finished ground level, at least 2m thick.
- Area 2 (Lots 391, 398 – 400, 439 – 450, 453 – 455, 458 – 463, 465 – 492) was undercut of peat to approximately +1.5mRL. This was then filled to +3.0mRL with dune sand cut from other areas of the site, and further filled with imported pumice fill from +3.0mRL to finished ground level.

One (1) test lot within Stage 3D and two (2) test lots within Stage 3E were chosen to provide a representative dataset for 64 Lots in conjunction with the three (3) test lots undertaken for Stage 3C and seven (7) test lots undertaken for Stage 3A and 3B. Collectively these tests represent the two soil structure types that are present under the majority of Stage 3, which were of similar soil structure and construction methodology to Stage 3D and 3E. These follow the approved pre-testing soakage and testing program established in conjunction with Tauranga City Council in relation to the testing frequency, type and locations presented in the plan (Appendix A) for full scale soakage tests. Note that the Lot No's in Stage 3D and 3E have changed from those shown on the earlier Stage 3A, 3B and 3C plan.

The full-scale (0.9m ID) soakage pits were installed in Lots 456, 472 and 483. The locations of the tests are shown in the plan in Appendix B. The cut fill plan supplied by Lysaght is also included in Appendix A.

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Each soak test pit having a 1.15m outside-diameter were dug by machine auger and porous concrete rings were installed. Hence theoretically soakage could occur through both the side and the base of the soak-hole. Each hole was thoroughly pre-filled with water immediately prior to testing to pre-soak the surrounding soil (reducing the drainage capacity of the dry soil to better represent the worst-case scenario – i.e. wet/rainy conditions). Once the hole had drained sufficiently, the hole was topped up again and the test immediately commenced.

The soakage rate for the falling head tests reduced as the driving head reduced and the sand became saturated. The tests were terminated after soakage rates were observed to have reached a steady state.

Table 1 Selected lots for soakage testing

No.	Selected Lots		Note
1	Area 1	456	Full-scale, hole depth 2.8m, hole diameter 1.15m
2	Area 2	472	Full-scale, hole depth 3.2m, hole diameter 1.15m
3		483	Full-scale, hole depth 2.8m, hole diameter 1.15m

3 Results

In accordance with Method E1/VM1, the lower steady-state rates of the test results are to be selected for design assessment. This is considered to provide a conservative approach to allow for long term soakage rates as these rates are 5 to 10 times slower than the full head soakage rates. Due to the presence of pumice filling above +3.0mRL or significant compaction of natural dune sands, soakage would be negligible within the upper soils above the level of +3.0mRL. Therefore, just the base area of the soakage hole and the side walls below +3.0mRL is adopted as the soakage area in the estimation of soakage rate taking into account of less permeable upper compacted pumice sand.

Where full sized soak ring tests were undertaken, these intercepted the groundwater table to both intercept the in-situ sands below the pumice sand filling, and to replicate actual soakholes likely to be used by lot developers and therefore the potential reduction in efficiency from intercepting ground water has been allowed for within the test. Refer Appendix C for Test results and soakage pit sketch.

The groundwater table measured at the time of testing was 3.1mRL.

Table 2 Soakage testing results, un-factored and safety factored (refer to Appendix A for test locations)

Designated Area	Test site (Lot)	2.0m~3.0m deep soakage rate (L/min/m²) (Actual)	2.0m~3.0m deep soakage rate (L/min/m²) (Factored)
Area 1	456	1.08	0.72
Area 2	472	1.28	0.85
	483	1.06	0.71

4 Design Recommendations

To compensate for local variation in ground conditions a factor of safety of 1.5 was applied to the actual soakage rates. Table 3 below summarises the factored rates of the two different areas within Stage 3D and 3E. In Stages 3A & 3B, the 7 tests varied between 0.58 & 2.10 L/min/m^2 with a recommended soakage rate of 1.2 L/min/m^2, and in Stage 3C, the recommended soakage rate was 1.0 L/min/m^2 and 0.8 L/min/m^2 for Areas 1 & 2 respectively. For Stage 3D and 3E, the recommended design soakage rates are considered to be representative of a weighted average of their valid soakage tests and provide marginally more conservative rates.

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The soakage rates calculated for the two different areas within Stage 3D and 3E are very similar, hence, for soakage system design recommended soakage rate for Stage 3D and 3E is 0.72 L/min/m^2.

Due to the pumice fill and reworked compacted sand fill above +3.0mRL, these soakage rates apply to the ground below +3.0mRL only. No soakage allowance above +3.0mRL should be included in soakage system design.

Table 3 Recommended soakage rate results including safety factor (refer to Appendix A for test locations)

Area	Stage 3D and 3E (L/min/m^2)
1	0.72
2	0.72

Any design of the soakage system that intercepts the groundwater will need to include for the lost live storage within the soakhole in determining actual storage and soakage capacities.

Alternative soakage rates, or soakage systems, may be used when supported by a specific soakage rate investigation and design by a Chartered Professional Engineer.

Yours sincerely



Alice Ying
Undergraduate Geotechnical Engineer



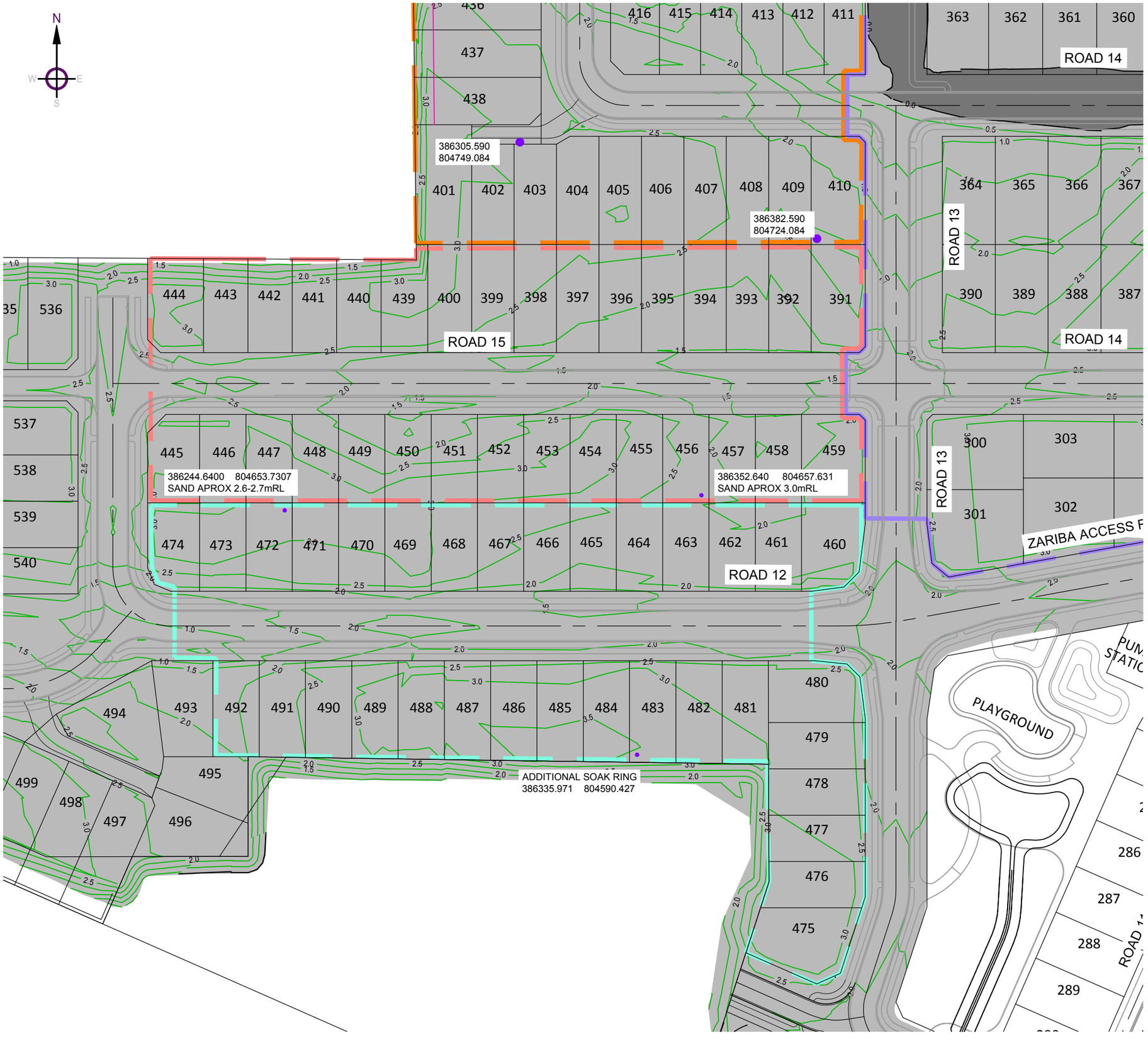
Neill Raynor
Technical Director

Enc: Appendix A: Cut/Fill Plan and Original Proposed Soakage Testing Plan
Appendix B: Soakage Testing Plan (Revised)
Appendix C: Soakage Test Results

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Appendix A
Cut/Fill Plan
Original Proposed Soakage Test Plan

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NOTES:

1. ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH TAURANGA CITY COUNCIL'S INFRASTRUCTURE DEVELOPMENT CODE, THE NEW ZEALAND BUILDING CODE, AND BAY OF PLENTY REGIONAL COUNCIL'S EROSION AND SEDIMENT CONTROL GUIDELINES.
2. CUT/FILL CONTOURS ARE AT 0.5m INTERVALS, AND REPRESENT THE DIFFERENCE BETWEEN THE STRIPPED EXISTING SURFACE / REMOVED PEAT AND THE FINAL DESIGN SURFACE.

LEGEND:

- -0.5 CUT CONTOUR
- 0.5 FILL CONTOUR
- 0.0 ZERO CONTOUR
- AREA OF CUT
- AREA OF FILL
- STAGE 3A & 3B EXTENTS
- STAGE 3C EXTENTS
- STAGE 3D EXTENTS
- STAGE 3E EXTENTS
- PROPOSED SOAK HOLE. 1.5m OUTER EDGE TO THE BOUNDARY

FOR CONSTRUCTION

LYSAGHT

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19 Totara St, Mount Maunganui 3116 Ph 07 578 8798 www.lysaght.net.nz

Project:

TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:

SKETCH
STAGE 3 SOAKAGE TESTING
CUT/FILL PLAN

Project No.	Scale (A3)
152870	1:1000
Drawing No.	Rev.
152870-S3-220-EW	4

Drawn	Signed	Date	Verified	Signed	Date	
AV		27/02/18	PM		27/02/18	
Designed	Signed	Date	Approved	Signed	Date	
AV		27/02/18	PM		27/02/18	

No.	Date	Revision Details	By	Ver.	App.
4	31/10/18	STAGE 3D / 3E LOCATIONS UPDATED	AV		
3	07/08/18	NOTE ADDED	AV		
2	01/03/18	SOAK HOLE MOVED AND COORDINATES ADDED	AV		
1	27/02/18	FOR CONSTRUCTION	AV		

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Proposed Soakage Tests (5nos.) for Stage 3D/3E

LEGEND:

STAGE 3A EXTENTS
STAGE 3B EXTENTS

N

The rest of area:
Peat undercut to +1.5mRL and filled to +3.0mRL with dune sand and further filled to FGL with pumice

Earlier Stage 3A/3B
10 Full-size Soakage Tests
(Approved in September 2017)

Area 1
<+3.0mRL: natural dune sand
+3.0mRL to FGL: pumice

Area 1
<+3.0mRL: natural dune sand
+3.0mRL to FGL: pumice

Area 3
cutting area
cutting down to FGL

Area 2
<+1.5mRL: natural dune sand
+1.5mRL to +3.0mRL: engineered dune sand fill
+3.0mRL to FGL: pumice
heavy vehicle traffic

Area 2
<3.0mRL: natural dune sand
+3.0mRL to FGL: pumice

Area 4
In-situ dune sand was undercut and re-compacted to ~+4.3mRL and pumice was placed above to FGL

ROAD 14
ROAD 13
ROAD 15
ROAD 12
ROAD 8
ROAD 20
ZARIBA ACCESS ROAD / ROAD 12
PUMP STATION
PLAYGROUND

LOT LEVELS			
LOT No.	FINISHED SUBGRADE	FINISHED GROUND LEVEL	MIN FINISHED FLOOR LEVEL
300	5.15	5.40	5.55
301	5.15	5.40	5.55
302	5.15	5.40	5.55
303	5.15	5.40	5.55
304	5.15	5.40	5.55
305	5.25	5.50	5.65
306	5.25	5.50	5.65
307	5.25	5.50	5.65
308	5.25	5.50	5.65
309	5.25	5.50	5.65
310	5.25	5.50	5.65
311	5.25	5.50	5.65
312	5.55	5.80	5.95
313	5.55	5.80	5.95
314	5.55	5.80	5.95
315	5.55	5.80	5.95
316	5.55	5.80	5.95
317	5.55	5.80	5.95
318	5.55	5.80	5.95
319	5.55	5.80	5.95
320	5.65	5.90	6.05
321	5.65	5.90	6.05
322	5.85	6.10	6.25
323	5.85	6.10	6.25
324	5.95	6.20	6.35
325	5.95	6.20	6.35
326	5.75	6.00	6.15
327	5.65	5.90	6.05
328	5.65	5.90	6.05
329	5.45	5.70	5.85
330	5.45	5.70	5.85
331	5.45	5.70	5.85
332	5.45	5.70	5.85
333	5.45	5.70	5.85
334	5.45	5.70	5.85
335	5.45	5.70	5.85
336	5.45	5.70	5.85
337	5.45	5.70	5.85
338	5.45	5.70	5.85
339	5.45	5.70	5.85
340	5.45	5.70	5.85
341	5.45	5.70	5.85
342	5.45	5.70	5.85
343	5.45	5.70	5.85
344	5.45	5.70	5.85
345	5.45	5.70	5.85
346	5.45	5.70	5.85
347	5.65	5.90	6.05
348	5.65	5.90	6.05
349	5.75	6.00	6.15
350	5.75	6.00	6.15
351	5.65	5.90	6.05
352	5.50	5.75	5.90
353	5.50	5.75	5.90
354	5.50	5.75	5.90
355	5.50	5.75	5.90
356	5.50	5.75	5.90
357	5.50	5.75	5.90
358	5.50	5.75	5.90
359	5.50	5.75	5.90
360	5.45	5.70	5.85
361	5.45	5.70	5.85
362	5.45	5.70	5.85
363	5.45	5.70	5.85
364	5.25	5.50	5.65
365	5.25	5.50	5.65
366	5.25	5.50	5.65
367	5.45	5.70	5.85
368	5.50	5.75	5.90
369	5.50	5.75	5.90
370	5.50	5.75	5.90
371	5.50	5.75	5.90
372	5.50	5.75	5.90
373	5.50	5.75	5.90
374	5.50	5.75	5.90
375	5.50	5.75	5.90
376	5.55	5.80	5.95
377	5.45	5.70	5.85
378	5.25	5.50	5.65
379	5.25	5.50	5.65
380	5.20	5.45	5.60
381	5.20	5.45	5.60
382	5.20	5.45	5.60
383	5.20	5.45	5.60
384	5.20	5.45	5.60
385	5.20	5.45	5.60
386	5.20	5.45	5.60
387	5.20	5.45	5.60

LOT LEVELS			
LOT No.	FINISHED SUBGRADE	FINISHED GROUND LEVEL	MIN FINISHED FLOOR LEVEL
388	5.15	5.40	5.55
389	5.15	5.40	5.55
390	5.15	5.40	5.55
391	5.15	5.40	5.55
392	5.15	5.40	5.55
393	5.35	5.60	5.75
394	5.35	5.60	5.75
395	5.35	5.60	5.75
396	5.35	5.60	5.75
397	5.35	5.60	5.75
398	5.35	5.60	5.75
399	5.45	5.70	5.85
400	5.45	5.70	5.85
401	5.45	5.70	5.85
402	5.35	5.60	5.75
403	5.35	5.60	5.75
404	5.35	5.60	5.75
405	5.25	5.50	5.65
406	5.25	5.50	5.65
407	5.45	5.70	5.85
408	5.45	5.70	5.85
409	5.45	5.70	5.85
410	5.45	5.70	5.85
411	5.45	5.70	5.85
412	5.45	5.70	5.85
413	5.45	5.70	5.85
414	5.45	5.70	5.85
415	5.45	5.70	5.85
416	5.45	5.70	5.85
417	5.45	5.70	5.85
418	5.45	5.70	5.85
419	5.45	5.70	5.85
420	5.45	5.70	5.85
421	5.45	5.70	5.85
422	5.45	5.70	5.85
423	5.45	5.70	5.85
424	5.45	5.70	5.85
425	5.45	5.70	5.85
426	5.45	5.70	5.85
427	5.45	5.70	5.85
428	5.45	5.70	5.85
429	5.45	5.70	5.85
430	5.45	5.70	5.85
431	5.45	5.70	5.85
432	5.65	5.90	6.05
433	5.35	5.60	5.75
434	5.35	5.60	5.75
435	5.35	5.60	5.75
436	5.45	5.70	5.85
437	5.35	5.60	5.75
438	5.35	5.60	5.75
439	5.35	5.60	5.75
440	5.35	5.60	5.75
441	5.35	5.60	5.75
442	5.35	5.60	5.75
443	5.35	5.60	5.75
444	5.35	5.60	5.75
445	5.35	5.60	5.75
446	5.15	5.40	5.55
447	5.15	5.40	5.55
448	5.15	5.40	5.55
449	5.15	5.40	5.55
450	5.15	5.40	5.55
451	5.15	5.40	5.55
452	5.15	5.40	5.55
453	5.15	5.40	5.55
454	5.15	5.40	5.55
455	5.35	5.60	5.75
456	5.35	5.60	5.75
457	5.35	5.60	5.75
458	5.35	5.60	5.75
459	5.35	5.60	5.75
460	5.0	5.15	5.3
461	5.0	5.15	5.3
462	5.0	5.15	5.3
463	5.0	5.15	5.3
464	5.0	5.15	5.3
465	5.05	5.20	5.35
466	5.05	5.30	5.45
467	5.05	5.30	5.45
468	5.15	5.40	5.55
469	5.15	5.40	5.55
470	5.35	5.60	5.75
471	5.35	5.60	5.75
472	5.35	5.60	5.75
473	5.35	5.60	5.75

No.	Date	Revision Details	By	Ver.	App.
2	23/08/17	LEVEL CHANGE ON HIGHLIGHTED LOTS	AV		
1	08/05/17	FOR CONSTRUCTION	AV		

Drawn	AV	Signed	Date 08/05/17
Designed	AV	Signed	Date 08/05/17
Verified	PM	Signed	Date 08/05/17
Approved	PM	Signed	Date 08/05/17

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19 Totara St, Mount Maunganui 3116 Ph 07 578 8798 www.lysaght.net.nz

Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
STAGE 3
EARTHWORKS
LOT LEVEL PLAN

Stage 3D/E - Soakage Testing Plan (Original)

FOR CONSTRUCTION

Project No. 152870
Scale (A3) NOT TO SCALE
Drawing No. 152870-S3-240-EW
Rev. 2

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\CONSTRUCTIONSTAGE 3\152870-S3-240-EW.dwg

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Appendix B
Soakage Test Plan (Revised)

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STAGE 3A & 3B EXTENTS

STAGE 3C EXTENTS

STAGE 3D EXTENTS

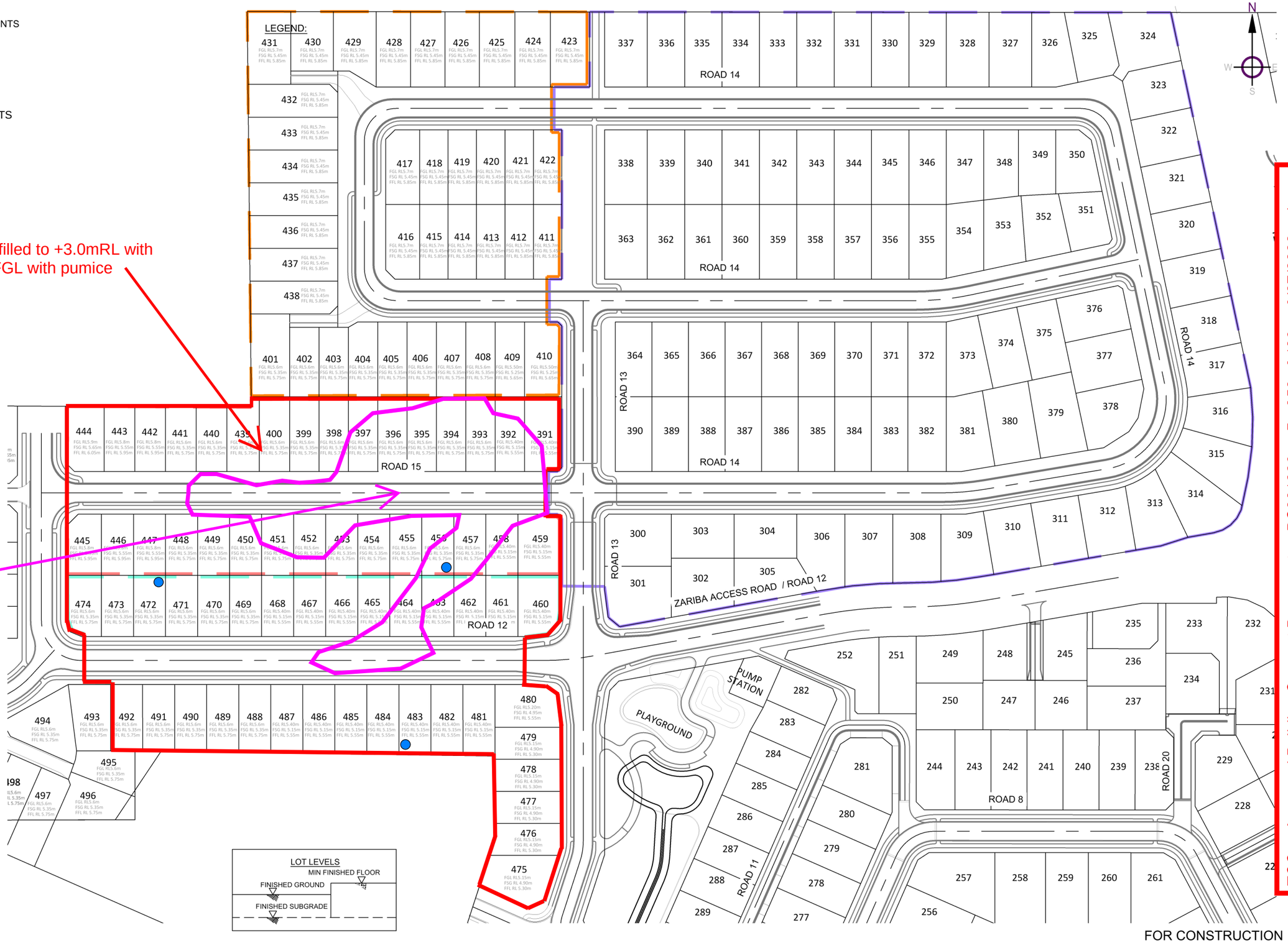
STAGE 3E EXTENTS

SOAKAGE TEST PITS

NOTE: FFL LEVEL IS MINIMUM FFL ONLY

Area 2
Peat undercut to +1.5mRL and filled to +3.0mRL with dune sand and further filled to FGL with pumice

Area 1
<+3.0mRL: natural dune sand
+3.0mRL to FGL: pumice



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FOR CONSTRUCTION

No.	Date	Revision Details	By	Ver.	App.
5	08/08/18	TABLE REMOVED AND LEVELS ON PLAN	AV		
4	09/07/18	STAGING LAYOUT UPDATED	JC		
3	18/12/17	INCLUDE LOT LEVELS DIAGRAM	AV		
2	23/08/17	LEVEL CHANGE ON HIGHLIGHTED LOTS	AV		
1	08/05/17	FOR CONSTRUCTION	AV		

Drawn	AV	08/05/17
Designed	AV	08/05/17
Verified	PM	08/05/17
Approved	PM	08/05/17

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
STAGE 3D/3E
EARTHWORKS
SOAKAGE TESTING PLAN (REVISED)

Project No. 152870

Scale (A3) NOT TO SCALE

Drawing No. 152870-S3-240-EW

Rev. 5

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\CONSTRUCTIONSTAGE 3\152870-S3-240-EW.dwg

Appendix C
Soakage Test Results

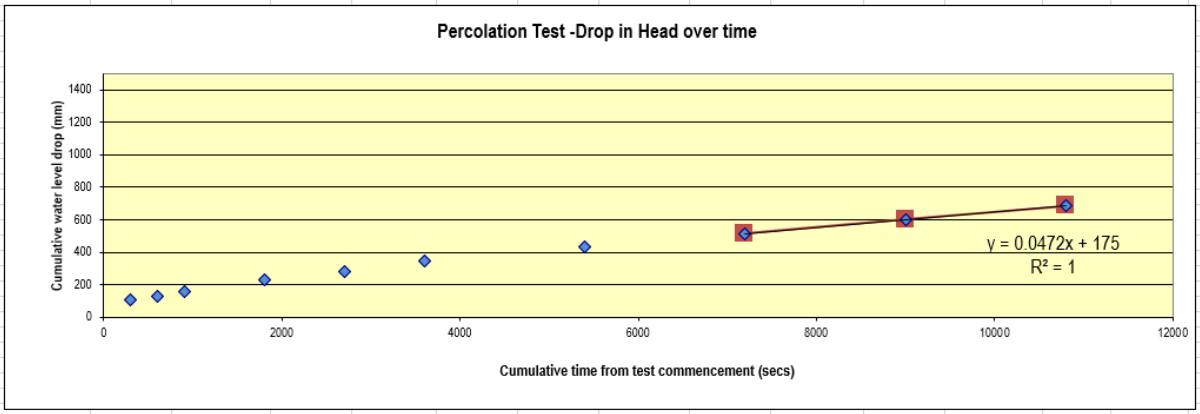
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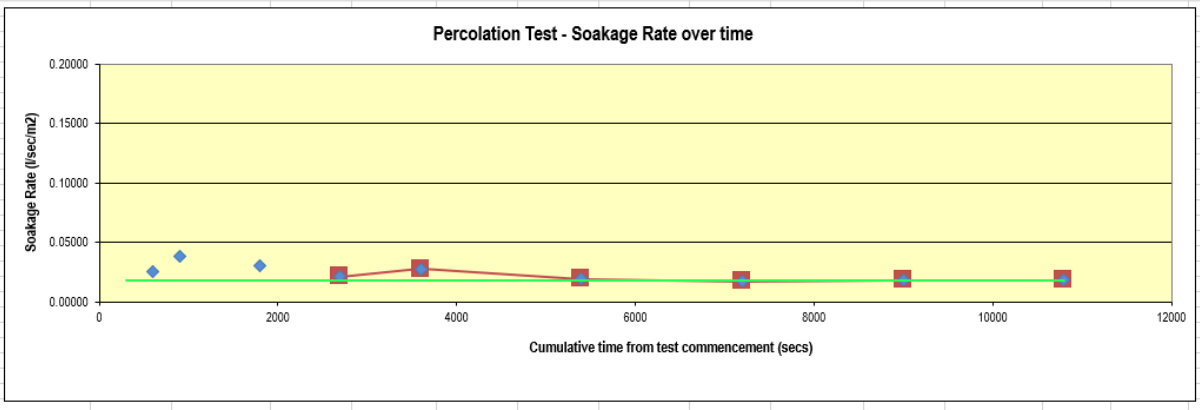
Job Location	Terrace Views Stage 3D/3E	**Soil conditions:**	Fill; dense fine to medium dune sands			**Date:**	6/12/2018
Client	Zariba	**Antecedent weather:**				**Tested by:**	AY
Job No.	247593	**Depth to water table:**		(m)		**Written up by:**	AY
Presoak details:	4 hrs	**Casing height above ground:**	-400	(mm)		**Checked by:**	
Time test begun:	10:45am						
Test Name:		**Depth of hole (below egl)**	2800	(mm)			
Test Location	LOT 456	**Diameter of bore (internal)**	1150	(mm)			Soakhole being 0.45m into dune sand
Note: Test conducted in accordance with New Zealand Building Code, Verification Method E1/VM1			Falling head test				

TIME (24 hr clock) hh:mm:ss	Raw result (mm to water level below top of casing)	Depth to water level (mm below egl)	Height above base of hole (Head) (mm)	Difference between depth readings (mm)	Time between readings (secs)	Cumulative water level drop (mm)	Cumulative time elapsed (secs)	Soakage Area (m2)	Soaked Volume (L)	Soakage Rate (l/sec/m2)
14:45:00	70	470								
14:50:00	110	510	2290	510	300	510	300	2.6645	529.7314	0.66271
14:55:00	130	530	2270	20	300	530	600	2.6645	20.7738	0.02599
15:00:00	160	560	2240	30	300	560	900	2.6645	31.1607	0.03898
15:15:00	230	630	2170	70	900	630	1800	2.6645	72.7082	0.03032
15:30:00	280	680	2120	50	900	680	2700	2.6645	51.9345	0.02166
15:45:00	345	745	2055	65	900	745	3600	2.6645	67.5148	0.02815
16:15:00	435	835	1965	90	1800	835	5400	2.6645	93.4820	0.01949
16:45:00	515	915	1885	80	1800	915	7200	2.6645	83.0951	0.01733
17:15:00	600	1000	1800	85	1800	1000	9000	2.6645	88.2886	0.01841
17:45:00	685	1085	1715	85	1800	1085	10800	2.6645	88.2886	0.01841

Values in red were used to determine the steady state average.

Steady rate	**L/sec/m2**	**0.01805**
	L/Min/m2	**1.08286**





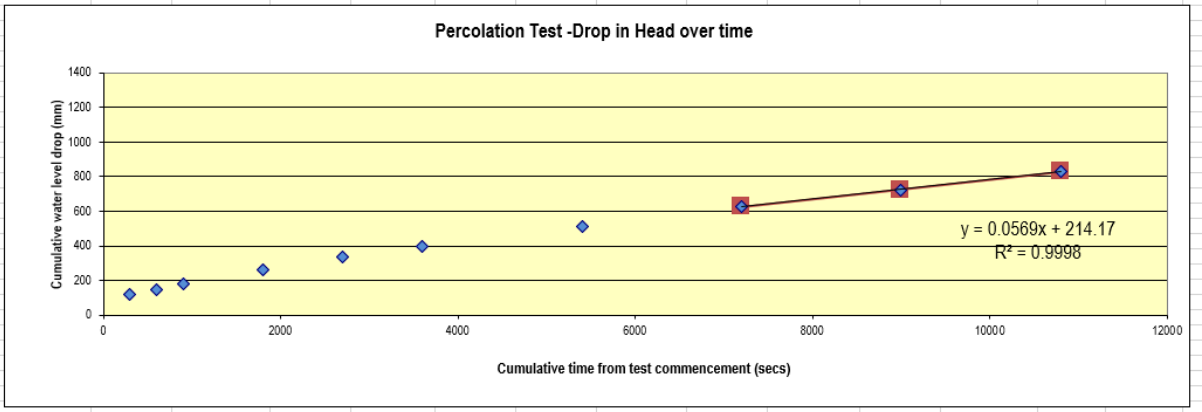
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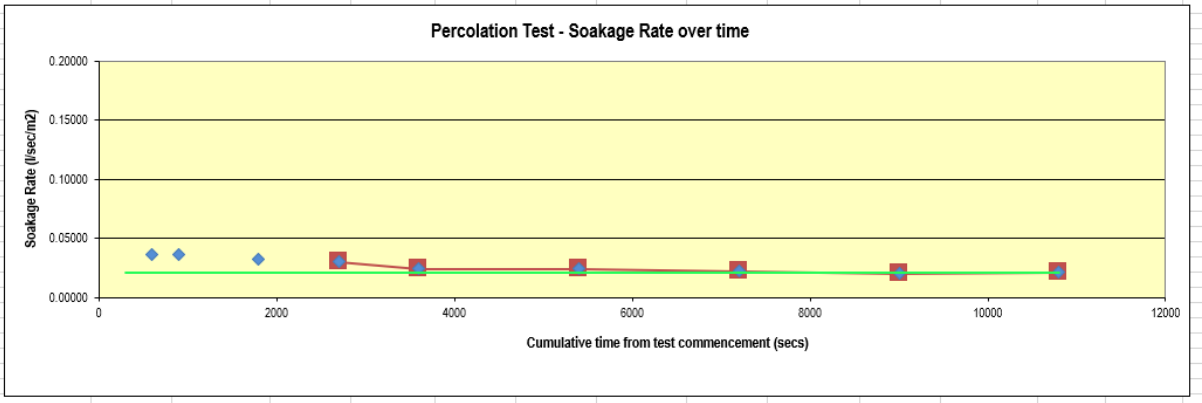
Job Location	Terrace Views Stage 3D/3E	**Soil conditions:**	Fill; dense fine to medium dune sands			**Date:**	6/12/2018
Client	Zariba	**Antecedent weather:**				**Tested by:**	AY
Job No.	247593	**Depth to water table:**	1.75	(m)		**Written up by:**	AY
Presoak details:	4 hrs	**Casing height above ground:**	-500	(mm)		**Checked by:**	
Time test begun:	11:05am						
Test Name:		**Depth of hole (below egl)**	3250	**(mm)**			
Test Location	LOT 472	**Diameter of bore (internal)**	1150	**(mm)**		Soakhole being 0.5m into dune sand	
Note: Test conducted in accordance with New Zealand Building Code, Verification Method **E1/VM1**			Falling head test				

TIME (24 hr clock) hh:mm:ss	Raw result (mm to water level below top of casing)	Depth to water level (mm below egl)	Height above base of hole (Head) (mm)	Difference between depth readings (mm)	Time between readings (secs)	Cumulative water level drop (mm)	Cumulative time elapsed (secs)	Soakage Area (m2)	Soaked Volume (L)	Soakage Rate (l/sec/m2)	
15:05:00	75	575									
15:10:00	120	620	2630	620	300	620	300	2.8451	643.9872	0.75450	
15:15:00	150	650	2600	30	300	650	600	2.8451	31.1607	0.03651	
15:20:00	180	680	2570	30	300	680	900	2.8451	31.1607	0.03651	
15:35:00	260	760	2490	80	900	760	1800	2.8451	83.0951	0.03245	
15:50:00	335	835	2415	75	900	835	2700	2.8451	77.9017	0.03042	
16:05:00	395	895	2355	60	900	895	3600	2.8451	62.3213	0.02434	
16:35:00	515	1015	2235	120	1800	1015	5400	2.8451	124.6427	0.02434	
17:05:00	625	1125	2125	110	1800	1125	7200	2.8451	114.2558	0.02231	
17:35:00	725	1225	2025	100	1800	1225	9000	2.8451	103.8689	0.02028	
18:05:00	830	1330	1920	105	1800	1330	10800	2.8451	109.0624	0.02130	

Values in red were used to determine the steady state average.

Steady rate	L/sec/m2	0.02130
	L/Min/m2	1.27778





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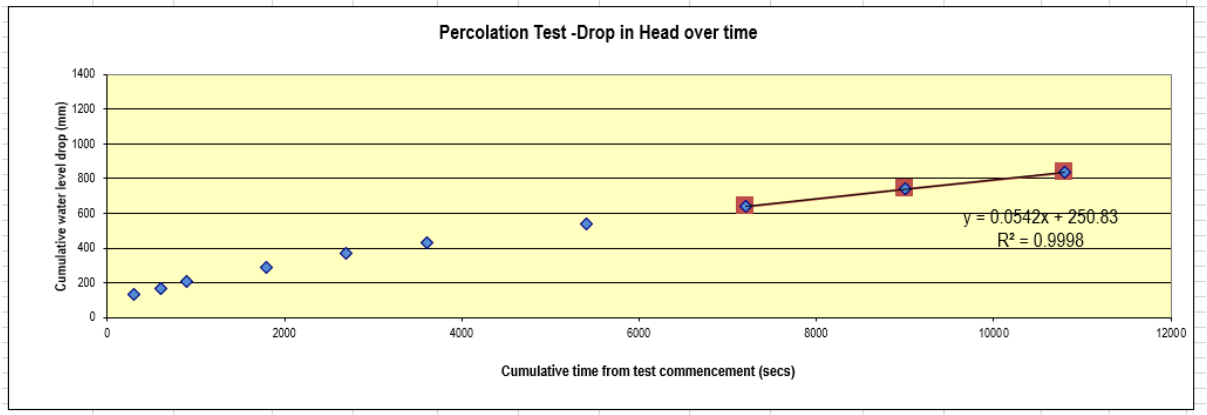
Job Location	Terrace Views Stage 3D/3E	**Soil conditions:**	Fill; dense fine to medium dune sands			**Date:**	19/12/2018
Client	Zariba	**Antecedent weather:**				**Tested by:**	AY
Job No.	247593	**Depth to water table:**		(m)		**Written up by:**	AY
Presoak details:	4 hrs	**Casing height above ground:**	-300	(mm)		**Checked by:**	
Time test begun:	8:45am						
Test Name:		**Depth of hole (below egl)**	2800	**(mm)**			
Test Location	LOT 483	**Diameter of bore (internal)**	1150	**(mm)**			Soakhole being 0.6m into dune sand

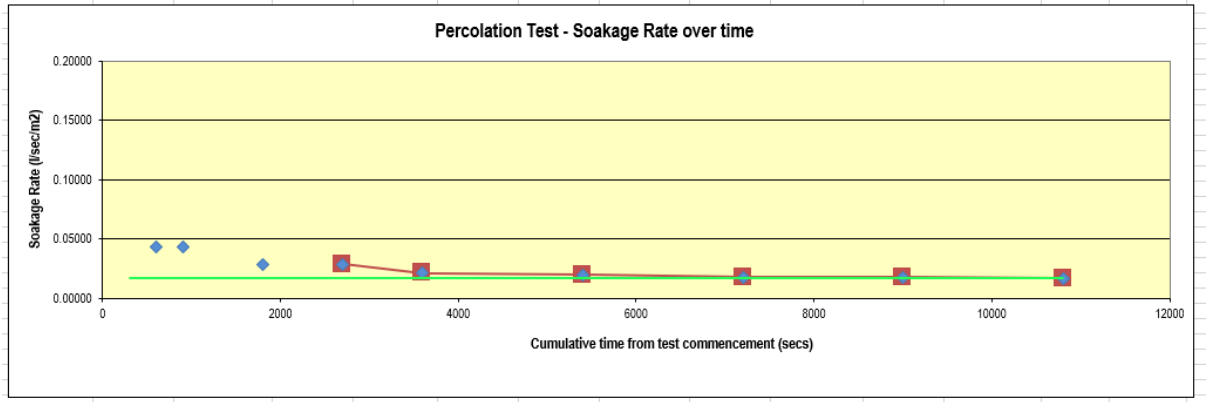
Note: Test conducted in accordance with New Zealand Building Code, Verification Method E1/VM1 — Falling head test

TIME (24 hr clock) hh:mm:ss	Raw result (mm to water level below top of casing)	Depth to water level (mm below egl)	Height above base of hole (Head) (mm)	Difference between depth readings (mm)	Time between readings (secs)	Cumulative water level drop (mm)	Cumulative time elapsed (secs)	Soakage Area (m2)	Soaked Volume (L)	Soakage Rate (l/sec/m2)
12:45:00	90	390								
12:50:00	130	430	2370	430	300	430	300	3.2064	446.6363	0.46432
12:55:00	170	470	2330	40	300	470	600	3.2064	41.5476	0.04319
13:00:00	210	510	2290	40	300	510	900	3.2064	41.5476	0.04319
13:15:00	290	590	2210	80	900	590	1800	3.2064	83.0951	0.02879
13:30:00	370	670	2130	80	900	670	2700	3.2064	83.0951	0.02879
13:45:00	430	730	2070	60	900	730	3600	3.2064	62.3213	0.02160
14:15:00	540	840	1960	110	1800	840	5400	3.2064	114.2558	0.01980
14:45:00	640	940	1860	100	1800	940	7200	3.2064	103.8689	0.01800
15:15:00	740	1040	1760	100	1800	1040	9000	3.2064	103.8689	0.01800
15:45:00	835	1135	1665	95	1800	1135	10800	3.2064	98.6755	0.01710

Values in red were used to determine the steady state average.

Steady rate	L/sec/m2	0.01770
	L/Min/m2	1.06182





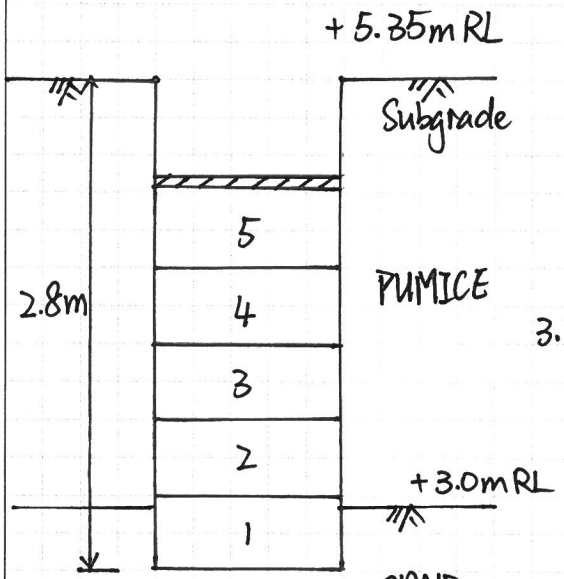
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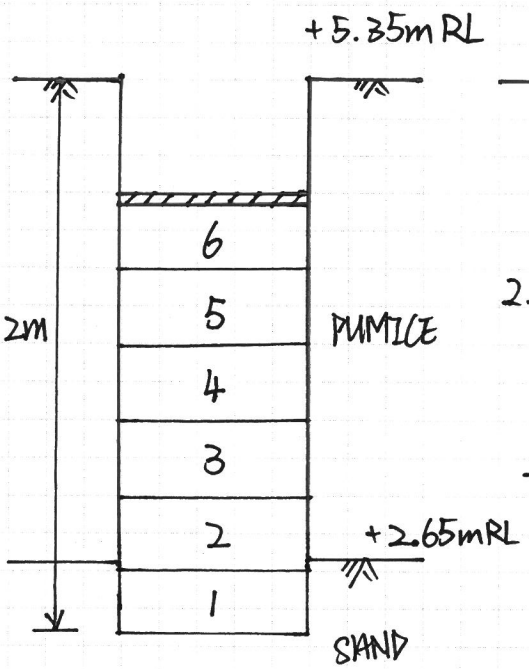
aurecon

Client:
Project/Job:
Subject:
Job No: 247693
Date: 20/12/18
By: AY
Sheet No:

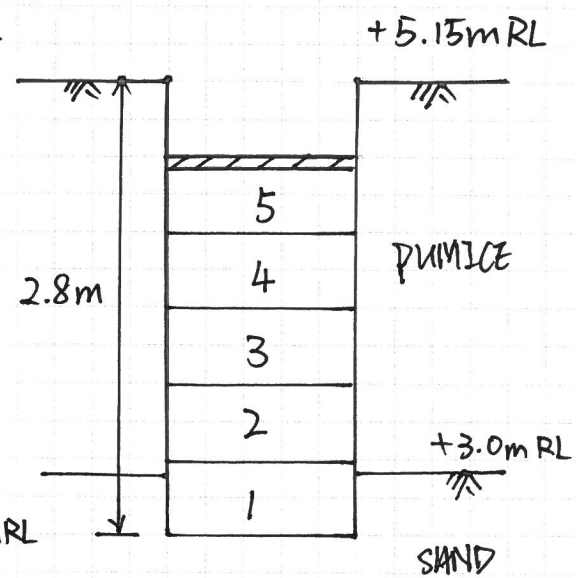
LOT 456



LOT 472



LOT 483



[900 mm internal diameter of soak rings . 450 mm High] [Drilled hole 1150 mm]

Drilling starts from the top of certified subgrade level by Lysaght.

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22 November 2019

Dwayne Roper
Director
Zariba Holdings Limited
715 Cameron Road
Tauranga South
Tauranga 3112

Dear Dwayne

RE: Timber pole retaining wall construction certification at Stage 3D, Terrace Views Subdivision, Papamoa (BC #191200)

1 Retaining Wall Construction Certification

Zariba Holdings Limited (the 'Client') commissioned Aurecon New Zealand Limited (Aurecon) to undertake construction inspections of a timber pole retaining wall constructed to support residential development within Lots 439 – 444 (herein referred to as 'the site') of the Terrace Views subdivision, Pyes Pa, Tauranga. Inspections were undertaken in the weeks between 7 August 2019 and 27 September 2019 following the survey and set-out undertaken by Lysaght Consultants and NZ Structures. Photos from these inspections are attached. The wall was designed by Aurecon (BC #191200) and this report is intended to support the application for Code of Compliance. The wall ranges in height from 0.36 to 1.80m and was constructed by NZ Structures.

Aurecon undertook inspections of the following wall components during construction:

- Timber pole materials inspected prior to pile driving
- Augered predrilling immediately followed by vibratory pile driving
- Lagging installation and inspection
- Remedial works to undertake drop-hammer pile driving
- Drainage placement and installation
- Earthworks filling
- Final as-built inspection

The first inspection on 7 August confirmed the timber poles met the specification laid out within the Aurecon design report: "*Timber pole retaining wall design and specific requirements for building on Lots 439-444, Stage 3D, Terrace Views Subdivision, Papamoa, Tauranga*" (dated 7 June 2019, File 245883). A trial of the proposed installation methodology using pre-drilling and vibratory pile driving was undertaken during the initial inspection. Results of the trial showed slow, but successful installation methodology. Several inspections of the installation methodology were undertaken. A full schedule of the retaining wall inspection can be found attached.

It was noted on 15 August 2019 that the installation methodology deviated from the original design. The pilot hole was being drilled to 2.5-3.0 metres with a 300mm diameter auger (instead of a 1.5 metre pilot hole with a 200mm diameter auger). Survey monitoring of the poles installed has been undertaken by Lysaght Consultants Limited during construction to ensure lateral movement of the pile

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would not occur during earthworks filling. Lysaght has confirmed the wall has not undergone any lateral movement following earthworks filling.

On 8 August, NZ Structures requested to reduce the minimum timber pole size from 325mm small end diameter (SED) poles to 320mm SED. Upon checking the capacity of this pole reduction, it was deemed an acceptable design alteration.

On 27 August, NZ Structures noted the refusal of two timber poles using the vibratory pile driving methodology. Larger equipment was not available to NZ Structures at the time of installation and an alternative installation methodology was proposed. A 700kg drop-hammer was proposed to drive the poles to the design depth. This was accepted by Aurecon with an engineer on site during the pile driving process.

On 29 August, NZ Structures requested the use of Armourflow Drainage instead of the original drainage design. Although a deviation from the original drainage design, this was deemed acceptable by Aurecon. A full sketch of the as-built drainage (from NZ Structures) can be found attached. A full design deviation register can be found attached to this report.

Earthworks backfilling of the wall was undertaken between 29 August and 27 September 2019 using a remote-controlled vibratory sheepsfoot roller. Compliance testing of the engineered fill along the wall can be found attached.

The results of the lagging and drainage inspection showed that the lagging met the SG8 and sizing requirements and placement met the requirements of our design.

Based on our construction observations, we consider that the wall construction has been completed in general accordance with our design.

2 Foundation recommendation and foundation fill review

The GCR for Stage 3D-3E of the Terrace Views Subdivision (Ref. 247593-320-0000-GCR-Rev0, 8 March 2019) recommended a specific engineered foundation design due to sloping ground within Lots 439-444. The report also notes the following:

- Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of ‘good ground’ in accordance with NZS3604:2011.
- The specific foundation should consider Table 5.1 within Module 3 of the MBIE guidelines for site effects from excess pore water pressure and liquefaction.
- The specific foundation should be assessed against general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes.
- Shallow or deep foundations should consider the finished landform and implications of the proposed building development in context to the proximity to the western boundary slope and the associated risk of instability under both static and seismic conditions.

As outlined above we have designed and now certified the construction of a timber pole retaining wall which accommodates a level building platform extending over the pre-existing sloping ground. The ground conditions beneath the building platform consist of engineered pumice sand fill. The compaction of the engineered fill has been verified as having met the earthworks specification requirements. Refer to the attached earthworks certification testing conducted along the wall alignment.

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Based on the results of the earthworks compaction testing and previous lot by lot testing included in the GCR, Lots 439 to 444 (inclusive) are considered suitable to construct residential dwellings that comply with the characteristics defined by NZS3604:2011 *Timber framed buildings.* This conclusion is subject to the following specific requirements:

MBIE Guidelines 'TC2' building foundations

Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011.

In accordance with Table 5.1 within Module 3 of the MBIE guidelines the site effects from excess pore water pressure and liquefaction is assessed to be 'L3 - High' under ULS conditions. The ULS liquefaction induced settlements are predicted to range up to 205mm.

In accordance with Module 4 of the MBIE guidelines, for cases where the predicted effects are deemed to be intolerable (L3 or higher), it is necessary to consider options for either ground improvement or the use of robust raft foundations, or deep foundations. We consider that the most practicable solution for this site is to specify robust raft foundations.

We have assessed the type of raft foundation system using the general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes. In consideration of the predicted liquefaction settlement and thickness of the non-liquefiable crust, we classify the site as Technical Category 2 (TC2) in accordance with this guideline.

Specific engineered design of a MBIE 'TC2' foundation is required for all residential buildings constructed on the subject lots with Stage 3D and 3E. Section 5.5.1 of the Stage 3D-E Geotechnical Completion Report provides further discussions of TC2 foundation options/types.

Foundation bearing capacity

An ultimate bearing capacity of 300 kPa may be adopted for the design of shallow foundations on the subject lots. The following capacity reduction factors should be applied:

- ULS: 0.5;
- SLS: 0.33; and
- Earthquake loading: 0.7

Building Setback from Retaining Walls

All future buildings developed within these lots shall not extend closer than two metres from the top of the retaining wall (measured as a minimum horizontal distance from the back of timber lagging to the edge of the proposed building foundations). Any development proposed to be constructed closer than two metres to the retaining wall will be subject to the current Stage 3D-GE Geotechnical Completion Report specific requirements (i.e specific engineered design).

Foundation flexibility

Buildings will need to be flexible to withstand up to 25 mm of differential settlement over a six metre length, as indicated by Appendix B Section B1 of the NZ Building Code Handbook and Approved Documents. Provided that the foundation subgrades are suitably prepared (e.g. free of loose or softened soils and water) prior to pouring concrete, settlements are estimated to be less than 25 mm under the loads imposed by a dwelling constructed in accordance with NZS3604:2011.

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Subgrade Preparation

Prior to foundation construction, the contractor should ensure that the subgrade surface is well compacted by rolling with a non-vibrating smooth drum roller or plate compactor. All foundation subgrades should be free of any loosened surficial soils and ponded water prior to concrete pour. Any subgrade that has been loosened should be re-compacted or removed and replaced with either site concrete or granular fill compacted in accordance with NZS4431:1989.

Yours faithfully,



Miles Buob Geotechnical Engineer	Kushant Kishore Senior Geotechnical Engineer	Benjamin O'Loughlin TCC Cat 1 Geo-professional Technical Director, Infrastructure

Attachments

Wall inspection summary table
Selected photographs
Design drawings (by Aurecon NZ Ltd)
As-built retaining wall drawings (by NZ Structures)
Design deviation register
Material delivery dockets
Engineered fill compliance testing
PS3 – Construction (by NZ Structures)
PS4 – Construction Review (by Aurecon NZ Ltd)

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aurecon

Terrace Views Stage 3D-E Timber Pole Wall Inspection register

Inspection Reference	Date	Component Inspected
1	7/08/2019	Timber Pole Installation Methodology
2	14/08/2019	Lagging material and Timber pole installation
3	15/08/2019	Lagging material and Timber pole installation
4	20/08/2019	Timber Pole Installation Methodology
5	21/08/2019	Timber Pole Installation Methodology
6	29/08/2019	Drainage and lagging material
7	2/9/2019	Drainage and Lagging material
8	10/09/2019	Timber Pole Installation
9	11/09/2019	Drainage placement and filling
10	12/09/2019	Drainage placement and filling
11	17/09/2019	Fill Placement
12	23/09/2019	Fill Placement
13	1/10/2019	Final Wall Inspection

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Selected site photographs



Figure 1 **A typical timber pole tag showing the H5 325mm SED poles. (dated 7 August 2019)**



Figure 2 **Timber poles being vibro-driven into engineered fill. (dated 15 August 2019)**

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Figure 3 A measurement of the diameter of the timber pole meets design requirements. (dated 15 August 2019)



Figure 4 The length of a typical timber pole to ensure proper embedment depth. (dated 15 August 2019)

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Figure 5 A photo of the SG8 lagging showing the width meets design requirements (dated 15 August 2019)



Figure 6 A photo of the SG8 lagging showing the length meets design requirements (dated 15 August 2019)

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Figure 7: Lagging placement and the beginning of drainage and fill earthworks. (dated 29 August 2019)



Figure 8: The placement of wrapped drainage metal with Armourflow drainage at the back of lagging. (dated 2 September 2019)

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Figure 9: Driving poles using a drop-hammer and anvil following vibratory pile driving refusal. (dated 10 September 2019)



Figure 10: The wall with piles completely driven. (dated 17 September 2019)

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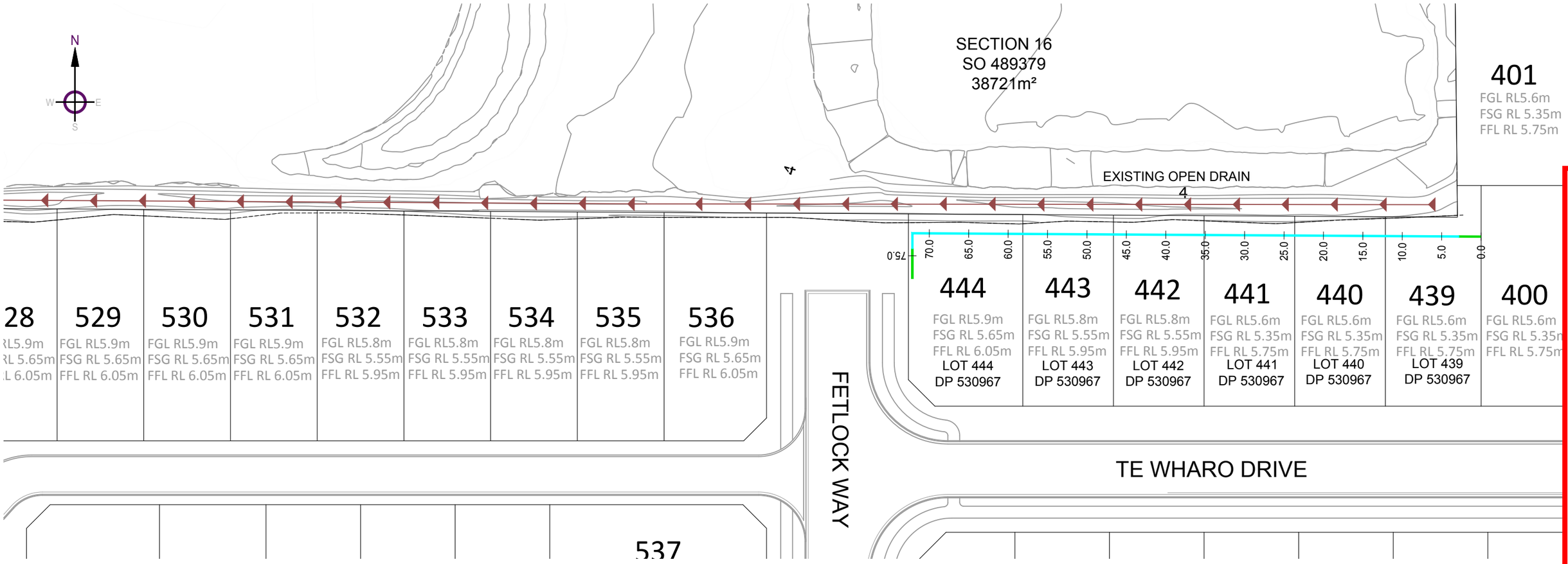


Figure 11: The finished wall prior to placement of topsoil (dated 1 October 2019)



Figure 12: The finished retaining wall showing the completed grassed retaining wall. (dated 4 November 2019)

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PLAN OF RETAINING WALL

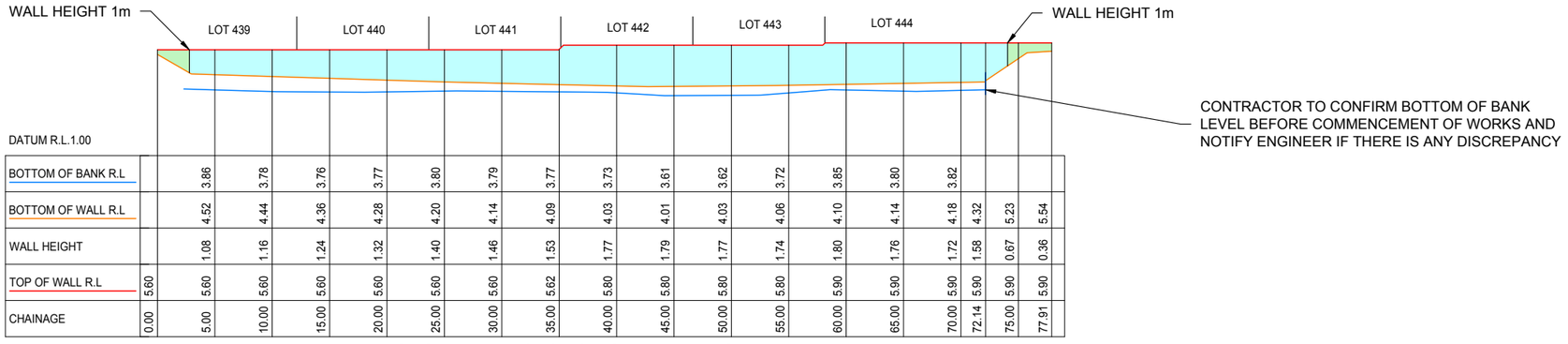
SCALE 1:500

NOTES:

1. ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH TAURANGA CITY COUNCIL'S INFRASTRUCTURE DEVELOPMENT CODE, THE NEW ZEALAND BUILDING CODE, AND BAY OF PLENTY REGIONAL COUNCIL'S EROSION AND SEDIMENT CONTROL GUIDELINES.
2. ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE
3. LEVELS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953.
4. BOUNDARIES AND AREAS ARE APPROXIMATE ONLY AND ARE SUBJECT TO CHANGE. FINAL BOUNDARIES WILL BE IN ACCORDANCE WITH CITY PLAN AND LINZ REQUIREMENTS.
5. BOUNDARIES NOT FOR BUILDING DESIGN PURPOSES.
6. RETAINING WALL POLE SIZES AND EXTENTS ARE APPROXIMATE AND BASED ON THE LYSAGHT SURVEY. THE POLE SIZE AND SET OUTS NEED TO BE CONFIRMED ON SITE BY THE CONTRACTOR AND MEET THE REQUIREMENTS OF AURECON DRAWING 247593-0009-DRG-G-0020.

LEGEND:

- BOTTOM OF BANK
- EXISITNG OPEN DRAIN
- APPROXIMATE LENGTH / AREA WHERE A 200mm DIA POLE IS APPLICABLE, REFER TO AURECON 247593-0009-DRG-G-0020-A, MAX RETAINED HEIGHT <1000mm. REFER NOTE 6.
- APPROXIMATE LENGTH / AREA WHERE A 325mm DIA POLE IS APPLICABLE, REFER TO AURECON 247593-0009-DRG-G-0020-A, MAX RETAINED HEIGHT <1800mm. REFER NOTE 6.



BOTTOM OF BANK R.L		3.86	3.78	3.76	3.77	3.80	3.79	3.77	3.73	3.61	3.62	3.72	3.85	3.80	3.82								
BOTTOM OF WALL R.L		4.52	4.44	4.36	4.28	4.20	4.14	4.09	4.03	4.01	4.03	4.06	4.10	4.14	4.18	4.32	5.23	5.54					
WALL HEIGHT		1.08	1.16	1.24	1.32	1.40	1.46	1.53	1.77	1.79	1.77	1.74	1.80	1.76	1.72	1.58	0.67	0.36					
TOP OF WALL R.L	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.62	5.80	5.80	5.80	5.80	5.90	5.90	5.90	5.90	5.90	5.90					
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	72.14	75.00	77.91					

LONGITUDINAL SECTION OF RETAINING WALL

HOR. SCALE 1:500
VER SCALE 1:250

FOR INFORMATION

No.	Date	Revision Details	By	Ver.	App.
-	17/05/19	FOR INFORMATION	RD		

Drawn	RD	Signed	Date 17/05/19
Designed	AV	Signed	Date 17/05/19
Verified	PM	Signed	Date 17/05/19
Approved	PM	Signed	Date 17/05/19

LYSAGHT

SURVEYING, ENGINEERING & LAND DEVELOPMENT
19 Totara St, Mount Maunganui 3116 Ph 07 578 8798 www.lysaght.net.nz

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NO LIABILITY SHALL BE ACCEPTED FOR THE UNAUTHORISED USE OF THIS DRAWING

DO NOT SCALE DRAWING

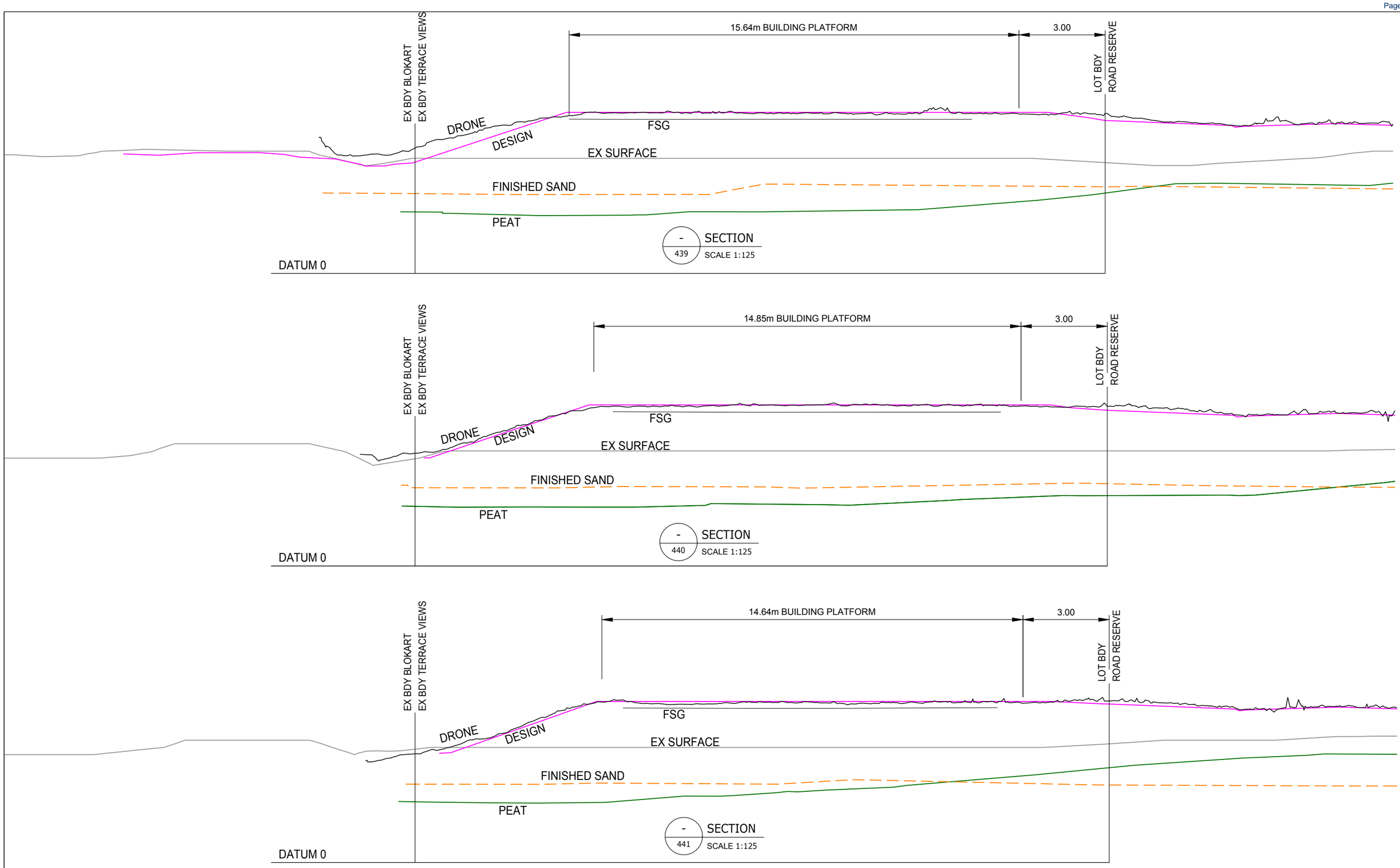
Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
RETAINING WALL
PLAN & LONGSECTION
LOTS 439-444

Project No. 152870
Scale (A3) 1:500
Drawing No. 152870-200-RW439-444
Rev. 1

C:\Users\andrewv\AppData\Local\Temp\BricsCAD\bp_18\152870-200-RW439-444.dwg

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FOR INFORMATION

No.	Date	Revision Details	By	Ver.	App.
2	6/06/19	BRL REMOVED	AV		
1	21/01/19	FOR INFORMATION	AV		

Drawn	Signed	Date 21/01/19
Designed AV	Signed	Date 21/01/19
Verified	Signed	Date
Approved	Signed	Date

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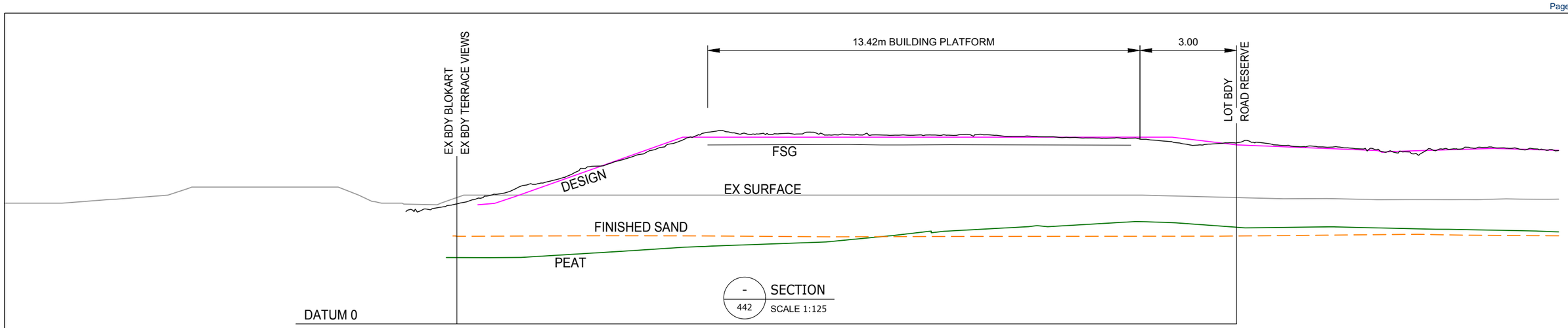
LYSAGHT
SURVEYING, ENGINEERING & LAND DEVELOPMENT
19 Totara St, Mount Maunganui 3116 Ph 07 578 8798 www.lysaght.net.nz

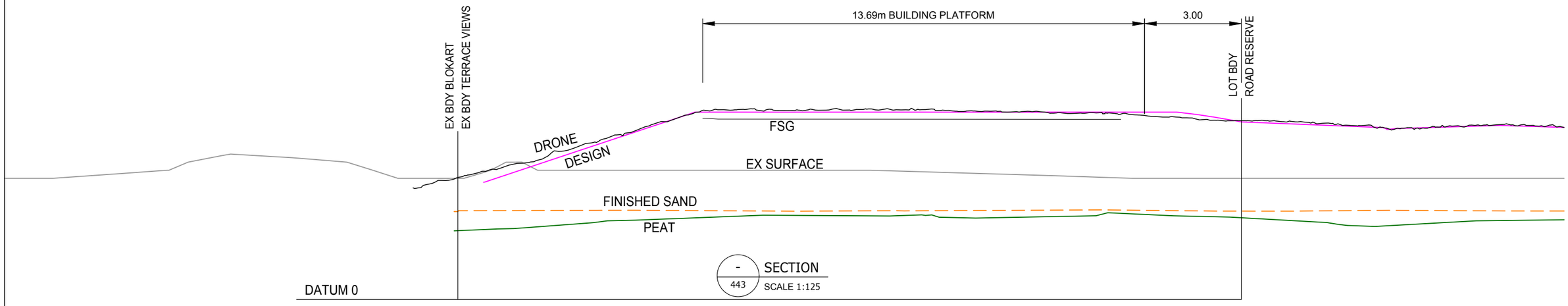
Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

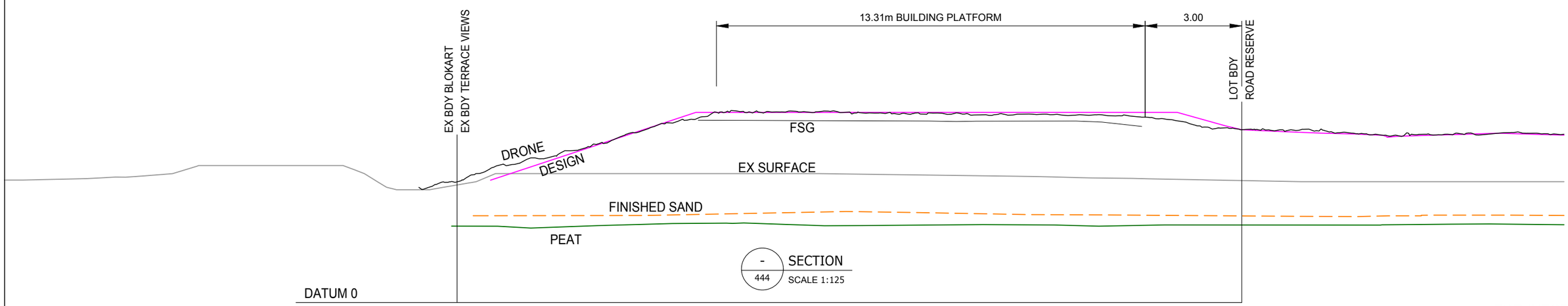
Drawing Title:
EARTHWORKS - STAGE 2
BOUNDARY INTERFACE CROSS SECTIONS
LOTS 439 - 444
SHEET 1

Project No. 152870
Scale (A3) AS SHOWN
Drawing No. 152870-LOTS 439-444
Rev. 2

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FOR INFORMATION

No.	Date	Revision Details	By	Ver.	App.
2	6/06/19	BRL REMOVED	AV		
1	21/01/19	FOR INFORMATION	AV		

Drawn	Signed	Date
AV		21/01/19
Designed	Signed	Date
AV		21/01/19
Verified	Signed	Date
Approved	Signed	Date

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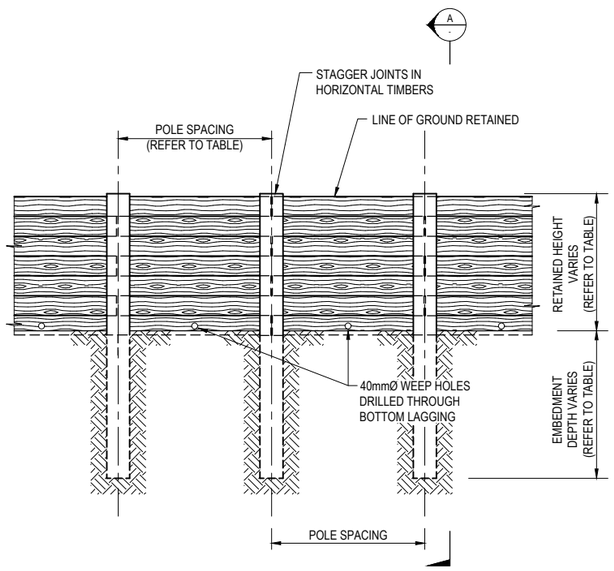
Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
EARTHWORKS - STAGE 2
BOUNDARY INTERFACE CROSS SECTIONS
LOTS 439 - 444
SHEET 2

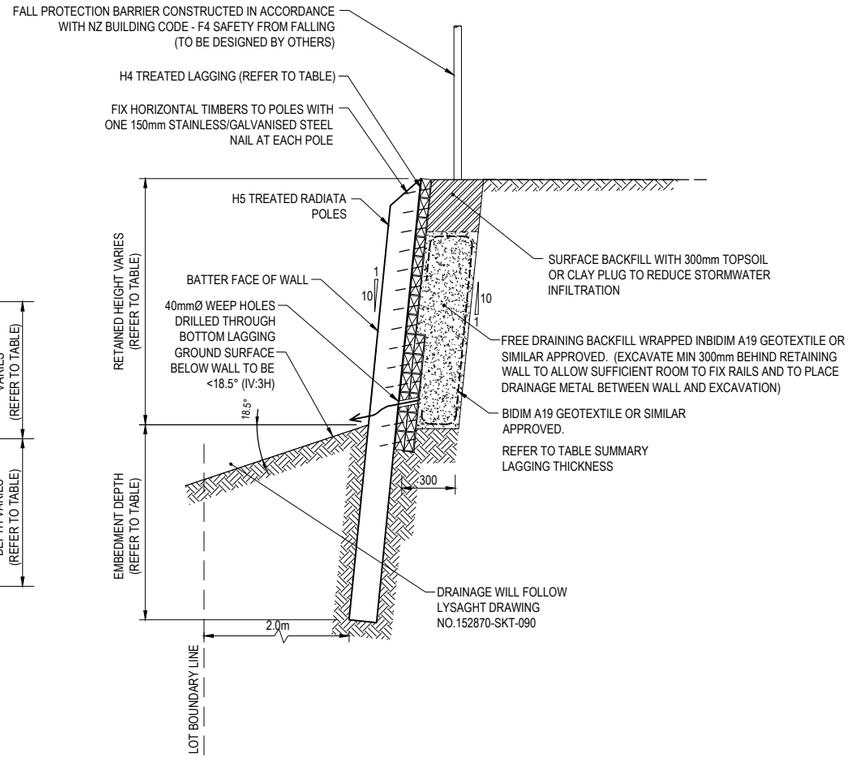
Project No. 152870
Scale (A3) AS SHOWN
Drawing No. 152870-LOTS 439-444
Rev. 2

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TYPICAL FRONT ELEVATION OF WALL
NTS



TYPICAL SECTION A
NTS

FOR RETAINING WALLS 3 & 4

DRIVEN TIMBER POLE RETAINING WALL SCHEDULE					
MAX RETAINED HEIGHT (mm)	SMALL END DIAMETER (mm)	POLE SPACING (mm)	PILOT HOLE DIAMETER (mm)	EMBEDMENT DEPTH (mm)	LAGGING DIMENSIONS (mm)
1000	200	1000	100	2000	150 x 50
1800	325	1000	200	3500	150 X 100 (DOUBLE LAGGED) (150x50 FOR UPPER 1.0m)
NOTE: REFER TO SKETCH RETAINING WALL PLAN LOTS 439-444 BY LYSAGHT (DRAWING No 152870-SKT-90) FOR LOCATION AND THE RETAINING WALL LONG SECTION.					

1. CAUTION:

DEEP EXCAVATIONS UNSUPPORTED DURING CONSTRUCTION MAY BE HAZARDOUS PARTICULARLY WHEN WORKING IN CONFINED SPACES.
WORKSAFE NEW ZEALAND EXCAVATION SAFETY GOOD PRACTICE GUIDELINES (JULY 2016) GIVES RECOMMENDED SAFETY PROCEDURES FOR SUCH SITUATIONS. TEMPORARY EXCAVATIONS ARE THE RESPONSIBILITY OF CONTRACTORS, CONTRACTORS ARE REQUIRED TO TAKE DUE CARE AND MEASURES TO PROTECT THEIR WORKS FROM ANY SLIPS.

2. MATERIALS:

TIMBER:

TIMBER POLES SHALL BE PEELED RADIATA PINE LOGS COMPLYING WITH THE REQUIREMENT OF NZS 3605:2001 'LOAD BEARING ROUND TIMBER PILES AND POLES' TREATED TO NZS 3602:2003 SPECIFICATION H5.

DIMENSIONS OF POLES ARE SPECIFIED AS MINIMUM SMALL END DIAMETERS. ACTUAL DIAMETERS WILL BE GREATER DUE TO TAPER AND TIMBER GRADING.

LAGGING SHALL BE SG 8 GRADE TIMBER COMPLYING WITH THE REQUIREMENT OF NZS 3622:2004 'VERIFICATION OF TIMBER PROPERTIES' AND GRADED IN ACCORDANCE WITH THE PROVISIONS OF NZS 3631. LAGGING SHALL BE TREATED TO NZS 3602:2003 SPECIFICATION H4.

LAGGING TO EXTEND A MINIMUM OF 100mm BELOW EXISTING GROUND LEVEL. ALL TIMBER SHALL HAVE TPA IDENTIFICATION BRANDS VISIBLE WHEN DELIVERED TO THE SITE, AND SHALL BE PROTECTED AGAINST DAMAGE DURING STORAGE AND HANDLING.

FIXING OF HORIZONTAL TIMBERS TO POLES SHALL UTILISE STAINLESS / GALVANISED STEEL NAILS AS DETAILED.

3. EXCAVATION AND INSTALLATION:

EXCAVATION IN STAGES TO ALLOW FOR TEMPORARY SUPPORT DURING CONSTRUCTION IS REQUIRED. NO MORE THAN 3m OF UNSUPPORTED SLOPE SHALL EXIST AT ANY ONE TIME.

TIMBER PILING SHALL BE DRIVEN WITH A GRAVITY HAMMER OR POWER HAMMER IN BORED PILOT HOLES. WHEN THE NATURE OF THE DRIVING IS SUCH AS TO UNDULY INJURE THE HEADS, TIMBER PILING SHALL BE PROTECTED BY CAPS OF APPROVED DESIGN PREFERABLY HAVING A ROPE OR OTHER SUITABLE CUSHION NEXT TO THE PILE HEAD AND FITTING INTO A CASTING WHICH IN TURN SUPPORTS A TIMBER SHOCK BLOCK. WHEN THE AREA OF THE HEAD OF THE PILE IS GREATER THAN THAT OF THE FACE OF THE HAMMER, A SUITABLE CAP SHALL BE PROVIDED TO DISTRIBUTE THE BLOW OF THE HAMMER THROUGHOUT THE CROSS SECTION OF THE PILE AND THUS AVOID, AS FAR AS POSSIBLE, THE TENDENCY TO SPLIT OR SHATTER THE PILE. COLLARS OR BANDS TO PROTECT THE PILING AGAINST SPLITTING AND BROOMING SHALL BE PROVIDED.

PILE DRIVER LEADS SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO AFFORD FREEDOM OF MOVEMENT TO THE HAMMER, AND SHALL BE HELD IN POSITION BY GUYS OR STIFF BRACES TO INSURE SUPPORT TO THE PILE DURING DRIVING. EXCEPT WHERE PILINGS ARE DRIVEN THROUGH WATER, THE LEADS SHALL BE OF SUFFICIENT LENGTH THAT THE USE OF A FOLLOWER WILL NOT BE NECESSARY.

CONTRACTOR SHALL PROVIDE PILOT HOLES TO MINIMIZE RISK OF DAMAGE TO PILING AND FOR THE PURPOSE OF MAINTAINING ALIGNMENT. THE MAXIMUM DEPTH OF THE PILOT HOLE SHALL BE 1.5M AND THE MAXIMUM DIAMETER SHALL BE NO GREATER THAN THE DIAMETER OF THE PILE TIP. INCREASE THE DIAMETER OR DEPTH OF THE PILOT HOLE ONLY AFTER PRIOR APPROVAL BY THE ENGINEER.

THE PILING SHALL BE DRIVEN APPROXIMATELY TO THE DEPTH SHOWN ON THE PLANS TO SECURE THE BEARING RESISTANCE. BEARING RESISTANCE SHALL BE DETERMINED BY THE SPECIFIED FORMULA AS DIRECTED BY THE GEOTECHNICAL ENGINEER.

CONTRACTOR SHALL POINT OR SQUARE-CUT PILING AS REQUIRED BY SOIL CONDITIONS. WHERE NECESSARY, PILE SHALL BE SHOED WITH METAL SHOES. PILING POINTS SHALL BE SHAPED TO SECURE EVEN AND UNIFORM BEARING ON SHOES.

AFTER DRIVING, SAW THE PILING OFF AT A TRUE PLANE AS INDICATED ON THE PLANS. THE FINAL PLAN ELEVATIONS ARE TO BE WITHIN THE ESTABLISHED ELEVATION.

IF CUTTING IS NECESSARY THE EXPOSED SURFACES SHALL BE FLOODED WITH A COPPER NAPTHENATE TYPE OF WOOD PRESERVATIVE.

4. GALVANISING:

COMPONENTS SPECIFIED ON THE DRAWINGS AS BEING GALVANISED ARE TO BE HOT-DIP GALVANISED IN ACCORDANCE WITH AS/NZS 4680, AS/NZS 4791 OR AS/NZS 4792 AS APPROPRIATE.

IN ADDITION TO THE REQUIREMENTS OF THESE CODES, THE FOLLOWING SHALL BE COMPLIED WITH.

THE MATERIAL USED FOR HOT-DIP GALVANISING SHALL BE ZINC METAL SPECIFICALLY MADE FOR THIS PURPOSE AND SHALL BE 99.5% PURE.

THE AVERAGE WEIGHT OF ZINC COATING SHALL BE NOT LESS THAN 380 gm/sq.m FOR BOLTS AND WASHERS AND NOT LESS THAN 700 gm/sq.m FOR OTHER STRUCTURAL STEELWORK.

ALL BOLTS AND NUTS SHALL BE GALVANISED AFTER SCREW CUTTING AND TOLERANCES USED IN SCREW CUTTING SHALL MAKE ALLOWANCE FOR THIS.

DAMAGED SURFACES OR WELDED AREAS SHALL BE MADE GOOD WITH INTEZINC 352 OR EQUIVALENT APPLIED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

5. DRAINAGE

APPROVED DRAINAGE MATERIAL BACKFILLED BEHIND LAGGING WRAPPED IN GEOTEXTILE (BIDIM A19 OR SIMILAR APPROVED) AND 40mm DIAMETER WEEP HOLES TO BE DRILLED IN CENTRE OF FIRST ROW OF EXPOSED LAGGING BETWEEN EACH POLE AS SHOWN IN THE TYPICAL WALL DETAILS.

6. SETOUT/OFFSET DISTANCE

LYSAGHT CONSULTANTS LTD WILL BE PROVIDING THE SETOUT FOR THE ALIGNMENT OF THE RETAINING WALL. THE FRONT OF THE RETAINING WALL SHALL BE OFFSET A MINIMUM OF 2.35 METRES FROM THE BOUNDARY AT THE LOWEST POINT TO ENSURE A MINIMUM OF 2.0 METRES IS COVERED AT THE BASE OF THE TIMBER POLES.

WARNING
THIS WALL DESIGN IS SUITABLE FOUNDING WITHIN IN-SITU DENSE SAND WITH A MINIMUM FRICTION ANGLE OF 33 DEGREES. IT HAS BEEN DESIGN FOR A SURCHARGE OF 5kPa (SINGLE STOREY TIMBER DWELLING).

HOLD POINTS FOR INSPECTIONS BY A GEOTECHNICAL ENGINEER IS AS FOLLOWS:
- PILOT HOLE, TIMBER POLE INSPECTION
- PLACEMENT OF GEOTEXTILE WRAP AND LAGGING PRIOR TO DRAINAGE METAL AND BACKFILL
- FINAL INSPECTION PRIOR TO SITE DEMOBILISATION

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Plot Date: 29/05/2019 12:19:11 PM Office: NLTRG Filename: P:\PROJECTS\247593 - ZARIBA HASHA PARTON ROAD PAPAMOA\CAD\DRG\SCN\247593-0009-DRG-G-0020.DWG

aurecon
www.aurecongroup.com

CLIENT
ZARIBA PROPERTIES LIMITED

REV	DATE	REVISION DETAILS	APPROVED
A	29.05.19	CONSENT ISSUE	B.O'Loughlin

SCALE	SIZE
NTS	A1

DRAWN: L.O'Sullivan
DESIGNED: M.Buob
CHECKED: K.Kishore

CONSENT
NOT FOR CONSTRUCTION

APPROVED
DATE 29.05.19
B.O'Loughlin
B.O'Loughlin

PROJECT: TERRACE VIEWS SUBDIVISION
PARTON ROAD, TAURANGA

TITLE: TYPICAL TIMBER POLE RETAINING WALL - TYPE A2

DRAWING No.	PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
	247593	0009	DRG	G	0020	A

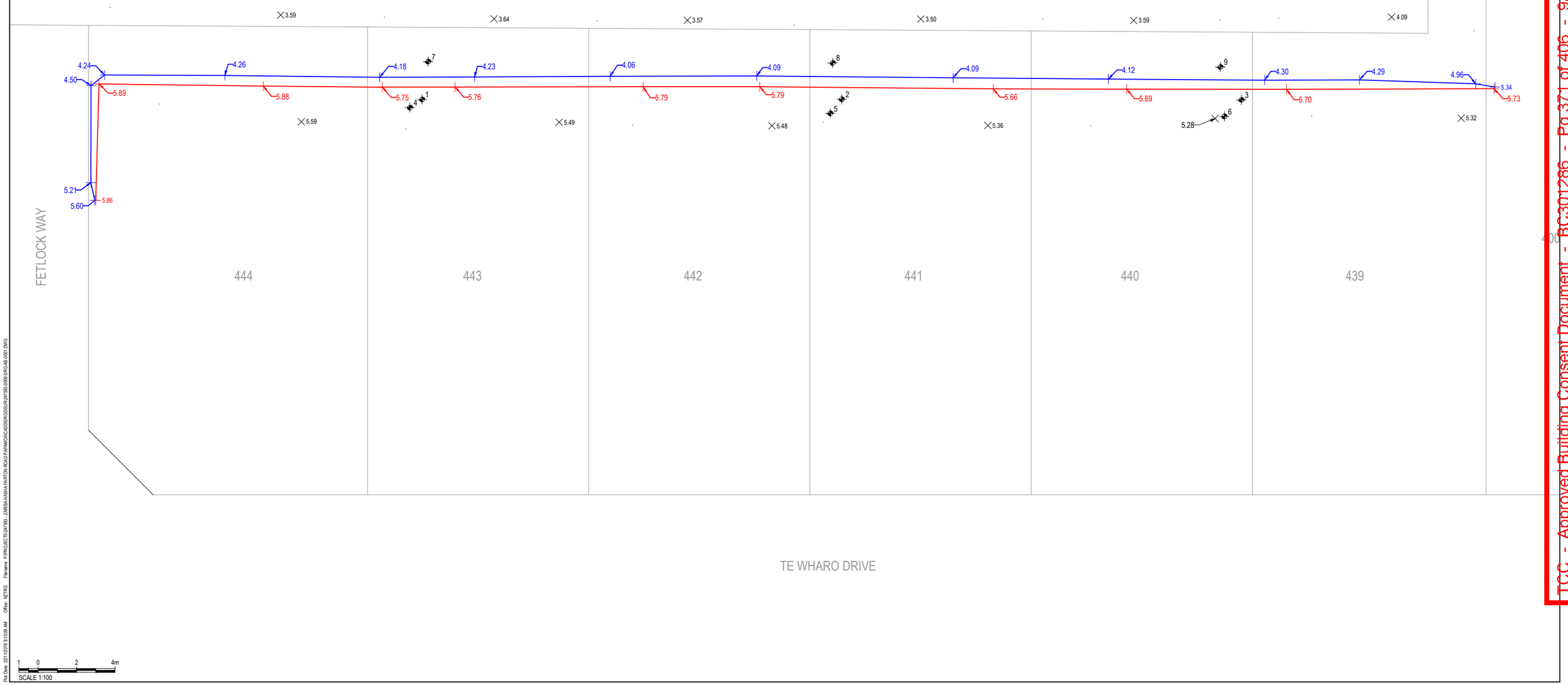
COMPLIANCE TEST			
Point #	Northing	Easting	Elevation
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2	804715.1400	386248.2500	4.580
3	804715.1100	386269.0200	4.600
4	804714.7100	386225.7900	5.360
5	804714.4100	386247.6500	5.270
6	804714.2500	386268.1400	5.160
7	804717.1000	386226.7400	4.070
8	804717.0300	386247.7700	3.990
9	804716.8200	386267.9300	4.160

LEGEND

- 7.20 / 5.03 — TOP OF RETAINING WALL LEVEL (mRL) / BOTTOM OF RETAINING WALL LEVEL (mRL)
- × — GROUND LEVEL SPOT HEIGHT
- 1 — COMPLIANCE TEST

NOTES:

1. SURVEY DATA SUPPLIED BY LYSAGHT CONSULTANTS LTD.
2. LEVELS IN TERMS OF MOTURIKI DATUM 1953.
3. COORDINATES IN TERMS OF GD2000, BOP CIRCUIT.
4. REFER AURECON DRAWING 247593-0009-DRG-G-0020 FOR TYPICAL RETAINING WALL DETAILS.
5. REFER TO AURECON DRAWING 247593-0320-DRG-G-0003 FOR LANDFORM/LOT ARRANGEMENT.



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Plot Date: 22/11/2019 9:10:09 AM Office: NZTRG Filename: P:\PROJECTS\247593 - ZARIBA HASHA PARTON ROAD\P-PAMOA\C-ADD\DRGS\SUR\247593-0009-DRG-AB-0001.DWG

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CLIENT: ZARIBA PROPERTIES LIMITED

REV	DATE	REVISION DETAILS	APPROVED
1	21.11.19	AS BUILT	B.O'LOUGHLIN

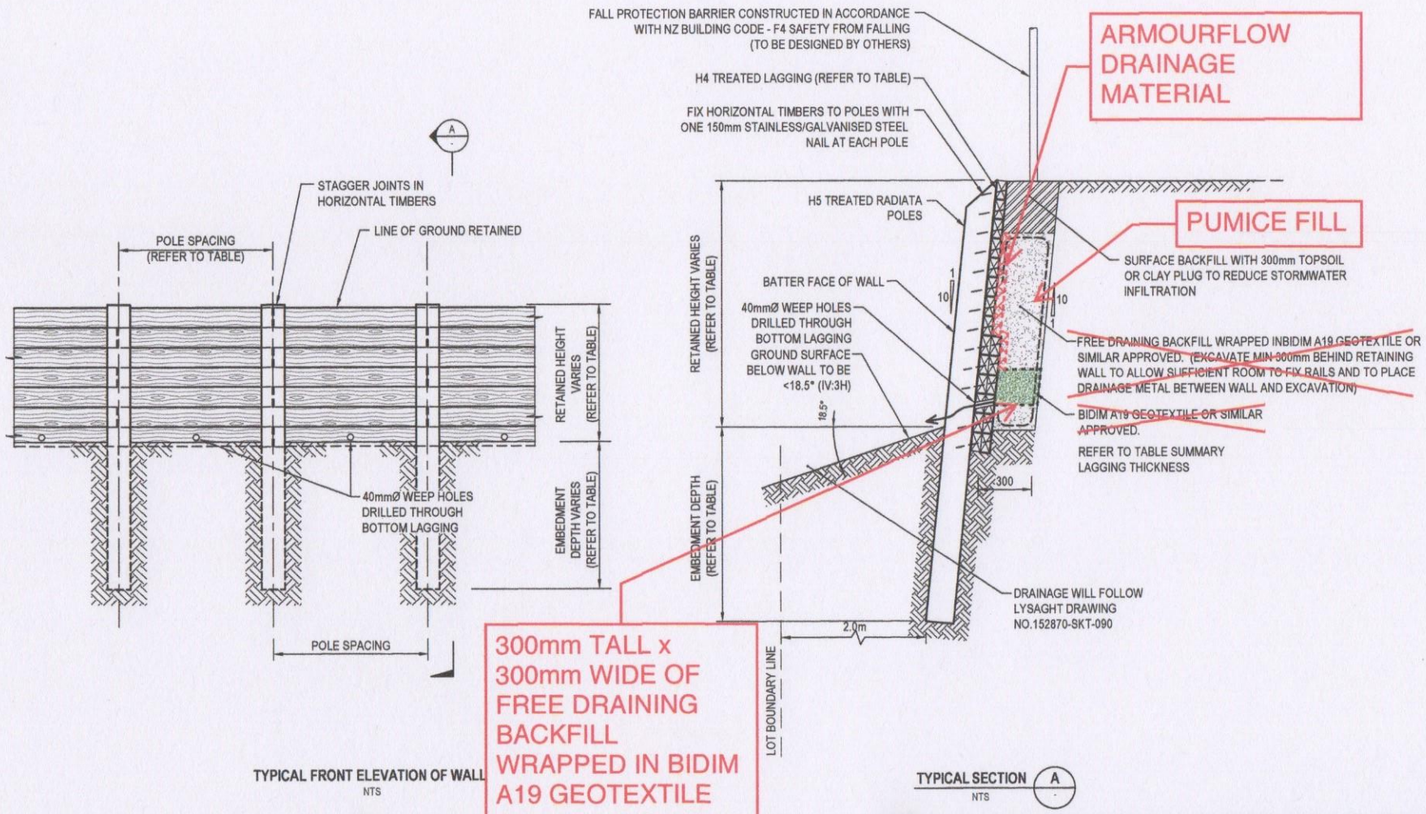
SCALE	1:100
SIZE	A1
DRAWN	L.O'SULLIVAN
DESIGNED	M.BUOB
CHECKED	K.KISHORE

AS BUILT

APPROVED
DATE 21.11.19
B.O'LOUGHLIN
B.O'LOUGHLIN

PROJECT	TERRACE VIEWS SUBDIVISION PARTON ROAD, PAPAMOA, TAURANGA
TITLE	RETAINING WALL AS BUILT PLAN

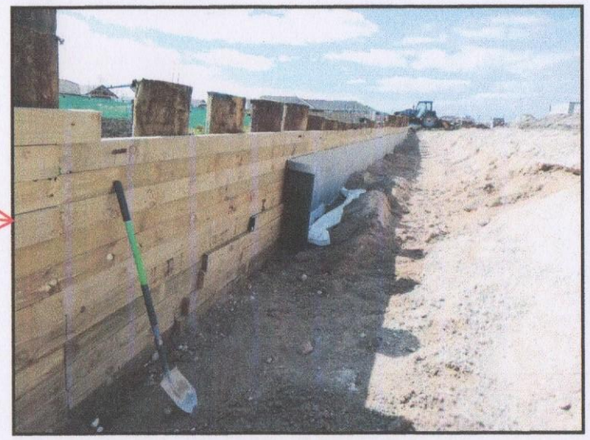
DRAWING No. 247593 – 0009 – DRG – AB – 0001 – 1
(PROJECT No. – WBS – TYPE – DISC – NUMBER – REV)



300mm TALL x 300mm WIDE OF FREE DRAINING BACKFILL WRAPPED IN BIDIM A19 GEOTEXTILE

FOR RETAINING WALLS 3 & 4

A PHOTO SHOWING INSPECTION OF DRAINAGE MATERIAL



DRIVEN TIMBER POLE RETAINING WALL SCHEDULE					
MAX RETAINED HEIGHT (mm)	SMALL END DIAMETER (mm)	POLE SPACING (mm)	PILOT HOLE DIAMETER (mm)	EMBEDMENT DEPTH (mm)	LAGGING DIMENSIONS (mm)
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1800	325	1000	200	3500	150 X 100 (DOUBLE LAGGED) (150x50 FOR UPPER 1.0m)
NOTE: REFER TO SKETCH RETAINING WALL PLAN LOTS 439-444 BY LYSAGHT (DRAWING No 152870-SKT-90) FOR LOCATION AND THE RETAINING WALL LONG SECTION.					

1. CAUTION:

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FIXING OF HORIZONTAL TIMBERS TO POLES SHALL UTILISE STAINLESS / GALVANISED STEEL NAILS AS DETAILED.

3. EXCAVATION AND INSTALLATION:

EXCAVATION IN STAGES TO ALLOW FOR TEMPORARY SUPPORT DURING CONSTRUCTION IS REQUIRED. NO MORE THAN 3m OF UNSUPPORTED SLOPE SHALL EXIST AT ANY ONE TIME.

TIMBER PILING SHALL BE DRIVEN WITH A GRAVITY HAMMER OR POWER HAMMER IN BORED PILOT HOLES. WHEN THE NATURE OF THE DRIVING IS SUCH AS TO UNDULY INJURE THE HEADS, TIMBER PILING SHALL BE PROTECTED BY CAPS OF APPROVED DESIGN PREFERABLY HAVING A ROPE OR OTHER SUITABLE CUSHION NEXT TO THE PILE HEAD AND FITTING INTO A CASTING WHICH IN TURN SUPPORTS A TIMBER SHOCK BLOCK. WHEN THE AREA OF THE HEAD OF THE PILE IS GREATER THAN THAT OF THE FACE OF THE HAMMER, A SUITABLE CAP SHALL BE PROVIDED TO DISTRIBUTE THE BLOW OF THE HAMMER THROUGHOUT THE CROSS SECTION OF THE PILE AND THUS AVOID, AS FAR AS POSSIBLE, THE TENDENCY TO SPLIT OR SHATTER THE PILE. COLLARS OR BANDS TO PROTECT THE PILING AGAINST SPLITTING AND BROOMING SHALL BE PROVIDED.

PILE DRIVER LEADS SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO AFFORD FREEDOM OF MOVEMENT TO THE HAMMER, AND SHALL BE HELD IN POSITION BY GUYS OR STIFF BRACES TO INSURE SUPPORT TO THE PILE DURING DRIVING. EXCEPT WHERE PILINGS ARE DRIVEN THROUGH WATER, THE LEADS SHALL BE OF SUFFICIENT LENGTH THAT THE USE OF A FOLLOWER WILL NOT BE NECESSARY.

CONTRACTOR SHALL PROVIDE PILOT HOLES TO MINIMIZE RISK OF DAMAGE TO PILING AND FOR THE PURPOSE OF MAINTAINING ALIGNMENT. THE MAXIMUM DEPTH OF THE PILOT HOLE SHALL BE 1.5M AND THE MAXIMUM DIAMETER SHALL BE NO GREATER THAN THE DIAMETER OF THE PILE TIP. INCREASE THE DIAMETER OR DEPTH OF THE PILOT HOLE ONLY AFTER PRIOR APPROVAL BY THE ENGINEER.

THE PILING SHALL BE DRIVEN APPROXIMATELY TO THE DEPTH SHOWN ON THE PLANS TO SECURE THE BEARING RESISTANCE. BEARING RESISTANCE SHALL BE DETERMINED BY THE SPECIFIED FORMULA AS DIRECTED BY THE GEOTECHNICAL ENGINEER.

CONTRACTOR SHALL POINT OR SQUARE-CUT PILING AS REQUIRED BY SOIL CONDITIONS. WHERE NECESSARY, PILE SHALL BE SHOED WITH METAL SHOES. PILING POINTS SHALL BE SHAPED TO SECURE EVEN AND UNIFORM BEARING ON SHOES.

AFTER DRIVING, SAW THE PILING OFF AT A TRUE PLANE AS INDICATED ON THE PLANS. THE FINAL PLAN ELEVATIONS ARE TO BE WITHIN THE ESTABLISHED ELEVATION.

IF CUTTING IS NECESSARY THE EXPOSED SURFACES SHALL BE FLOODED WITH A COPPER NAPTHENATE TYPE OF WOOD PRESERVATIVE.

4. GALVANISING:

COMPONENTS SPECIFIED ON THE DRAWINGS AS BEING GALVANISED ARE TO BE HOT-DIP GALVANISED IN ACCORDANCE WITH AS/NZS 4680, AS/NZS 4791 OR AS/NZS 4792 AS APPROPRIATE.

IN ADDITION TO THE REQUIREMENTS OF THESE CODES, THE FOLLOWING SHALL BE COMPLIED WITH.

THE MATERIAL USED FOR HOT-DIP GALVANISING SHALL BE ZINC METAL SPECIFICALLY MADE FOR THIS PURPOSE AND SHALL BE 99.5% PURE.

THE AVERAGE WEIGHT OF ZINC COATING SHALL BE NOT LESS THAN 380 gm/sq.m FOR BOLTS AND WASHERS AND NOT LESS THAN 700 gm/sq.m FOR OTHER STRUCTURAL STEELWORK.

ALL BOLTS AND NUTS SHALL BE GALVANISED AFTER SCREW CUTTING AND TOLERANCES USED IN SCREW CUTTING SHALL MAKE ALLOWANCE FOR THIS.

DAMAGED SURFACES OR WELDED AREAS SHALL BE MADE GOOD WITH INTEZINC 352 OR EQUIVALENT APPLIED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

5. DRAINAGE

APPROVED DRAINAGE MATERIAL BACKFILLED BEHIND LAGGING WRAPPED IN GEOTEXTILE (BIDIM A19 OR SIMILAR APPROVED) AND 40mm DIAMETER WEEP HOLES TO BE DRILLED IN CENTRE OF FIRST ROW OF EXPOSED LAGGING BETWEEN EACH POLE AS SHOWN IN THE TYPICAL WALL DETAILS.

6. SETOUT/OFFSET DISTANCE

LYSAGHT CONSULTANTS LTD WILL BE PROVIDING THE SETOUT FOR THE ALIGNMENT OF THE RETAINING WALL. THE FRONT OF THE RETAINING WALL SHALL BE OFFSET A MINIMUM OF 2.35 METRES FROM THE BOUNDARY AT THE LOWEST POINT TO ENSURE A MINIMUM OF 2.0 METRES IS COVERED AT THE BASE OF THE TIMBER POLES.

WARNING
THIS WALL DESIGN IS SUITABLE FOUNDING WITHIN IN-SITU DENSE SAND WITH A MINIMUM FRICTION ANGLE OF 33 DEGREES. IT HAS BEEN DESIGN FOR A SURCHARGE OF 5kPa (SINGLE STOREY TIMBER DWELLING).

HOLD POINTS FOR INSPECTIONS BY A GEOTECHNICAL ENGINEER IS AS FOLLOWS:
- PILOT HOLE, TIMBER POLE INSPECTION
- PLACEMENT OF GEOTEXTILE WRAP AND LAGGING PRIOR TO DRAINAGE METAL AND BACKFILL
- FINAL INSPECTION PRIOR TO SITE DEMOBILISATION

19/11/19

aurecon
www.aurecongroup.com

CLIENT: ZARIBA PROPERTIES LIMITED

REV	DATE	REVISION DETAILS	APPROVED
A	29.05.19	CONSENT ISSUE	B.O'Loughlin

SCALE: NTS | SIZE: A1
DRAWN: L.O'Sullivan
DESIGNED: M.Buob
CHECKED: K.Kishore

CONSENT
NOT FOR CONSTRUCTION
APPROVED
DATE 29.05.19
B.O'Loughlin
B.O'Loughlin

PROJECT: TERRACE VIEWS SUBDIVISION PARTON ROAD, TAURANGA
TITLE: TYPICAL TIMBER POLE RETAINING WALL - TYPE A2
DRAWING No. 247593 - 0009 - DRG - G - 0020 - A
(PROJECT No. | WBS | TYPE | DISC | NUMBER | REV)

TCC - Approved Building Consent Document - BC3011286 - Pg 372 of 406 - 9/07/2020 - bwoo

Aurecon New Zealand Limited
Ground Level 247 Cameron Road
Tauranga 3110

PO Box 2292
Tauranga 3140
New Zealand

T +64 7 578 6183
F +64 7 578 6143
E tauranga@aurecongroup.com
W aurecongroup.com

aurecon

Terrace Views Stage 3D-E Timber Pole Wall Design Deviation Register

Deviation Reference	Date	Component	Comments
1	8/08/2019	Timber Pole Sizing	Timber poles were reduced to 320mm SED from 325mm SED for a selection of timber poles along the wall alignment.
2	27/08/2019	Timber Pole Installation Method	Two poles refused using the vibratory pile driving methodology. A 700 kg drop-hammer was used to drive the remaining poles to design depth
3	29/08/2019	Drainage Methodology	NZ Structures requested the use of Armourflo instead of drainage metal with wickdrains. This was approved and used with 300mm of drainage metal at the base of the wall.

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Charge To:
Carters - Tauranga
Private Bag 94027
Manukau City
Manukau
Auckland 2241

Deliver To:
NZ STRUCTURES
TE WHARO DRIVE & FETLOCK WAY
PAPAMOA
PH NEIL 021 222 7310
SEND ALL WE HAVE ASAP - BAL TO FOLLOW

Delivery Note

Delivery Date: 18/07/2019
Delivery No: 320603
Page: 1
GST Number: 087-752-062

Job Number: 104106

FCANZ Fencing Contractors Association NZ
Gold Partner

Customer: CARTGA

Quantity Definitions
M3 = Cubic Metres
LM = Lineal Metres
EA = Each
PC = Pieces

PERMAPINE LTD
33 White Road
RD1
REPOROA 3081
Phone: 07 333 8523 Fax: 07 333 8766

Description	Packet or Bundle Nbr	Freight	Quantity	
Your Order Ref: TGN02844 Sales Rep: Donna MacDonell				
P036B04 3.6m Pole SED 200-225 - [B04] H5		1.617	11 PC	
P054B09 5.4m Pole SED 325-350- [B09] H5		8.040	15 PC	

Timber Freight 9.657 M3

CONDITIONS OF SALE:
All goods are sold subject to the Company's Terms and Conditions of Sale.

ACKNOWLEDGEMENT OF RECEIVING GOODS

Print Name:_____ Date: _____ Signature: _____

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Charge To:
Carters - Tauranga
Private Bag 94027
Manukau City
Manukau
Auckland 2241

Deliver To:
Carters - Tauranga
Birch Ave
Judea
Tauranga

Delivery Note

Delivery Date: 24/07/2019
Delivery No: 320870
Page: 1
GST Number: 087-752-062

Job Number: 104338

FCANZ
Fencing Contractors Association NZ
Gold Partner

Customer: CARTGA

Quantity Definitions
M3 = Cubic Metres
LM = Lineal Metres
EA = Each
PC = Pieces

PERMAPINE LTD
33 White Road
RD1
REPOROA 3081
Phone: 07 333 8523 Fax: 07 333 8766

Description	Packet or Bundle Nbr	Freight	Quantity
Your Order Ref: TGN02960 Sales Rep: Donna MacDonell			
P027B02 2.7m Pole SED 150-174 - [B02] H5		1.430	22 PC
P036B03 3.6m Pole SED 175-200 - [B03] H5		1.287	11 PC
		Timber Freight	2.717 M3

2 BLDS OF 30
1 " OF 12
72

1 BLD OF 11 @ 3.6.
PB

RECEIVED
24.7.19
TG08S4750
PROCESSED

ACKNOWLEDGEMENT OF RECEIVING GOODS

Print Name:_____ Date:_____ Signature: _____

CONDITIONS OF SALE:
All goods are sold subject to the Company's Terms and Conditions of Sale. A summary of some important provisions of these terms appears on the back of this document.

TCC - Approved Building Consent Document - BC301286 - Pg 375 of 406 - 9/07/2020 - bwoo

ArmourFlow™

TECHNICAL DATA SHEET	TDS G 001 032
ISSUE NUMBER	02
DATE	APRIL 2019

DIMENSIONS	
Geospacer width	1,1 m
Geotextile width	1,30m
Length	25 m

CHARACTERISTICS	Standard	Nominal value	Unit	Tolerance
GEOSPACER : NO SENSITIVE TO WATER				
Polymer		HDPE		
Structure		Alveolar, thermoformed, isotropic and symmetric		
Thickness under 2 kPa	EN ISO 9863-1 ASTM D-5199	12	mm	±10%
Crush resistance	EN ISO 25619-2	275	kPa	-10%
	ASTM D-6364	5743	psf	-10%
Compressive creep under 100 kPa / 10 Years	EN ISO 25619-1	-9 % of the thickness under stress		
GEOTEXTILE : NO SENSITIVE TO WATER				
Product reference		D100		
Certificate ASQUAL		Uncertified		
Polymer		Polypropylene		
Manufacturing process		Nonwoven thermally bonded		
Position of the geotextile on the geospacer		A geotextile on a face		
Thickness under 2 kPa	EN ISO 9863-1 ASTM D-5199	0,41	mm	±0,08
Mass per unit area	EN ISO 9864 ASTM D-5161	100	g/m²	±10
Opening Size O90 w	EN ISO 12956	150	µm	±30
Water Permeability VH50	EN ISO 11058	0,08	m/s	-0,015
GEOCOMPOSITE				
Dynamic Perforation Resistance	EN ISO 13433	40	mm	+7
Water flow capacity in the plane / Transmissivity	EN ISO 12958 ASTM D4716	Foam/ Obturate i=1 ; 20 kPa ; 11,2x10-4	m²/s	-2,3 x10-4
Tensile strength	EN ISO 10319 ASTM D-4595	MD : 18 CMD : 18	kN/m	-2,34 -2,34
Durability in accordance with Annex B		To be covered within 2 weeks after installation. Predicted to be durable for more than 50 years in all natural soils with temperatures < 25 °C on the basis of a durability assessment (Typargeo Report 070)		
ADDITIONAL DATA ON THE GEOCOMPOSITE				
Mass per unit area	EN ISO 9864 ASTM D-5161	1051	g/m²	± 10%

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ISO 9001:2015
Registration number: C41186

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0800 LABORATORY

Nuclear Density Report

Report No: ND:BOP19W1002
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not endorsed. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 13/09/2019

Testing Details

Site Tested:	Retaining Wall
Tested By:	Jed Morris
Date Tested:	3/09/2019
Time Tested:	10:49
Material:	Pumice Sand
Material Source:	Marball - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, Plateau Test

Compaction Target Details

Material Sample ID:	External
MDD Method:	Plateau Test*
Max. Dry Density:	1.29 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Assumed

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
1	17.5	1.67	1.42	110
2	21.1	1.64	1.35	105
3	22.3	1.56	1.28	99

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
MDD target from FH plateau report reference BOP18W1355.

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0800 LABORATORY

Penetration Resistance

Report No: PR:BOP19S-02709
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 1/10/2019

Test Details

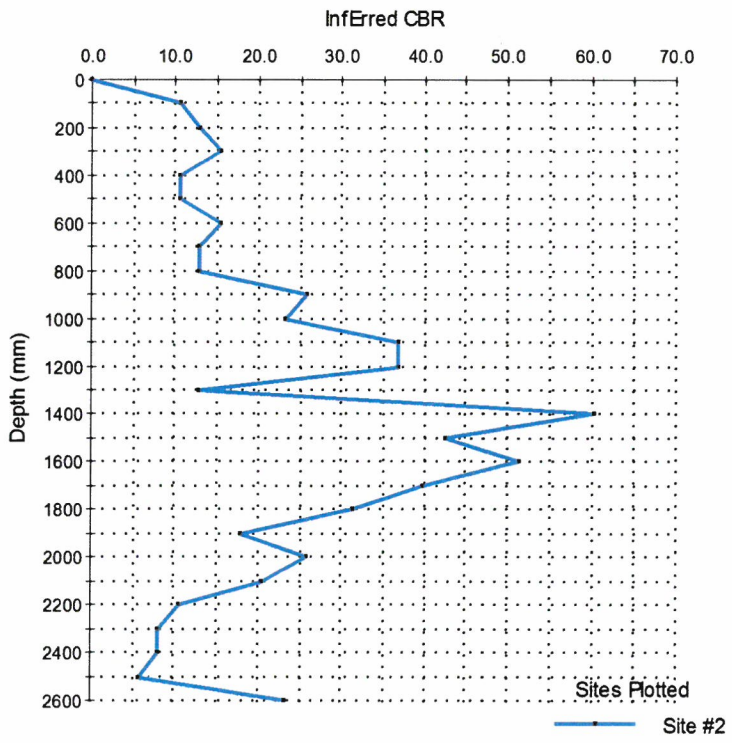
Sample ID:	BOP19S-02709	**Location:**	Retaining wall - Test 2 RT
Tested By:	Jed Morris	**Date Tested:**	23/09/2019
Material:	Pumice Sand	**Specification:**	Contract Specification

Test Results

NZS 4402:1988 Test 6.5.2

Depth of Excavation to surface (mm): 0 **Depth at the Commencement (mm):** 0

Penetration vs Inferred CBR



InfErred CBR values are based on Austroads Pavement Design:
Guide to the Structural Design of Road Pavements Section 5.5.2 & Fig 5.2

Comments

The inferred CBR calculation is not accredited, and is excluded from the endorsement of this test report.
Results for depths beyond 1.4 metres are not accredited, and are excluded from the endorsement of this test report.

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0800 LABORATORY

Report No: PR:BOP19S-02709
Issue No: 1

Penetration Resistance

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 1/10/2019

Penetration Resistance Test Results

Site	Blows	Depth (mm)	Inferred CBR
2	5	100	10.5
2	6	200	12.9
2	7	300	15.4
2	5	400	10.5
2	5	500	10.5
2	7	600	15.4
2	6	700	12.9
2	6	800	12.9
2	11	900	25.9
2	10	1000	23.2
2	15	1100	36.9
2	15	1200	36.9
2	6	1300	12.9
2	23	1400	60.3
2	17	1500	42.6
2	20	1600	51.3
2	16	1700	39.8
2	13	1800	31.3
2	8	1900	18.0
2	11	2000	25.9
2	9	2100	20.6
2	5	2200	10.5
2	4	2300	8.1
2	4	2400	8.1
2	3	2500	5.8
2	10	2600	23.2

Comments

The inferred CBR calculation is not accredited, and is excluded from the endorsement of this test report.
Results for depths beyond 1.4 metres are not accredited, and are excluded from the endorsement of this test report.

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0800 LABORATORY

Nuclear Density Report

Report No: ND:BOP19W1039
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not endorsed. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 23/09/2019

Testing Details

Site Tested:	Retaining Wall - Layer 2
Tested By:	Jed Morris
Date Tested:	16/09/2019
Time Tested:	10:00
Material:	Pumice Sand
Material Source:	Marball - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, Plateau Test

Compaction Target Details

Material Sample ID:	External
MDD Method:	Plateau Test*
Max. Dry Density:	1.29 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Assumed

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
4	26.6	1.67	1.32	102
5	26.0	1.77	1.40	109
6	26.3	1.67	1.32	102

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
MDD target from FH Plateau report reference BOP18W1355.

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Penetration Resistance

Report No: PR:BOP19S-02677
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 23/09/2019

Test Details

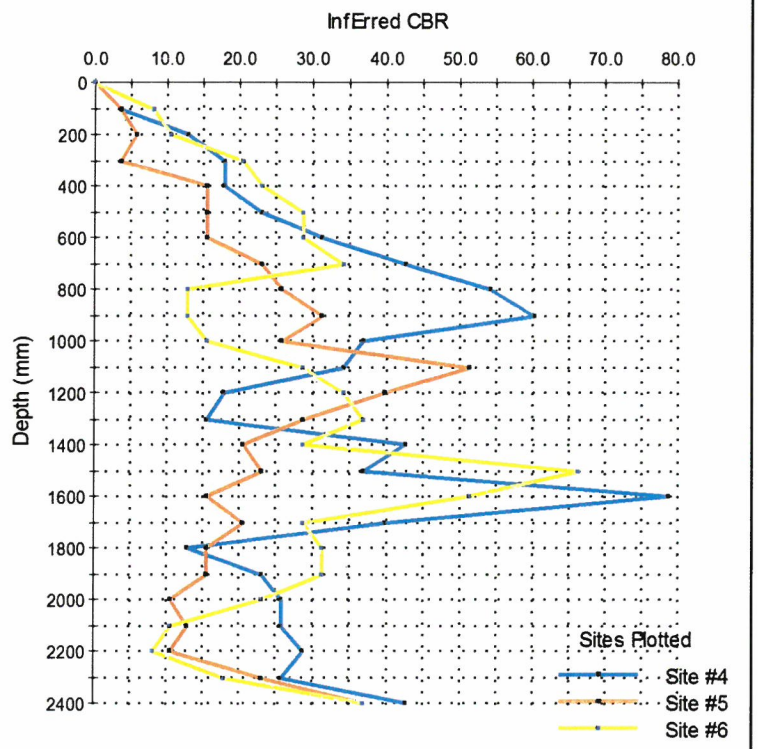
Sample ID:	BOP19S-02677	**Location:**	Retaining Wall - Layer 2
Tested By:	Jed Morris	**Date Tested:**	16/09/2019
Material:	Pumice Sand	**Specification:**	Contract Specification

Test Results

NZS 4402:1988 Test 6.5.2

Depth of Excavation to surface (mm): 0 **Depth at the Commencement (mm):** 0

Penetration vs Inferred CBR



InfErred CBR values are based on Austroads Pavement Design:
Guide to the Structural Design of Road Pavements Section 5.5.2 & Fig 5.2

Comments

Results for depths beyond 1.4 metres are not accredited, and are excluded from the endorsement of this test report.

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Report No: PR:BOP19S-02677
Issue No: 1

Penetration Resistance

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

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IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 23/09/2019

Penetration Resistance Test Results

Site	Blows	Depth (mm)	Inferred CBR	Site	Blows	Depth (mm)	Inferred CBR
4	2	100	3.7	5	7	1600	15.4
4	6	200	12.9	5	9	1700	20.6
4	8	300	18.0	5	7	1800	15.4
4	8	400	18.0	5	7	1900	15.4
4	10	500	23.2	5	5	2000	10.5
4	13	600	31.3	5	6	2100	12.9
4	17	700	42.6	5	5	2200	10.5
4	21	800	54.3	5	10	2300	23.2
4	23	900	60.3	5	15	2400	36.9
4	15	1000	36.9	6	4	100	8.1
4	14	1100	34.1	6	5	200	10.5
4	8	1200	18.0	6	9	300	20.6
4	7	1300	15.4	6	10	400	23.2
4	17	1400	42.6	6	12	500	28.6
4	15	1500	36.9	6	12	600	28.6
4	29	1600	78.6	6	14	700	34.1
4	16	1700	39.8	6	6	800	12.9
4	6	1800	12.9	6	6	900	12.9
4	10	1900	23.2	6	7	1000	15.4
4	11	2000	25.9	6	12	1100	28.6
4	11	2100	25.9	6	14	1200	34.1
4	12	2200	28.6	6	15	1300	36.9
4	11	2300	25.9	6	12	1400	28.6
4	17	2400	42.6	6	25	1500	66.3
5	2	100	3.7	6	20	1600	51.3
5	3	200	5.8	6	12	1700	28.6
5	2	300	3.7	6	13	1800	31.3
5	7	400	15.4	6	13	1900	31.3
5	7	500	15.4	6	10	2000	23.2
5	7	600	15.4	6	5	2100	10.5
5	10	700	23.2	6	4	2200	8.1
5	11	800	25.9	6	8	2300	18.0
5	13	900	31.3	6	15	2400	36.9
5	11	1000	25.9				
5	20	1100	51.3				
5	16	1200	39.8				
5	12	1300	28.6				
5	9	1400	20.6				
5	10	1500	23.2				

Comments

Results for depths beyond 1.4 metres are not accredited, and are excluded from the endorsement of this test report.

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Nuclear Density Report

Report No: ND:BOP19W1110
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not endorsed. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 10/10/2019

Testing Details

Site Tested:	Retaining Wall
Tested By:	Jed Morris
Date Tested:	2/10/2019
Time Tested:	12:00
Material:	Pumice Sand
Material Source:	Marball - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, Plateau Test

Compaction Target Details

Material Sample ID:	External
MDD Method:	Plateau Test*
Max. Dry Density:	1.29 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Assumed

Test Results

Site No	Northing	Easting	Elevation (m)	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
7	804717.1	386226.74	4.070	25.3	1.69	1.35	105
8	804717.03	386247.77	3.990	26.5	1.64	1.29	100
9	804716.82	386267.93	4.160	32.1	1.69	1.28	99

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration
MDD target from FH Plateau report reference BOP18W1355
Moisture(%) results are oven corrected.

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Bay of Plenty Laboratory

Poplar Lane, Te Puke
Private Bag 12016, Tauranga 3143
Telephone: +64 7 542 9672
Facsimile: +64 7 542 2245
www.fultonhogan.com
0800 LABORATORY

Penetration Resistance

Report No: PR:BOP19S-02852
Issue No: 2
This report replaces all previous issues of report no 'PR:BOP19S-02852'.

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 14/11/2019

Test Details

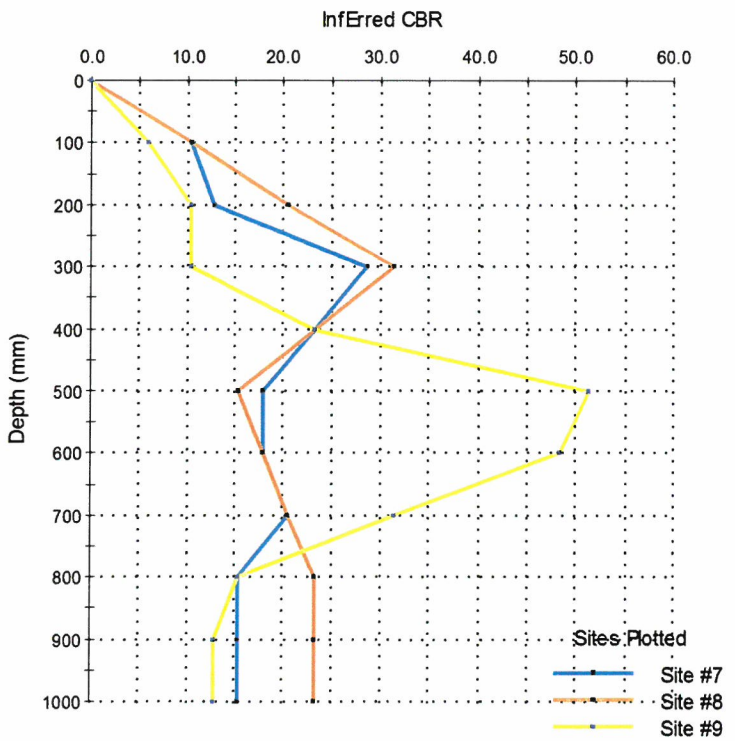
Sample ID:	BOP19S-02852	**Location:**	Retaining Wall
Tested By:	Jed Morris	**Date Tested:**	2/10/2019
Material:	Pumice Sand	**Specification:**	Contract Specification

Test Results

NZS 4402:1988 Test 6.5.2

Depth of Excavation to surface (mm): 0 **Depth at the Commencement (mm):** 0

Penetration vs Inferred CBR



InfErred CBR values are based on Austroads Pavement Design:
Guide to the Structural Design of Road Pavements Section 5.5.2 & Fig 5.2

Comments

The inferred CBR calculation is not accredited, and is excluded from the endorsement of this test report.
Test 4 - N:804717.1 E:386226.74 Elevation:4.070; Test 5 - N:804717.03 E:386247.77 Elevation:3.990
Test 6 - N:804716.82 E:386267.93 Elevation:4.160
Insitu sand layer at 300mm depth. Report re-issued with corrected Site numbers.

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IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 14/11/2019

Penetration Resistance Test Results

Site	Blows	Depth (mm)	Inferred CBR
7	5	100	10.5
7	6	200	12.9
7	12	300	28.6
7	10	400	23.2
7	8	500	18.0
7	8	600	18.0
7	9	700	20.6
7	7	800	15.4
7	7	900	15.4
7	7	1000	15.4
8	5	100	10.5
8	9	200	20.6
8	13	300	31.3
8	10	400	23.2
8	7	500	15.4
8	8	600	18.0
8	9	700	20.6
8	10	800	23.2
8	10	900	23.2
8	10	1000	23.2
9	3	100	5.8
9	5	200	10.5
9	5	300	10.5
9	10	400	23.2
9	20	500	51.3
9	19	600	48.4
9	13	700	31.3
9	7	800	15.4
9	6	900	12.9
9	6	1000	12.9

Comments

The inferred CBR calculation is not accredited, and is excluded from the endorsement of this test report.
Test 4 - N:804717.1 E:386226.74 Elevation:4.070; Test 5 - N:804717.03 E:386247.77 Elevation:3.990
Test 6 - N:804716.82 E:386267.93 Elevation:4.160
Insitu sand layer at 300mm depth. Report re-issued with corrected Site numbers.

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FORM OF PRODUCER STATEMENT PS3 – CONSTRUCTION
At project completion, this form shall be completed by the building contractor and supplied to the Engineer.

ISSUED BY: NZ Structures Ltd.
(Building Contractor)

TO: Zaiba Properties
(Owner/Principal)

IN RESPECT OF: Terrace Views Retaining Wall Lots 439-444
(Description of Contract Works)

AT:.....
(Address)

T/A:..... **BUILDING CONSENT No:**.....
(Territorial Authority / Building Consent Authority)

The above Building Contractor has contracted to the above Owner/Principal to carry out and complete certain building works in accordance with the contract, titled

Retaining wall at Terrace Views Lots 439-444 ("the contract")
(Title of building contract)

I Neil Petterson a duly authorised representative of the
(Builder's Authorised Agent)

above building contractor, believe on reasonable grounds that the above building contractor has carried out and completed

☑All ☐Part only as specified in the attached particulars

of the building works in accordance with the contract.

.....
(Signature of Authorised Agent on behalf of the Building Contractor)

17/10/19.
(Date)

97A Smiths Rd
Manua.
(Address)

This producer statement is confirmation by the builder(s) that they have carried out the building work in accordance with the drawings, specifications (and site amendments) that are part of the contract / building consent documents.

Work covered by this statement should have been supervised and checked by suitably qualified trades-persons.

The Engineer requires this producer statement and a copy of the T/A's building consent conditions, to confirm that items of the contract that he has not personally examined, have in fact been built according to the documents, so that the Engineer may issue appropriate documents to the T/A for it to release the Code Compliance Certificate.

20393-1

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Building Code Clause(s). B1

PRODUCER STATEMENT – PS4 – CONSTRUCTION REVIEW

(Guidance on use of Producer Statements (formerly page 2) is available at www.ipenz.nz)

ISSUED BY: Aurecon New Zealand Limited
(Construction Review Firm)

TO: Zariba Holdings Limited
(Owner/Developer)

TO BE SUPPLIED TO: Tauranga City Council
(Building Consent Authority)

IN RESPECT OF: Timber Pole Retaining Wall (Lots 439 to 444)
(Description of Building Work)

AT: 1 Te Wharo Drive, Papamoa
(Address)

Town/City: Tauranga **LOT** 439 - 444 **DP.** 444 **SO.** 530967
(Address)

We Aurecon New Zealand Limited have been engaged by Zariba Holdings Limited
(Construction Review Firm)

To provide ☐ CM1 ☐ CM2 ☐ CM3 ☐ CM4 ☐ CM5 (Engineering Categories) or ■ observation as per agreement with owner/developer. Zariba Holdings Limited

or ☐ other .....services
(Extent of Engagement)

in respect of clause(s) B1 of the Building Code for the building work described in documents relating to Building Consent No. 191200 and those relating to Building Consent Amendment(s) Nos. issued during the course of the works. We have sighted these Building Consents and the conditions of attached to them.

Authorised instructions/variations(s) No (copies attached) or by the attached Schedule ☒ have been issued during the course of the works.

On the basis of ☐ this review ■ these review(s) and information supplied by the contractor during the course of the works and **on behalf of the firm** undertaking this Construction Review, **I believe on reasonable grounds** that ☐ All or ■ Part only of the building works have been completed in accordance with the relevant requirements of the Building Consent and Building Consent Amendments identified above, with respect to Clause(s). B1 of the Building Code. I also believe on reasonable grounds that the persons who have undertaken this construction review have the necessary competency to do so.

I DR JAN KUPEC am: ☑ CPEng 1008597 # ☐ Reg Arch #
(Name of Construction Review Professional)

I am a Member of: ☒ IPENZ ☐ NZIA and hold the following qualifications: PhD MSc (GEOTECHNICAL)

The Construction Review Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.

The Construction Review Firm is a member of ACENZ: ☒

SIGNED BY. DR JAN KUPEC (Signature).
(Name of Construction Review Professional)

ON BEHALF OF Aurecon New Zealand Limited .Date 20/6/19
(Construction Review Firm)

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000.*

This form is to accompany **Forms 6 or 8 of the Building (Form) Regulations 2004** for the issue of a Code Compliance Certificate.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

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NOTIFICATION DECISION IN RESPECT OF RESOURCE CONSENT APPLICATION – RC26514
Under the Resource Management Act 1991

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Tauranga City Council resolves:

That pursuant to Sections 95A and 95B of the Resource Management Act 1991, the application for resource consent made by Zariba Holdings Limited to undertake a freehold residential subdivision including infrastructure to vest and provide road access and infrastructure to R176 Parton Road, at 2 El Questro Drive, Papamoa, legally described as Lot 4008 DP 515754 (CFR 809667) be processed without notification.

Reasons for Decision:

In relation to section 95A of the Resource Management Act 1991 (the Act), it has been determined (under section 95D) that the activity will not have adverse effects on the environment that are more than minor. There has been no request made by the applicant for the application to be publicly notified and there is considered to be no special circumstances which exist in relation to the application. For these reasons, public notification of the application is not required.

The application has been assessed against section 95E of the Act. It has been determined that there are no persons affected by the adverse effects of the activity. Limited notification of the application pursuant to section 95B of the Act is therefore not required and as such the application can be processed without notification.

Assessed and Recommended by:

Ashlee Peters
Environmental Planner

Delegated Authorisation by:

Shanan Miles
Manager: Environmental Planning

Date: 29 November 2018

Zariba Holdings Limited
C/- Aurecon New Zealand Limited
PO Box 2292
Tauranga 3140

DECISION ON RESOURCE CONSENT APPLICATION – RC26514
Under the Resource Management Act 1991

Tauranga City Council resolves:

That pursuant to Sections 104 and 104C of the Resource Management Act 1991, the application for resource consent made by Zariba Holdings Limited to undertake a freehold residential subdivision including infrastructure to vest and provide road access to R176 Parton Road, at 2 El Questro Drive, Papamoa, legally described as Lot 4008 DP 515754 (CFR 809667) is granted.

Reasons for Decision:

The application has been considered against the relevant matters set out under section 104 of the Resource Management Act 1991 (the Act), including whether sufficient information has been provided to determine the application. The proposal has been determined to be a Restricted Discretionary activity in accordance with Rule 12B.4 of the City Plan. The proposal achieves a residential development yield anticipated by the City Plan and the proposed infrastructure is designed to an acceptable standard. It has been determined that the proposal will avoid any unacceptable actual and potential effects on the environment, subject to the conditions set out below. These conditions include those considered necessary for addressing the matters set out under section 106 of the Act.

The proposed changes are generally consistent with the Tauranga City Plan and the Bay of Plenty Regional Policy Statement, to enable the delivery of development that complements the existing residential development of the surrounding area and is supported by the necessary level of infrastructure capacity. For this reason, it has been determined that granting this application, subject to conditions, will be consistent with the purpose and principles of the Act as set out under Part 2.

The granting of this resource consent is subject to the following conditions pursuant to Section 108 of the Resource Management Act 1991:

General

1. *The proposal, comprising the creation of freehold allotments and associated civil works, shall proceed in general accordance with the plans and information submitted with the application prepared by Aurecon New Zealand Limited, entitled 'Terrace Views, Parton Road, Papamoa, Proposed Subdivision – Zariba Properties Limited' referenced as 247593, Revision 0, dated the 19th June 2018 and that previously provided in support of resource consent RC25132, as set out in Table 1 below:*

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Table 1: Application Plans and Technical Reports

Reference No.	Title	Author	Date
247593, Revision 0	*Terrace Views, Parton Road, Papamoa, Proposed Subdivision – Zariba Properties Limited*	*Aurecon New Zealand Limited*	*19/06/2018*
247593-0000-REP-NN-0000	*Memorandum to Application – Subject RC26514 Section 92 Request*	*Aurecon New Zealand Limited*	*20/07/2018*
152870, Revision 0	*Zariba Holdings Ltd – Proposed Residential Subdivision - Resource Consent Servicing Report R1*	*Lysaght Consultants Ltd*	*03/11/2015*
220166-001, Revision 1	*Geotechnical Suitability of Land for Development Papamoa East Block, Parton Road, Papamoa – Zariba Holdings Ltd*	*Aurecon New Zealand Limited*	*06/09/2011*
152870-050-SCH, Revision A	*Proposed Subdivision of Lot 1 DP 429801 – Overall Layout Plan – Nett Developable Area*	*Lysaght Consultants Ltd*	*02/08/2018*
152870-SKT-078, Revision A	*Stage 4, General Arrangement, Blokart Servicing*	*Lysaght Consultants Ltd*	*17/07/2018*
152870-SKT-080, Revision A	*Earthworks, Lot Levels Along Blokart Boundary*	*Lysaght Consultants Ltd*	*19/07/2018*
152870-SKT-079, Revision A	*Blokart Servicing, Stormwater Catchment*	*Lysaght Consultants Ltd*	*17/07/2018*
142900/00/P/250, Revision A	*Stormwater Catchment Plan*	*Bloxam Burnett & Oliver*	*20/10/2015*
(Objective ID A8794957)	*Acoustic Prediction - Terrace Views Residential Development*	*Hegley Acoustic Consultants*	*14/05/2018*
152870-010-SCH, Revision N	*Overall Layout Plan*	*Lysaght Consultants Ltd*	*02/05/2018*
152870-011-SCH, Revision J	*Layout Plan, Sheet 1 of 5*	*Lysaght Consultants Ltd*	*05/05/2018*
152870-012-SCH, Revision K	*Layout Plan, Sheet 2 of 5*	*Lysaght Consultants Ltd*	*02/05/2018*
152870-013-SCH, Revision I	*Layout Plan, Sheet 3 of 5*	*Lysaght Consultants Ltd*	*02/05/2018*
152870-014-SCH, Revision J	*Layout Plan, Sheet 4 of 5*	*Lysaght Consultants Ltd*	*02/05/2018*
152870-015-SCH, Revision G	*Layout Plan, Sheet 5 of 5*	*Lysaght Consultants Ltd*	*24/11/2017*
152870-060-SCH, Revision C	*Stage 4 Proposed Subdivision Layout Plan*	*Lysaght Consultants Ltd*	*28/09/2018*
152870-16-SCH Revision G	*Schedule of Easements*	*Lysaght Consultants Ltd*	*02/05/2018*
152870-S3-362-RD, Revision B	*Stage 3 General Arrangement Sheet 3 of 3*	*Lysaght Consultants Ltd*	*02/07/2018*
152870-30-RD, Revision F	*Stage 4 Road Cross Sections*	*Lysaght Consultants Ltd*	*27/09/2018*
233481-003 Revision 0	*Methodology for Carrying Out Bulk Earthworks at Zariba Holdings Limited, 144 Parton Road, Papamoa, Tauranga*	*Aurecon New Zealand Limited*	*22/03/2013*

Compliance with this condition is subject to changes required in order to satisfy the requirements of conditions of this resource consent.

2. *All costs associated with the conditions of this consent, including works required by the Infrastructure Development Code, shall be met by the Consent Holder.*

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3. *Construction noise as a result of giving effect to this consent shall not exceed the limits recommended in, and shall be measured and assessed in accordance with, NZS 6803:1999 Acoustics Construction Noise.*

4. *The use of noise generating tools, motorised equipment, and vehicles that are associated with giving effect to this consent on the subject site shall be restricted to between the following hours to comply with condition 3 of this consent:*

   a) Monday to Saturday: 7:30 a.m. to 6:00 p.m.; and

   b) Sundays or Public Holidays: No works.

Definitions

5. *For the purpose of this consent, unless otherwise specified within this consent, any reference to a defined term shall have the same definition as prescribed within Chapter 3 – Definitions of the Tauranga City Plan (operative 1st of December 2014) or any subsequent amendment.*

6. *'Geo-Professional'*

   "Shall have the same meaning as section GEN-4.1 Definitions of the Tauranga City Council Infrastructure Development Code" or any subsequent;

7. *'Residential Allotment(s)'*

   "Shall mean those allotments created for use for residential activities and shall exclude any allotment created as a Reserve and/or any allotment created to be vested as Road."

8. *'Road'*

   "Shall mean a road that has been or is identified on an approved subdivision resource consent scheme plan to be, vested in Council. This shall exclude rights of way or access lots held in private ownership".

Specific Conditions:

9. *Any separate survey plans submitted to Council for approval pursuant to section 223/224 of the RMA for the purpose of giving effect to this consent in stages is appropriate subject to all relevant conditions of this consent applicable to allotments shown on that survey plan being complied with.*

10. *The Consent Holder shall provide a road to vest (shown as part of Lot 3017) and infrastructure connections to the boundary with number R176 Parton Road (Lot 16 SO 489379) for the purpose of providing vehicle access and service connections for the residential development of number R176 Parton Road [See Advice Note 10].*

11. *Any separate survey plans submitted to Council for approval in accordance with condition 9 of this consent may, subject to the prior written confirmation from the Chief Executive of the Tauranga City Council (or delegate), incorporate allotments approved under separate resource consents granted for adjoining allotments subject to compliance with the consent conditions of applicable resource consents [See Advice Note 5].*

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12. *Subject to Condition 15 of this consent, all matters and works relating to the servicing and accessing of the subdivision, shall be designed, supervised, constructed and certified in accordance with all requirements of the Council's' Infrastructure Development Code except where those requirements are in accordance with the plans within Table 1 of Condition 1 or amended by way of engineering plans submitted and approved in accordance with the requirements of Condition 14 of this consent.*

13. *Street trees may be provided at a rate lower than one tree per lot with road frontage prescribed by DS-2.8 of the Tauranga City Council Infrastructure Development Code [See Advice Note 6].*

14. *Prior to the commencement of any works (exclusive of site clearance or earthworks), the consent holder shall submit complete engineering plans to the Team Leader: Development Engineering of Tauranga City Council for approval. The plans shall include the following:*

    (a) The information and plans required by the Infrastructure Development Code QA3;

    (b) All flood risk and areas of ponding in rainfall events which exceed the design capacity of the stormwater reticulation system up to the 100 year (one percent AEP) rainfall event;

    (c) Details of the construction of the roads to vest including vehicle tracking curves, proposed temporary and permanent traffic management measures and street planting;

    (d) Details of street lighting layout including columns and fittings;

    (e) Details of the layout and construction for all proposed right of ways and access lots;

    (f) Details of the sewer extension that is required to service the development and any upstream catchment;

    (g) Details of any culvert required under proposed roads to vest;

    (h) Details of the water reticulation and fire-fighting system,

    (i) Details of proposed landscaping to be planted within road zones and pathways within Lots 3014, 3015, 3016, 3017 and 3018;

    (j) Details of stormwater drainage including overland flowpaths;

    (k) Details of design and construction of the noise mitigation bund/fence within Lots 497-499 and Lots 510-519. In this regard, the design shall incorporate allowance for an overland flow path through or around the bund/fence in overdesign events limiting maximum top water levels to RL5.1 metres;

    (l) Details of the works to establish a suitable building platform on each allotment (as required by condition 17) and any retaining structures to be constructed for that purpose; and

    (m) Locations of easements in gross required for vested infrastructure within private property.

15. *All residential lots shall each be provided with a separate underground connection to the sanitary sewer, water and electricity reticulation systems in accordance with the Tauranga City Council's Infrastructure Development Code.*

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16. *The Consent Holder shall supply to the Tauranga City Council a set of 'as built' plans of all engineering and landscaping works in accordance with the Tauranga City Council's Infrastructure Development Code.*

17. *The Consent Holder shall undertake works to ensure that all residential lots have a minimum building platform level of RL5.1 metres Moturiki Datum and that is 500 millimetres above the maximum ponding level of a 100 year (one percent AEP) rainfall event as calculated by a Chartered Professional Engineer, whichever is the greater. Compliance with this condition shall be certified, in writing, by a licensed Cadastral Surveyor.*

18. *All earthworks design, testing and construction shall be undertaken in accordance with the Tauranga City Council's Infrastructure Development Code and the specific requirements of the Consent Holder's appointed 'Geo-Professional'.*

19. *The Consent Holder shall provide to the Team Leader: Development Engineering of Tauranga City Council a "Geotechnical Completion Report" compiled by a Category 1 Geo-Professional. This report shall:*

    (a) Comply with the Council's Infrastructure Development Code QA4 requirements;

    (b) Determine the position of all designated building platforms and building restriction lines where applicable;

    (c) Provide recommendations for the ongoing development of the lots, including but not limited to, maximum cut/fill heights, management of steep slopes, management of stormwater, maintenance requirements and minimum separation distances;

    (d) Provide specific requirements for onsite disposal of stormwater to ground;

    (e) Confirm earthworks and/or building platforms have been constructed to comply with the New Zealand Building Code requirements and Condition 17 of this consent;

    (f) Confirm the minimum building platform heights for each lot required to comply with Condition 17 of this consent;

    (g) Provide specific foundation solutions which mitigate the effects of liquefaction and/or lateral spread;

    (h) Provide certification that any required structures have been completed to required specification and where necessary, Code Compliance Certificates obtained;

    (i) Certify that any residual settlement or differential settlement that may still occur shall not exceed the manufacturer's recommendations with respect to the installed underground pipe networks to be vested in Council or exceed accepted design techniques with respect to road settlement or long term deflection, or exceed the settlement limitations as detailed in the New Zealand Building Code; and

    (j) Comment on the removal or amendment of existing land feature/s displayed on Council's GIS.

    Upon receipt of the Geotechnical Completion Report, any requirements to be complied with on an ongoing basis, including (but not limited to) those in relation to minimum building platform heights shall be recorded in a consent notice prepared pursuant to section 221 of the RMA.

20. *All building line restrictions or designated building platforms shall be clearly identified and dimensioned on the survey plan(s) submitted in accordance with Condition 9.*

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21. *All easements required for underground services and rights of way serving lots within the subdivision shall be duly granted or reserved.*

22. *The Consent Holder shall register an easement in gross in favour of Tauranga City Council over any stormwater overland flowpath located on private property, including those resulting from overload of the roading primary stormwater system in an extreme rainfall event.*

    Any overland flowpath easement shall be shown on the survey plan submitted in accordance with Condition 9 of this consent and shall be recorded as the "Right to Drain Water" and be registered on the survey plan under a "Memorandum of Easements in Gross".

23. *The Consent Holder shall vest in the Tauranga City Council Lots 3014, 3015, 3016, 3017, 3018 shown on the approved subdivision scheme plan as "Roads to Vest".*

    (a) *All roads to vest shall be shown on the survey plan submitted in accordance with Condition 9 of this consent;*

    (b) *Roads to vest shall be free from any and all encumbrances, land covenants or other restrictions and shall extend to the boundaries of adjoining sites adjoining the subject site as shown on the subdivision scheme plans referenced in condition 1.*

24. *Prior to, or in conjunction with an application for certification pursuant to section 224(c) of the RMA, the Consent Holder shall confirm that the roads to vest in Tauranga City Council have been constructed in accordance with the plans approved under condition 16 of the Consent.*

25. *Prior to, or in conjunction with an application for certification pursuant to section 224(c) of the RMA the consent holder shall provide certification from a Chartered Professional Engineer that the required stormwater mitigation volumes and peak flow restrictions for the respective stage have been achieved in accordance with BOPRC Consent Number 65120 and TCC Consent Numbers RC24853 and RC24854. [See Advice Note 9]*

26. *Prior to, or in conjunction with an application for certification pursuant to section 224(c) of the RMA the Consent Holder shall provide certification that planting has taken place in accordance with the planting plan submitted in accordance with Condition 14 of this consent.*

27. *The consent holder shall maintain all landscaping within roads to vest for a period of 12 months after completion of planting, except where written agreement is provided from Tauranga City Council and the relevant maintenance fee is paid.*

28. *The Consent Holder shall construct a shared accessway shown as Areas 'KK,' 'LL,' 'MM,' 'NN' and 'OO' on the approved subdivision scheme plan in accordance with the Tauranga City Council Infrastructure Development Code.*

29. *Pursuant to Section 221 of the Resource Management Act 1991, a consent notice shall be registered on the Certificate of Title for all allotments that share a common boundary with any reserve(s). The consent notice shall advise the owners and subsequent owners of the following:*

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"The owners of this lot are required to meet the full cost of any fencing along the common boundary between the lot and adjoining land vested in Tauranga City Council as local purpose reserve".

30. *Upon application for certification pursuant to Section 223 of the RMA, the Consent Holder shall confirm in writing to Council which property boundaries require a fencing consent notice to be registered on its title in accordance with condition 29.*

31. *Prior to the approval of any survey plan in accordance with condition 9 of this consent, the Consent Holder must submit to the Team Leader: Revenue of the Tauranga City Council (or delegate) three (3) alternative street names for each proposed new road in the subdivision. Street names must be provided in accordance with Tauranga City Council's 'Naming of Streets, Reserves and Community Facilities Policy' and include all information required under this policy including evidence of the significance of the proposed names [See Advice Note 9].*

Recommended and Assessed by:



Ashlee Peters
Environmental Planner

Delegated Authorisation by:



Shanan Miles
Manager: Environmental Planning

Date: 29 November 2018

Advice Notes:

1. *Under Sections 357A and 357B of the Resource Management Act 1991, you have a right of objection to the consent authority in respect of the above decision or any additional fees and charges required in respect of this decision. In accordance with Section 357C notice of any such objection must be in writing to the Council within 15 working days of receiving this decision and/or the date on which the invoice is received. Any notice given under Section 357C should describe the reasons for the objection.*

2. *Where any building or drainage works are required to satisfy conditions of this consent, all consents required under the Building Act 2004 must be obtained prior to the works being carried out.*

3. *It is acknowledged that the Site contains recorded archaeological site number U14/2873 and may also contain other, unidentified, archaeological features. The Consent Holder is advised that all works on the Site are subject to the conditions of Authority Number 2016/599 issued by Heritage New Zealand and also the requirements of the Heritage New Zealand Pouhere Taonga Act 2014 generally.*

4. *The consent holder is responsible for ensuring that all contractors carrying out works under this consent are made aware of the relevant consent conditions, plans and associated documents.*

5. *It is acknowledged that the Consent Holder currently holds resource consent under the HASHAA for subdivision and land use proposals for the adjoining property to the south of the Site (i.e. number 1428L Parton Road) under separate resource consents (RC24853 and*

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RC24854). These resource consents include residential allotments and roads to vest that are interconnected with this resource consent. Condition 1 has been included in recognition of these interconnections and that combined survey plans across one or more consents are potentially both logical and efficient.

6. *The Scheme Plan includes allotments with relatively narrow frontages where it is likely to be impractical to provide trees at a rate of one per allotment with road frontage as required by clause f) i) of Appendix 12A – Performance Standard, Transport Network. Condition 15 has been included to provide for reduced rates to be considered through the Development Plan Approval process.*

7. *The consent holder is advised that non-compliance with consent conditions may result in enforcement action against the consent holder and/or their contractors.*

8. *A copy of Tauranga City Council's 'Naming of Streets, Reserves and Community Facilities Policy' can be found online using the following link: http://www.tauranga.govt.nz/documents-reports/bylaws-policies/policies.aspx#s.*

9. *Condition 25 allows for adequate storage volumes within the stormwater detention ponds and swales forming part of resource consents RC24853 and RC24854 to be progressively created to service the catchment/developed area within the Site without needing to have final construction fully complete.*

10. *The Road to vest/connection required by Condition 10 may be delivered at any time through negotiations between the Consent Holder and the owner of number R176 Parton Road (Lot 16 SO 489379) but no later than the final Land Transfer Plan for Stage 4.*

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PROPOSED STAGING SCHEDULE	
STAGE	NUMBER OF LOTS
2	110
3A	55
3B	36
3C	38
3D	31
3E	33
4	48

N
W E
S

Tauranga City Council

APPROVED

Subdivision Consent

RC26514 **PLAN** 29/11/2018



LEGEND

- STAGE BOUNDARY
- ROAD RESERVE
- STAGE 2
- STAGE 3A
- STAGE 3B
- STAGE 3C
- STAGE 3D
- STAGE 3E
- STAGE 4

NOTES

1. ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN TERMS OF MOTURIKI DATUM.
3. BOUNDARIES AND AREAS ARE APPROXIMATE ONLY AND ARE SUBJECT TO CHANGE. FINAL BOUNDARIES WILL BE IN ACCORDANCE WITH CITY PLAN REQUIREMENTS AND LINZ REQUIREMENTS.
4. REFER TO LYSAGHT DRAWING 152870-016-SCH FOR SCHEDULE OF PROPOSED EASEMENTS.

SCHEME PLAN

No.	Date	Revision Details	By	Ver.	App.
N	02/05/18	SCHEME BOUNDARIES IN STAGES 3 & 4 UPDATED	JC		
M	23/01/18	SCHEME BOUNDARIES IN STAGE 4 UPDATED	AV		
L	24/11/17	SCHEME BOUNDARIES UPDATED	RO		
K	27/07/17	SCHEME OPTION WITHOUT OSMOND BLOCK	JC		
J	13/06/16	SHEET LAYOUT AND SCHEME BOUNDARIES UPDATED	JC		

Drawn	JC	30/10/15
Designed	Signed	Date
Verified	Signed	Date
Approved	Signed	Date

LYSAGHT

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19 Totara St, Mount Maunganui 3116 Ph 07 578 8798 www.lysaght.net.nz

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
PROPOSED SUBDIVISION OF LOT 1 DP 429801
OVERALL LAYOUT PLAN

Project No. 152870

Scale (A3) 1:4000

Drawing No. 152870-010-SCH

Rev. N

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\Scheme plans\152870-010_016-SCH Rev N.dwg

TCC - Approved Building Consent Document - BC301286 - Pg 397 of 406 - 9/07/2020 - bwoo

LEGEND

- STAGE BOUNDARY
- ROAD RESERVE
- STAGE 2
- STAGE 3A
- STAGE 3B
- STAGE 3C
- STAGE 3D
- STAGE 3E
- STAGE 4

NOTES

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Subdivision Consent

RC26514 **PLAN** 29/11/2018

JOINLINE - 152870-012-SCH

1 DPS 14276 40469m²

ROAD TO VEST 3015 2881m²

ROAD TO VEST 3016 2899m²

ROAD TO VEST 3017 5774m²

JOINLINE - 152870-013-SCH

PARTON ROAD

TAURANGA EASTERN LINK

SCHEME PLAN

TCC - Approved Building Consent Document - BC301286 - Pg 398 of 406 - 9/07/2020 - bwoo

No.	Date	Revision Details	By	Ver.	App.
J	02/05/18	SCHEME BOUNDARIES IN STAGES 3 & 4 UPDATED	JC		

Drawn	JC	Signed	Date 30/10/15
Designed		Signed	Date
Verified		Signed	Date
Approved		Signed	Date

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
PROPOSED SUBDIVISION OF LOT 1 DP 429801
LAYOUT PLAN
SHEET 1 OF 5

Project No. 152870
Scale (A3) 1:1000
Drawing No. 152870-011-SCH
Rev. J

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\Scheme plans\152870-010_016-SCH Rev N.dwg

LEGEND

- STAGE BOUNDARY
- ROAD RESERVE
- STAGE 2
- STAGE 3A
- STAGE 3B
- STAGE 3C
- STAGE 3D
- STAGE 3E
- STAGE 4

NOTES

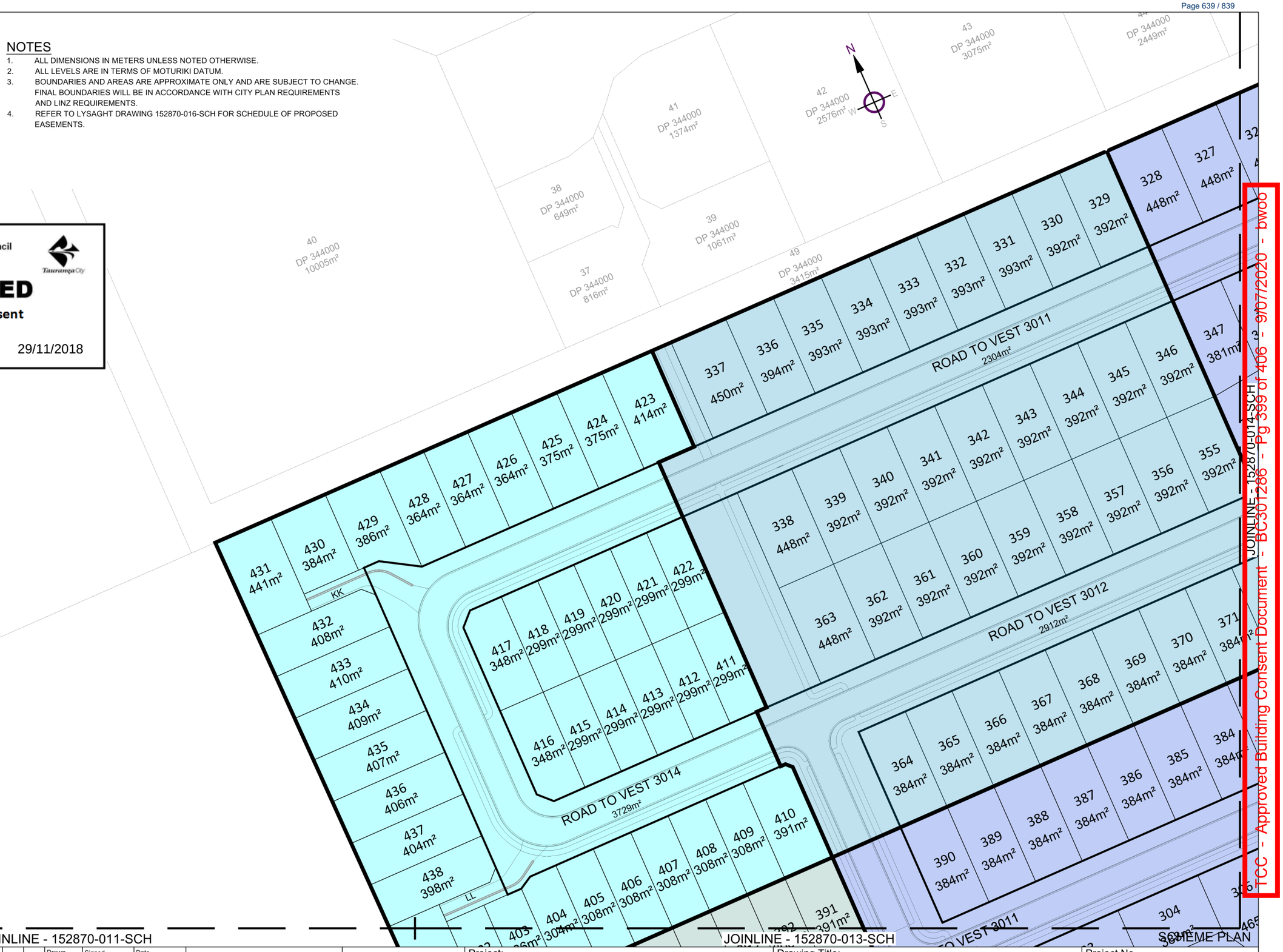
1. ALL DIMENSIONS IN METERS UNLESS NOTED OTHERWISE.
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4. REFER TO LYSAGHT DRAWING 152870-016-SCH FOR SCHEDULE OF PROPOSED EASEMENTS.

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Subdivision Consent

RC26514 **PLAN** 29/11/2018



TCC - Approved Building Consent Document - BC301286 - Pg 399 of 406 - 9/07/2020 - bwood
JOINLINE - 152870-014-SCH

No.	Date	Revision Details	By	Ver.	App.
K	02/05/18	SCHEME BOUNDARIES IN STAGES 3 & 4 UPDATED	JC		
J	24/11/17	SCHEME BOUNDARIES UPDATED	RO		

Drawn	JC	Signed / Date 30/10/15
Designed		Signed / Date
Verified		Signed / Date
Approved		Signed / Date

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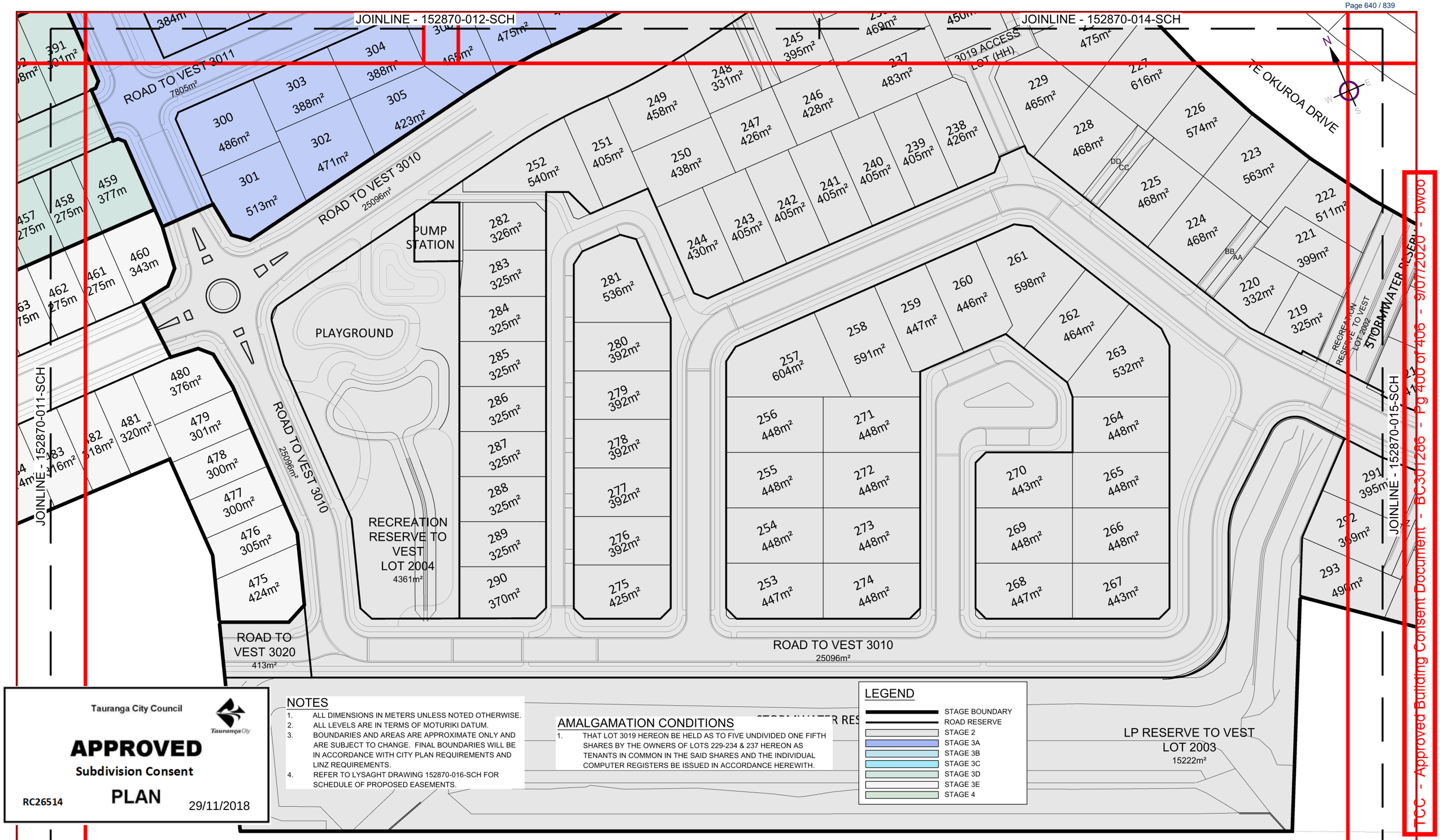
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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
PROPOSED SUBDIVISION OF LOT 1 DP 429801
LAYOUT PLAN
SHEET 2 OF 5

Project No. 152870
Scale (A3) 1:1000
Drawing No. 152870-012-SCH
Rev. K

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\Scheme plans\152870-010_016-SCH Rev N.dwg



Tauranga City Council

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Subdivision Consent

PLAN

RC26514

29/11/2018

NOTES

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4. REFER TO LYSAGHT DRAWING 152870-016-SCH FOR SCHEDULE OF PROPOSED EASEMENTS.

AMALGAMATION CONDITIONS

1. THAT LOT 3019 HEREON BE HELD AS TO FIVE UNDIVIDED ONE FIFTH SHARES BY THE OWNERS OF LOTS 229-234 & 237 HEREON AS TENANTS IN COMMON IN THE SAID SHARES AND THE INDIVIDUAL COMPUTER REGISTERS BE ISSUED IN ACCORDANCE HEREWITH.

LEGEND

- STAGE BOUNDARY
- ROAD RESERVE
- STAGE 2
- STAGE 3A
- STAGE 3B
- STAGE 3C
- STAGE 3D
- STAGE 3E
- STAGE 4

SCHEME PLAN

No.	Date	Revision Details	By	Ver.	App.
I	02/05/18	SCHEME BOUNDARIES IN STAGES 3 & 4 UPDATED	JC		
H	24/11/17	SCHEME BOUNDARIES UPDATED	RO		
G	27/07/17	SCHEME OPTION WITHOUT OSMOND BLOCK	JC		
F	13/06/16	SHEET LAYOUT AND SCHEME BOUNDARIES UPDATED	JC		
E	18/02/16	MINOR AMENDMENTS TO BOUNDARIES AND NOTES	JC		
D	18/12/15	MINOR AMENDMENTS	JC		
C	17/12/15	SCHEME LAYOUT REVISED	JC		
B	06/11/15	STAGING LABELS ADDED	JC		
A	30/10/15	SCHEME PLAN	JC		

Drawn	JC	30/10/15
Designed	Signed	Date
Verified	Signed	Date
Approved	Signed	Date

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
PROPOSED SUBDIVISION OF LOT 1 DP 429801
LAYOUT PLAN
SHEET 3 OF 5

Project No. 152870

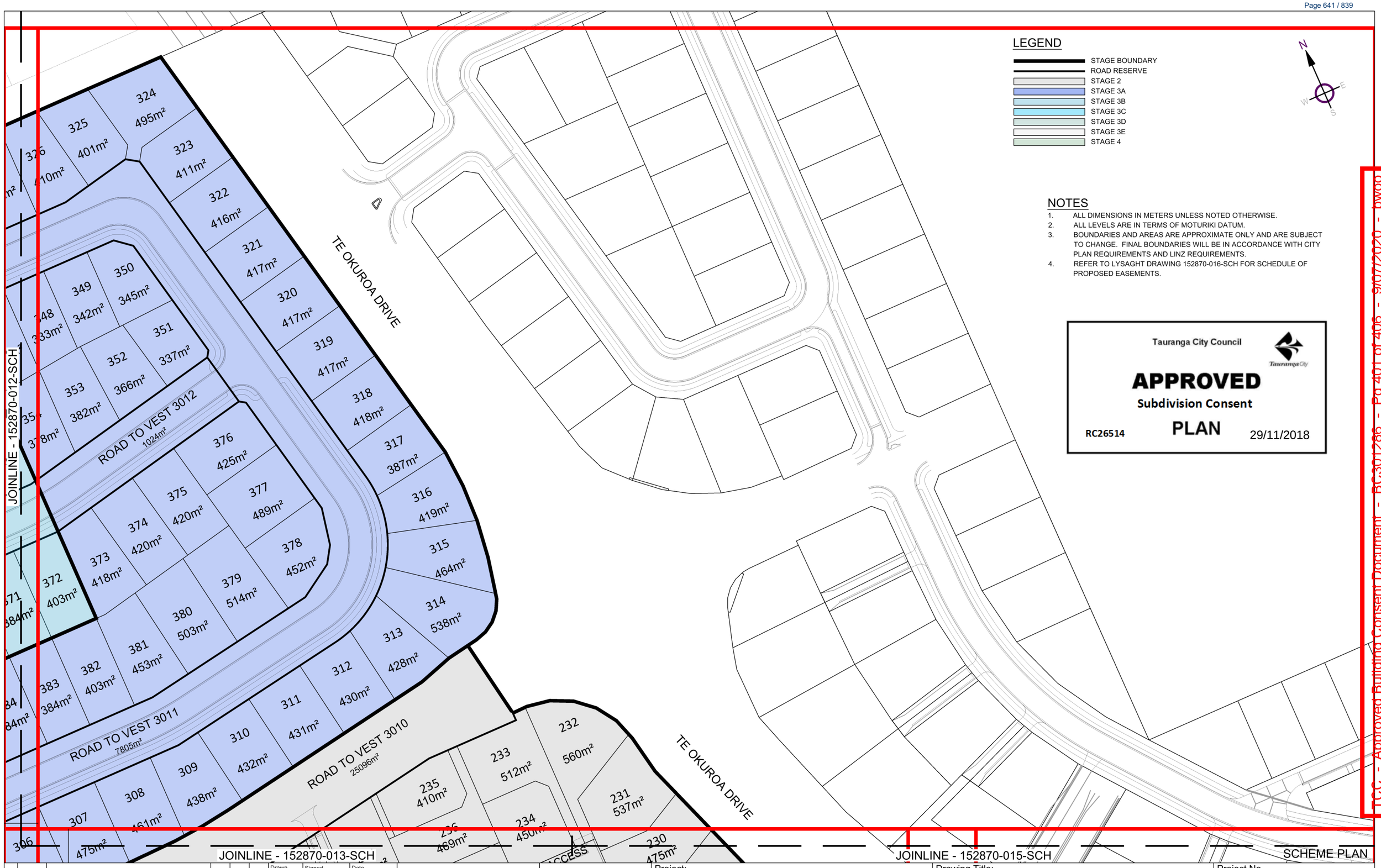
Scale (A3) 1:1000

Drawing No. 152870-013-SCH

Rev. I

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\Scheme plans\152870-010_016-SCH Rev N.dwg

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NOTES

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4. REFER TO LYSAGHT DRAWING 152870-016-SCH FOR SCHEDULE OF PROPOSED EASEMENTS.

Tauranga City Council

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Subdivision Consent

RC26514 **PLAN** 29/11/2018

TCC - Approved Building Consent Document - BC3011286 - Pg 401 of 406 - 9/07/2020 - bwoo

No.	Date	Revision Details	By	Ver.	App.
J	02/05/18	SCHEME BOUNDARIES IN STAGES 3 & 4 UPDATED	JC		

Drawn	JC	Signed	Date 30/10/15
Designed		Signed	Date
Verified		Signed	Date
Approved		Signed	Date

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
PROPOSED SUBDIVISION OF LOT 1 DP 429801
LAYOUT PLAN
SHEET 4 OF 5

Project No. 152870

Scale (A3) 1:1000

Drawing No. 152870-014-SCH

Rev. J

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\Scheme plans\152870-010_016-SCH Rev N.dwg

JOINLINE - 152870-014-SCH

NOTES

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4. REFER TO LYSAGHT DRAWING 152870-016-SCH FOR SCHEDULE OF PROPOSED EASEMENTS.

LEGEND

- STAGE BOUNDARY
- ROAD RESERVE
- STAGE 2
- STAGE 3A
- STAGE 3B
- STAGE 3C
- STAGE 3D
- STAGE 3E
- STAGE 4

N E S W

Tauranga City Council

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Subdivision Consent

RC26514 **PLAN** 29/11/2018

TE OKUROA DRIVE

STORMWATER RESERVE

LOT 2002 VEST TO VEST

216 539m²
217 400m²
215 460m²
212 454m²
211 532m²
208 556m²
207 563m²
204 572m²
203 504m²
200 416m²
218 412m²
214 398m²
213 404m²
210 433m²
209 439m²
206 447m²
205 458m²
202 445m²
201 448m²
K L M N O P Q R

JOINLINE - 152870-013-SCH

295 423m²
296 408m²
299 420m²
500 414m²
503 477m²
504 452m²
507 452m²
508 455m²
294 530m²
297 525m²
298 469m²
501 494m²
502 560m²
505 489m²
506 520m²
509 565m²
Z X W V U T S

ROAD TO VEST 3010
25096m²

Section 5
SO 481279

TAURANGA EASTERN LINK

SCHEME PLAN

No.	Date	Revision Details	By	Ver.	App.
G	24/11/17	SCHEME BOUNDARIES UPDATED	RO		
F	13/06/16	SHEET LAYOUT AND SCHEME BOUNDARIES UPDATED	JC		
E	18/02/16	MINOR AMENDMENTS TO BOUNDARIES AND NOTES	JC		
D	18/12/15	MINOR AMENDMENTS	JC		
C	17/12/15	SCHEME LAYOUT REVISED	JC		
B	06/11/15	STAGING LABELS ADDED	JC		
A	30/10/15	SCHEME PLAN	JC		

Drawn	JC	Signed	Date 30/10/15
Designed		Signed	Date
Verified		Signed	Date
Approved		Signed	Date

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
PROPOSED SUBDIVISION OF LOT 1 DP 429801
LAYOUT PLAN
SHEET 5 OF 5

Project No. 152870
Scale (A3) 1:1000
Drawing No. 152870-015-SCH
Rev. G

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\Scheme plans\152870-010_016-SCH Rev N.dwg

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SCHEDULE OF PROPOSED EASEMENTS

PURPOSE	SHOWN	DOM	SERV
RIGHT OF WAY, RIGHT TO CONVEY ELECTRICITY, TELECOMMUNICATIONS AND COMPUTER MEDIA, RIGHT TO CONVEY WATER, GAS, RIGHT TO DRAIN WATER, SEWAGE	K	LOTS 215, 217 HEREON	LOT 216 HEREON
	L	LOTS 216, 217 HEREON	LOT 215 HEREON
	M	LOT 211 HEREON	LOT 212 HEREON
	N	LOT 212 HEREON	LOT 211 HEREON
	O	LOT 207 HEREON	LOT 208 HEREON
	P	LOT 208 HEREON	LOT 207 HEREON
	Q	LOT 203 HEREON	LOT 204 HEREON
	R	LOT 204 HEREON	LOT 203 HEREON
	S	LOT 505 HEREON	LOT 506 HEREON
	T	LOT 506 HEREON	LOT 505 HEREON
	U	LOT 501 HEREON	LOT 502 HEREON
	V	LOT 502 HEREON	LOT 501 HEREON
	W	LOT 297 HEREON	LOT 298 HEREON
	X	LOT 298 HEREON	LOT 297 HEREON
	Y	LOTS 292, 293 HEREON	LOT 294 HEREON
	Z	LOTS 292, 294 HEREON	LOT 293 HEREON
	AA	LOTS 221, 223 HEREON	LOT 222 HEREON
	BB	LOTS 221, 222 HEREON	LOT 223 HEREON
	CC	LOT 227 HEREON	LOT 226 HEREON
	DD	LOT 226 HEREON	LOT 227 HEREON
	HH	LOT 230, 232, 233, 234, 237 HEREON	LOT 231 HEREON
	KK	LOT 430 HEREON	LOT 431 HEREON
	LL	LOT 402, 403 HEREON	LOT 401 HEREON
	MM	LOT 495, 497, 498, 499 HEREON	LOT 496 HEREON
	NN	LOT 542, 543 HEREON	LOT 541 HEREON
	OO	LOT 525 HEREON	LOT 524 HEREON

Tauranga City Council

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Subdivision Consent

RC26514 **PLAN** 29/11/2018

TCC - Approved Building Consent Document - BC301286 - Pg 403 of 406 - 9/07/2020 - bwoo

SCHEME PLAN

No.	Date	Revision Details	By	Ver.	App.
G	02/05/18	SCHEME BOUNDARIES UPDATED	RO		
F	24/11/17	SCHEME OPTION WITHOUT OSMOND BLOCK	JC		
E	27/07/17	SCHEDULE OF EASEMEMNTS TABLE REVISED	JC		
D	15/06/16	MINOR AMENDMENTS	JC		
C	18/12/15	SCHEDULE OF EASEMENTS TABLE REVISED	JC		
B	17/12/15	SCHEME PLAN	JC		
A	30/10/15				

Drawn JC — Signed — Date 30/10/15
Designed — Signed — Date
Verified — Signed — Date
Approved — Signed — Date

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
PROPOSED SUBDIVISION OF LOT 1 DP 429801
SCHEDULE OF EASEMENTS

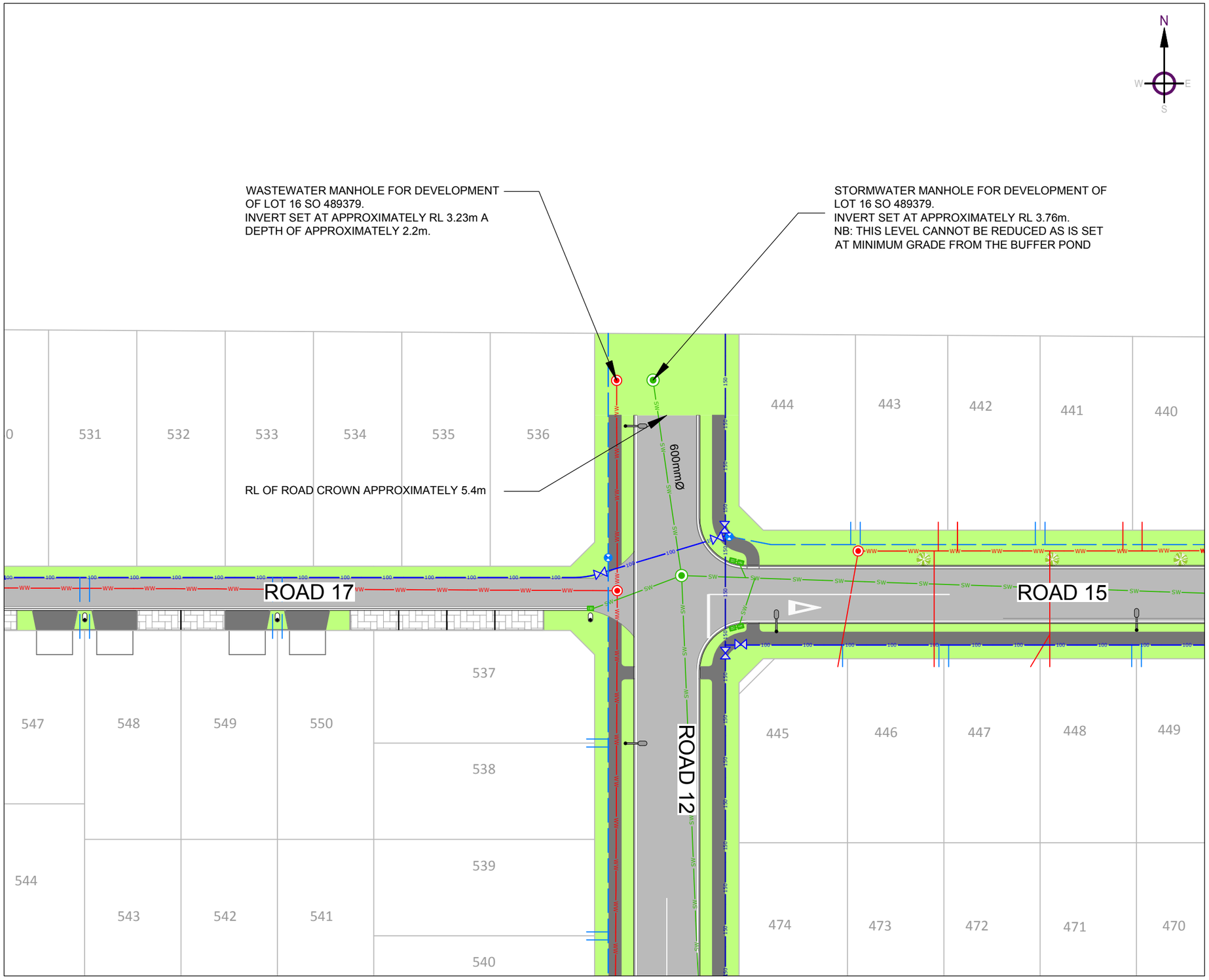
Project No. 152870

Scale (A3) NOT TO SCALE

Drawing No. 152870-016-SCH

Rev. G

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\Scheme plans\152870-010_016-SCH Rev N.dwg



LEGEND:

- PROPOSED STREETLIGHT
- PROPOSED SINGLE CATCHPIT
- PROPOSED DOUBLE CATCHPIT
- PROPOSED STORMWATER
- PROPOSED WASTEWATER
- PROPSOED WASTEWATER LOT CONNECTION
- PROPOSED 100Ø (ID) WATERMAIN
- PROPOSED 50Ø (ID) WATERMAIN
- PROPOSED SLUICE / GATE VALVE / HYDRANT
- PROPOSED ASPHALTIC CONCRETE SURFACING
- PROPOSED HALF BLACK OXIDE CONCRETE WITH EXPOSED AGGREGATE SURFACING
- PROPOSED 200X100X80mm HOLLAND INTERLOCKING PAVERS. BLACK SANDS IN HERRINGBONE PATTERN
- PROPOSED CONCRETE FOOTPATH

Tauranga City Council

APPROVED

Subdivision Consent

RC26514 **PLAN** 29/11/2018

TCC - Approved Building Consent Document - Pg 404 of 406 - 9/07/2020 - bwoo

FOR INFORMATION

No.	Date	Revision Details	By	Ver.	App.
A	17/07/18	FOR INFORMATION	AV		

Drawn	AV	Signed	Date 17/07/18
Designed	AV	Signed	Date 17/07/18
Verified		Signed	Date
Approved		Signed	Date

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
STAGE 4
GENERAL ARRANGEMENT
BLOKART SERVICING

Project No. 152870

Scale (A3) 1:500

Drawing No. 152870-SKT-078

Rev. A

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\SKETCH\152870-077-SKT- Blokart Servicing.dwg



LEGEND:

- PROPOSED STREETLIGHT
- PROPOSED SINGLE CATCHPIT
- PROPOSED DOUBLE CATCHPIT
- PROPOSED STORMWATER
- PROPOSED WASTEWATER
- PROPSOED WASTEWATER LOT CONNECTION
- PROPOSED 100Ø (ID) WATERMAIN
- PROPOSED 50Ø (ID) WATERMAIN
- PROPOSED SLUICE / GATE VALVE / HYDRANT
- PROPOSED ASPHALTIC CONCRETE SURFACING
- PROPOSED HALF BLACK OXIDE CONCRETE WITH EXPOSED AGGREGATE SURFACING
- PROPOSED 200X100X80mm HOLLAND INTERLOCKING PAVERS. BLACK SANDS IN HERRINGBONE PATTERN
- PROPOSED CONCRETE FOOTPATH
- SUBDIVISION APPROVAL EXTENTS

Tauranga City Council

APPROVED

Subdivision Consent

RC26514 **PLAN** 29/11/2018

NOTES:

1. ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH TAURANGA CITY COUNCIL'S INFRASTRUCTURE DEVELOPMENT CODE, THE NEW ZEALAND BUILDING CODE, AND BAY OF PLENTY REGIONAL COUNCIL'S EROSION AND SEDIMENT CONTROL GUIDELINES
2. BOUNDARIES SHOWN ON THIS PLAN ARE FROM LAND INFORMATION NZ DCDB AND HAVE NOT BEEN SURVEYED. A BOUNDARY DEFINITION SURVEY SHOULD BE CARRIED OUT TO ESTABLISH EXACT BOUNDARY POSITIONS ON SITE.
2. SERVICES POSITIONS AND ALIGNMENT MAY HAVE BEEN OBTAINED FROM THIRD PARTY RECORDS AND SHOULD BE VERIFIED ON SITE PRIOR TO CONSTRUCTION COMMENCING. LYSAGHT CONSULTANTS DOES NOT IN ANY WAY GUARANTEE THE ACCURACY OF ANY UNDERGROUND SERVICE SHOWN ON THIS PLAN.
4. ALL SERVICING IS PRELIMINARY ONLY AND SHALL BE CONFIRMED AT DETAILED DESIGN STAGE.

TCC - Approved Building Consent Document - BC301286 - Pg 405 of 406 - 9/07/2020 - bwoo

RESOURCE CONSENT

No.	Date	Revision Details	By	Ver.	App.
C	28/0918	ROAD 17 WIDTH INCREASED TO 8.1m	AV		
B	24/09/18	GENERAL AMENDMENTS	AV		
A	08/08/18	RESOURCE CONSENT	JC		

Drawn	JC	Signed	Date 17/08/18
Designed	AV	Signed	Date 17/08/18
Verified	PM	Signed	Date 17/08/18
Approved	PM	Signed	Date 17/08/18

LYSAGHT

SURVEYING, ENGINEERING & LAND DEVELOPMENT
19 Totara St, Mount Maunganui 3116 Ph 07 578 8798 www.lysaght.net.nz

THIS DRAWING REMAINS THE PROPERTY OF LYSAGHT CONSULTANTS LTD.

NO LIABILITY SHALL BE ACCEPTED FOR THE UNAUTHORISED USE OF THIS DRAWING

DO NOT SCALE DRAWING

Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
STAGE 4
PROPOSED SUBDIVISION LAYOUT PLAN

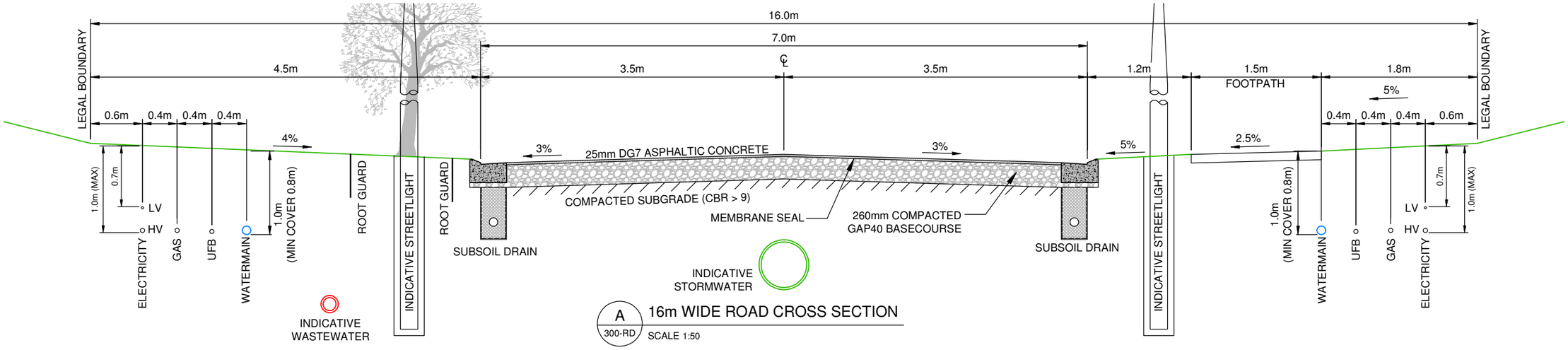
Project No. 152870

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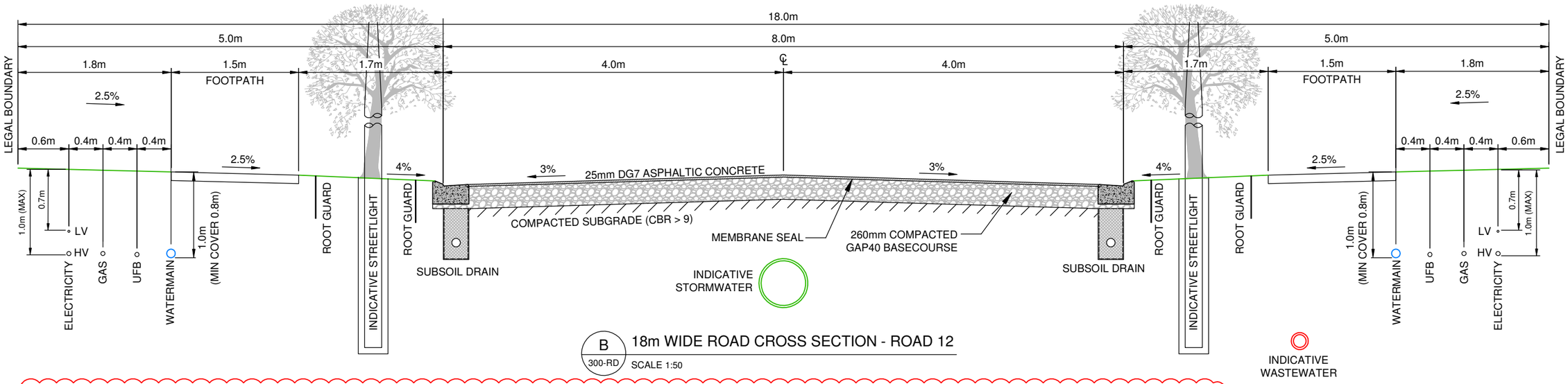
Drawing No. 152870-060-SCH

Rev. C

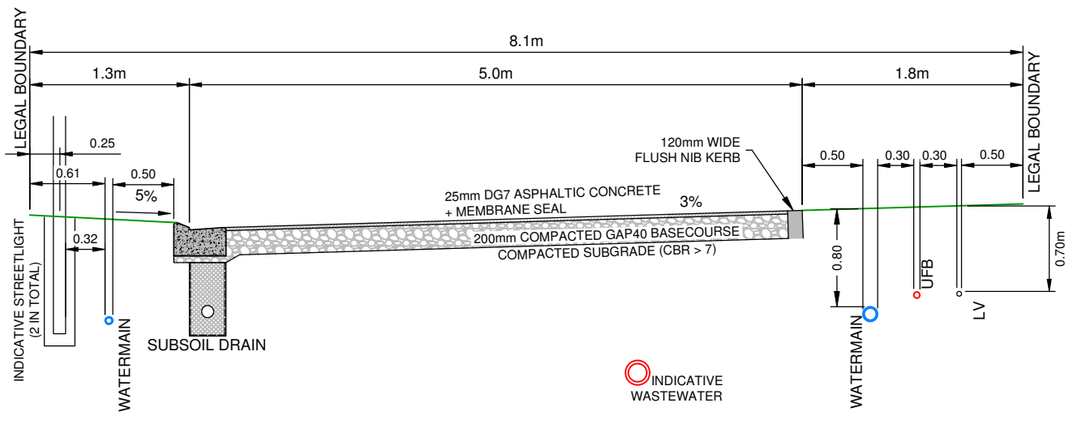
X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\Scheme plans\152870-060-SCH.dwg



A 300-RD 16m WIDE ROAD CROSS SECTION
SCALE 1:50



B 300-RD 18m WIDE ROAD CROSS SECTION - ROAD 12
SCALE 1:50



C 300-RD RESIDENTIAL LANEWAY CROSS SECTION
SCALE 1:50

Tauranga City Council

APPROVED
Subdivision Consent
RC26514 **PLAN** 29/11/2018

FOR APPROVAL

No.	Date	Revision Details	By	Ver.	App.
F	27/09/18	SECTION C WIDTH INCREASED TO 8.1m	AV		
E	24/09/18	GENERAL AMENDMENTS	AV		
D	10/09/18	SECTION C TRENCH LAYOUT	AV		
C	24/07/18	SECTION C TRENCH LAYOUT	AV		
B	18/07/18	AMENDMENT TO SERVICES IN SECTION C	AV		
A	15/03/18	FOR APPROVAL	AV		

Drawn	AV	15/03/18
Designed	AV	15/03/18
Verified	PM	15/03/18
Approved	PM	15/03/18

LYSAGHT
SURVEYING, ENGINEERING & LAND DEVELOPMENT
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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
STAGE 4
ROAD CROSS SECTIONS

Project No. 152870
Scale (A3) 1:50
Drawing No. 152870-30-RD
Rev. F

X:\Projects 1\15 Jobs\152870 Zariba Holdings, Parton Rd, Development\CAD\Drawings\Scheme plans\152870-030-RD.dwg

TCC - Approved Building Consent Document - BC301286 - Pg 406 of 406 - 9/07/2020 - bwoo

Tauranga City



Asset Protection Bond Information Sheet

Why Is An Asset Protection Bond Required?

The bond protects Council assets by covering potential damage to:

- Underground pipework.
- Footpaths.
- Kerb and channel.
- Service boxes/covers.
- Street trees and planted areas etc.

The bond also covers:

- Damage caused during the course of building works (including the reinstatement of the grassed berm).
- The correct installation of water, wastewater, stormwater service connections and vehicle crossings to Council's Infrastructure Development Code standards.
- The supply of as-built information/certification for all approved service connections.
- The correct installation of water supply backflow prevention measures to meet the Health (Drinking Water) Amendment Act 2007.

Additional Costs relating to Asset Protection Bonds

If the cost of remedial works exceeds the value of the Asset Protection Bond, Council shall invoice the Applicant for the balance outstanding.

Should Council incur additional costs such as extra inspections and extra processing time due to non-compliance by the Applicant, Council will charge for inspections at an hourly rate (1hr minimum) plus time related costs.

**See TCC Annual Plan for fees and charges.*

Applying For A Bond Refund

When works are completed to the required standard, the Applicant can phone Council at (07) 5777 000 to arrange for a final inspection.

The Asset Protection Bond monies will be refunded when:

a) The bonded works have been completed and a final inspection has occurred.
b) Council inspection confirms that no damage has occurred to Council assets.

Note: The Asset Protection Bond monies will be refunded to the receipt holder only i.e. the person/party whose name appears on the bond receipt.

** Allow 4-6 weeks for the final inspection and the refund of bond monies.*

Before any work commences, visit Tauranga City Council's website for further detailed information about Asset Protection Bonds (including all fees and charges).

08 September 2020

Paul Colin and Katie Creamer
51 Te Wharo Drive
Papamoa Beach
Papamoa 3118

Dear Sir or Madam,

Building Consent Number: BC301286
Project Location: 1 Te Wharo Drive
Papamoa Beach
Papamoa 3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Erect single level, three bedroom dwelling with attached single garage.
IR Number: 1

Inspection Results:
WASTEPIPES - 08 Sep 2020 @ 14:29 by Blair Johnstone

Inspection Outcome: PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

Your next inspection will be: **Siting and Site Scrape Inspection**
Please plan your project ahead of time and book inspections as early as possible.

Outstanding Required Documents for this Building
Siting and Site Scrape Inspection

- Survey Certificate Building Location Certificate - Confirming FFL At 6.100

Floor Slab

- B1: Slab - PS4 And Construction Monitoring Records

Drainage

- Survey Certificate - Confirming Soakage System Founded At 3.0 RL
- G13: As-builts, drainlayer details, pipework test

Building Final

- Form 6a - LBP Record Of Building Work - Roofing - Pressed Metal Tile

- Form 6a - LBP Record Of Building Work - External Plastering - Hebel PowerPanel 50 With Plaster Facade System
- Form 6a - LBP Record Of Building Work - Foundations - TC2 Slab
- B1: Slab - Concrete Verification - 25 MPa Concrete With 15kgm3 Of Dramix 3D8060BG TC2
- B1: Truss And Frame Certification - PS3 To Confirm Compliance Of The Manufactured Zog Metal Framing And Trusses
- PS3 - Installer To Confirm Truss And Frame Construction Is In Accordance With Consented Plans
- Form 6a - LBP record of building work - Carpentry
- Form 6a - LBP record of building work - Brick and blocklaying
- G9: Energy works certificate

History

Inspection Name	**Summary**
Siting and Site Scrape Inspection	-
Wastepipes	**PASS** - 08 Sep 2020
Floor Slab	-
Framing / Pre-wrap	-
Post Wrap / Cavity	-
Pre-plaster	-
Half High Brick	-
Preline Plumbing	-
Preline Building	-
Post Line	-
Drainage	-
P+D final	-
Building Final	-

If you'd like to email us about this inspection report, please address it to 301286@tauranga.abcs.co.nz.

Please Note:
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Once online, if you are unable to access your consent details, please contact the Building Support Team on 577-7000 to arrange access.

Please **do not** email your Code Compliance documentation to ccc@tauranga.govt.nz as it will no longer be accepted. Thank you.

Yours Sincerely,

Blair Johnstone
Inspector
On behalf of: Tauranga City Council

Notes: 65mm Kitchen Wastepipes - Default #1 08/09/20



Notes: 65mm Laundry Wastepipes - Default #2 08/09/20



Notes: Ensuite and HWC Wastepipes - Default #3 08/09/20



Notes: Bathroom Wastepipes - Default #4 08/09/20



Notes: Gradient check Wastepipes - Default #5 08/09/20



Notes: Water test Wastepipes - Default #6 08/09/20



11 September 2020

Paul Colin and Katie Creamer
51 Te Wharo Drive
Papamoa Beach
Papamoa 3118

Dear Sir or Madam,

Building Consent Number: BC301286
Project Location: 1 Te Wharo Drive
Papamoa Beach
Papamoa 3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Erect single level, three bedroom dwelling with attached single garage.
IR Number: 2

Inspection Results:
SITING AND SITE SCRAPE INSPECTION - 11 Sep 2020 @ 12:37 by Frank Lucas

Inspection Outcome: PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

FLOOR SLAB - 11 Sep 2020 @ 12:37 by Frank Lucas

Inspection Outcome: FAIL- The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

B1: Floor Slab:
1. Please upload a PS4 for the Type T raft slab/foundations

These may be viewed at time of next inspection.

Formal Directive: Please do not pour any concrete until the PS4 for the slab has been provided and a pass site notice has been issued

Inspection Summary: The placement of thickenings are complete to plan
The pod set up and trench widths are complete
Photo taken of license

Building location certificate has been provided
Concrete cover to steel @ edge of slab >50mm
Ground bearing certificate has been provided
DPM installed
Steel set to plan no 13 , 14 & 15

Your next inspection will be: **Framing / Pre-wrap**
Please plan your project ahead of time and book inspections as early as possible.

Outstanding Required Documents for this Building
Floor Slab

- B1: Slab - PS4 And Construction Monitoring Records

Drainage

- Survey Certificate - Confirming Soakage System Founded At 3.0 RL
- G13: As-builts, drainlayer details, pipework test

Building Final

- Form 6a - LBP Record Of Building Work - Roofing - Pressed Metal Tile
- Form 6a - LBP Record Of Building Work - External Plastering - Hebel PowerPanel 50 With Plaster Facade System
- Form 6a - LBP Record Of Building Work - Foundations - TC2 Slab
- B1: Slab - Concrete Verification - 25 MPa Concrete With 15kgm3 Of Dramix 3D8060BG TC2
- B1: Truss And Frame Certification - PS3 To Confirm Compliance Of The Manufactured Zog Metal Framing And Trusses
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- Form 6a - LBP record of building work - Carpentry
- Form 6a - LBP record of building work - Brick and blocklaying
- G9: Energy works certificate

History

Inspection Name	**Summary**
Siting and Site Scrape Inspection	**PASS** - 11 Sep 2020
Wastepipes	**PASS** - 08 Sep 2020
Floor Slab	**FAIL** - 11 Sep 2020
	View at next inspection
Framing / Pre-wrap	-
Post Wrap / Cavity	-

Pre-plaster	-
Half High Brick	-
Preline Plumbing	-
Preline Building	-
Post Line	-
Drainage	-
P+D final	-
Building Final	-

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Yours Sincerely,

Frank Lucas
Inspector
On behalf of: Tauranga City Council

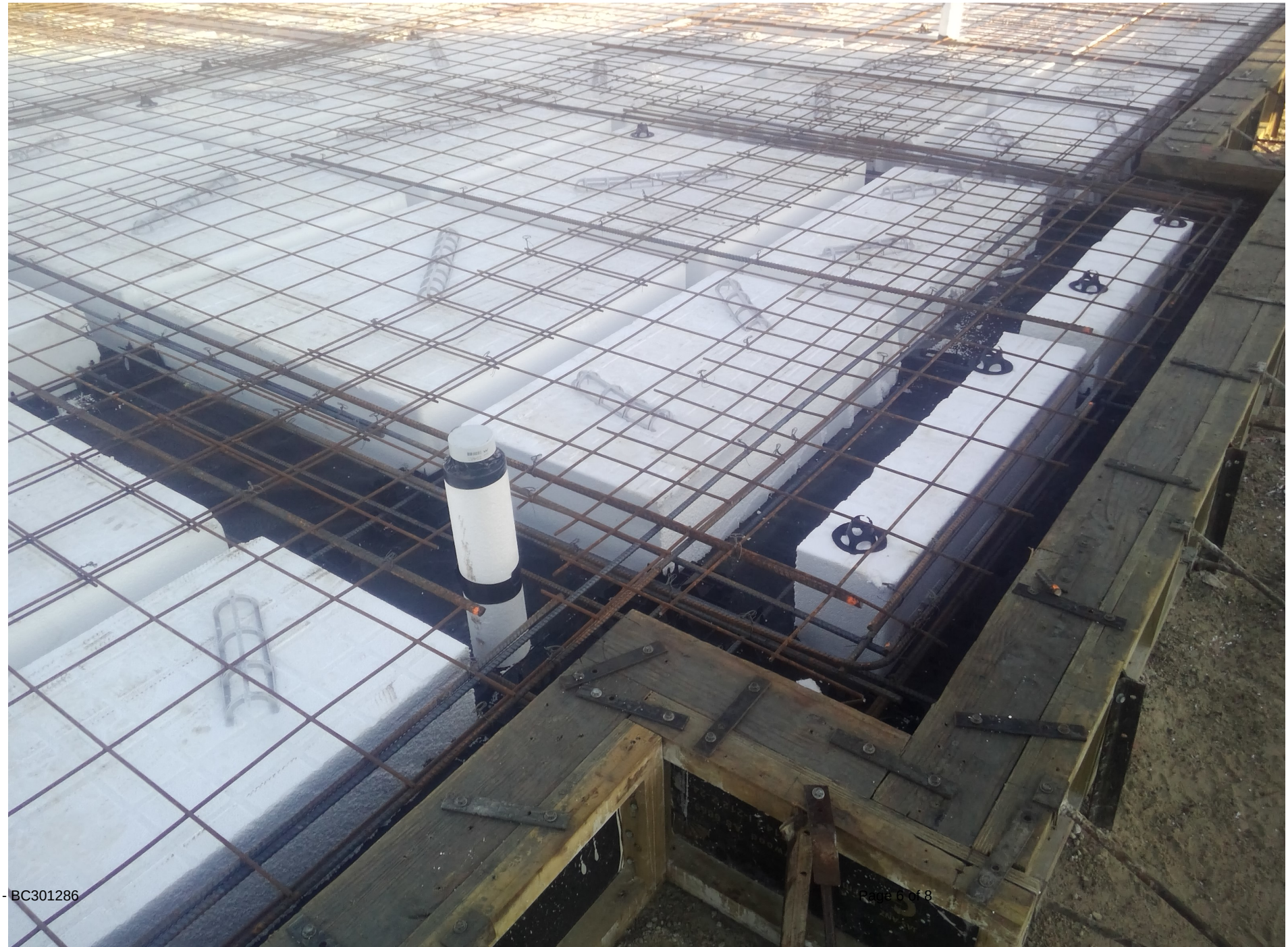
Notes: Siting and Site Scrape Inspection - Default #1 11/09/20



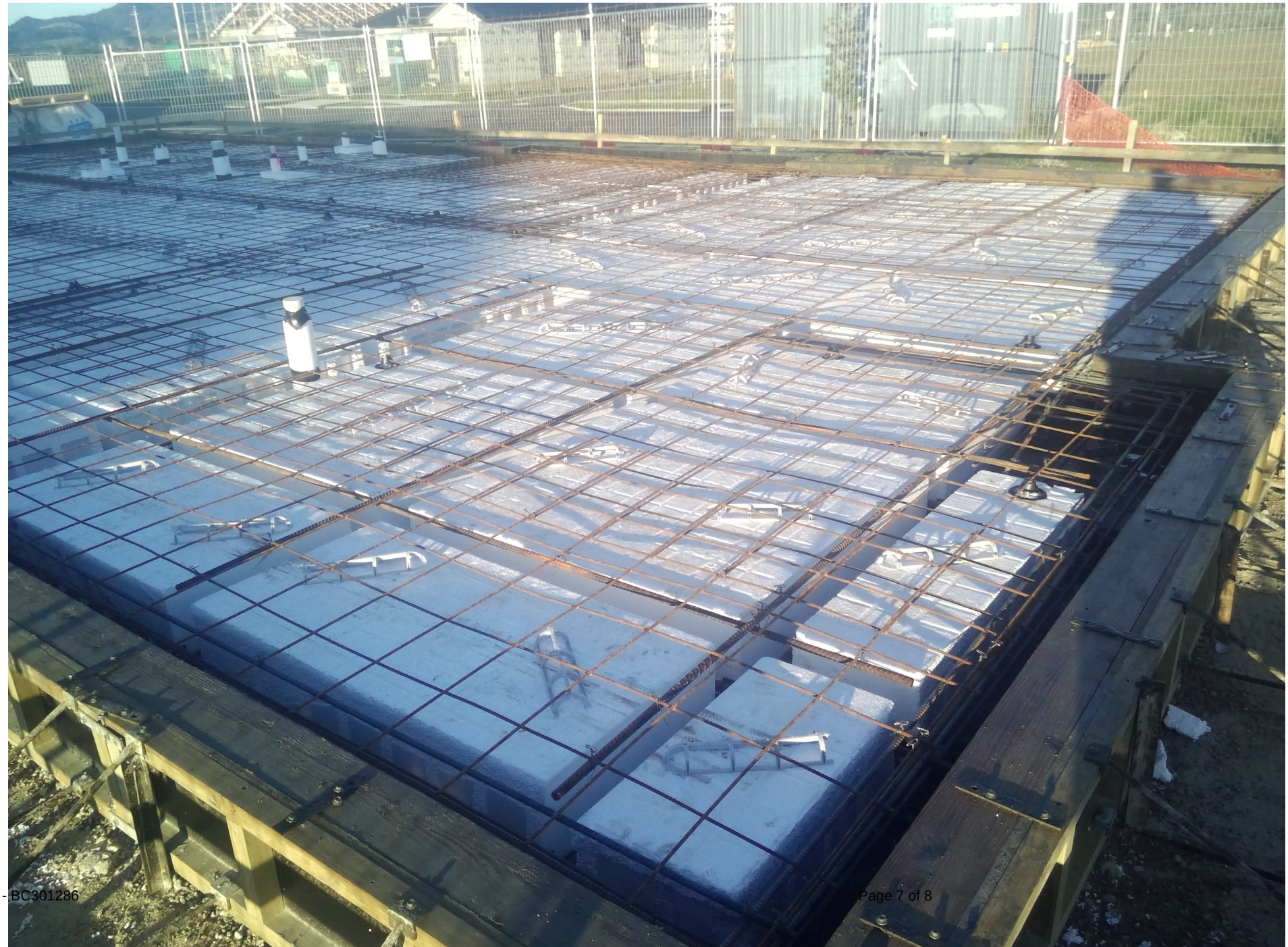
Notes: Floor Slab - Default #1 11/09/20



Notes: Floor Slab - Default #2 11/09/20



Notes: Floor Slab - Default #3 11/09/20



Notes: Floor Slab - Default #4 11/09/20



14 September 2020

Paul Colin and Katie Creamer
51 Te Wharo Drive
Papamoa Beach
Papamoa 3118

Dear Sir or Madam,

Building Consent Number: BC301286
Project Location: 1 Te Wharo Drive
Papamoa Beach
Papamoa 3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Erect single level, three bedroom dwelling with attached single garage.
IR Number: 3

Inspection Results:
SITING AND SITE SCRAPE INSPECTION - 11 Sep 2020 @ 06:53 by Frank Lucas

Inspection Outcome: PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

FLOOR SLAB - 14 Sep 2020 @ 06:37 by Frank Lucas

Inspection Outcome: PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

Inspection Summary: Document assessment

Ok to pour slab

Your next inspection will be: **Framing / Pre-wrap**
Please plan your project ahead of time and book inspections as early as possible.

Outstanding Required Documents for this Building
Floor Slab

- B1: Slab - PS4 And Construction Monitoring Records

Drainage

- Survey Certificate - Confirming Soakage System Founded At 3.0 RL
- G13: As-builts, drainlayer details, pipework test

Building Final

- Form 6a - LBP Record Of Building Work - Roofing - Pressed Metal Tile
- Form 6a - LBP Record Of Building Work - External Plastering - Hebel PowerPanel 50 With Plaster Facade System
- Form 6a - LBP Record Of Building Work - Foundations - TC2 Slab
- B1: Slab - Concrete Verification - 25 MPa Concrete With 15kgm3 Of Dramix 3D8060BG TC2
- B1: Truss And Frame Certification - PS3 To Confirm Compliance Of The Manufactured Zog Metal Framing And Trusses
- PS3 - Installer To Confirm Truss And Frame Construction Is In Accordance With Consented Plans
- Form 6a - LBP record of building work - Carpentry
- Form 6a - LBP record of building work - Brick and blocklaying
- G9: Energy works certificate

History

Inspection Name	Summary
Siting and Site Scrape Inspection	**PASS** - 11 Sep 2020
Wastepipes	**PASS** - 08 Sep 2020
Floor Slab	**PASS** - 14 Sep 2020
Framing / Pre-wrap	-
Post Wrap / Cavity	-
Pre-plaster	-
Half High Brick	-
Preline Plumbing	-
Preline Building	-
Post Line	-
Drainage	-
P+D final	-
Building Final	-

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Yours Sincerely,

Frank Lucas
Inspector
On behalf of: Tauranga City Council

29 September 2020

Paul Colin and Katie Creamer
51 Te Wharo Drive
Papamoa Beach
Papamoa 3118

Dear Sir or Madam,

Building Consent Number: BC301286
Project Location: 1 Te Wharo Drive
Papamoa Beach
Papamoa 3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Erect single level, three bedroom dwelling with attached single garage.
IR Number: 4

Inspection Results:
DRAINAGE - 29 Sep 2020 @ 13:31 by Hamish Alexander

Inspection Outcome: **FAIL**- The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

E1: Surface Water:
1. Surveyor to confirm depth of soakage trench is as per consented design requirements

These may be viewed at time of next inspection.

Inspection Summary: Drainage appears in compliance with G13/AS3 and E1/AS1.
Water tests sighted.
Refer to photos.
Asbuilt to be uploaded to alpha one portal.
Drains can be backfilled.

Your next inspection will be: **Framing / Pre-wrap**
Please plan your project ahead of time and book inspections as early as possible.

Outstanding Required Documents for this Building
Floor Slab

- B1: Slab - PS4 And Construction Monitoring Records

Drainage

- Survey Certificate - Confirming Soakage System Founded At 3.0 RL
- G13: As-builts, drainlayer details, pipework test

Building Final

- Form 6a - LBP Record Of Building Work - Roofing - Pressed Metal Tile
- Form 6a - LBP Record Of Building Work - External Plastering - Hebel PowerPanel 50 With Plaster Facade System
- Form 6a - LBP Record Of Building Work - Foundations - TC2 Slab
- B1: Slab - Concrete Verification - 25 MPa Concrete With 15kgm3 Of Dramix 3D8060BG TC2
- B1: Truss And Frame Certification - PS3 To Confirm Compliance Of The Manufactured Zog Metal Framing And Trusses
- PS3 - Installer To Confirm Truss And Frame Construction Is In Accordance With Consented Plans
- Form 6a - LBP record of building work - Carpentry
- Form 6a - LBP record of building work - Brick and blocklaying
- G9: Energy works certificate

History

Inspection Name	**Summary**
Siting and Site Scrape Inspection	**PASS** - 11 Sep 2020
Wastepipes	**PASS** - 08 Sep 2020
Floor Slab	**PASS** - 14 Sep 2020
Framing / Pre-wrap	-
Post Wrap / Cavity	-
Pre-plaster	-
Half High Brick	-
Preline Plumbing	-
Preline Building	-
Post Line	-
Drainage	**FAIL** - 29 Sep 2020 **View at next inspection**
P+D final	-
Building Final	-

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Yours Sincerely,

Hamish Alexander
BCO Inspections
On behalf of: Tauranga City Council

Notes: Drainage - Default #1 29/09/20. 1x 100mm type 1 sump connection driveway, 100mm SS @ 2%+ 100mm SW @ 3%



Notes: Drainage - Default #2 29/09/20. Flexible connections installed at exit from slab on SS connections



Notes: Drainage - Default #3 29/09/20. 100mm 90mm SW



Notes: Drainage - Default #4 29/09/20. water test sighed, ORG 150mm below overflow of lowest fixture RE head of SS line



Notes: Drainage - Default #5 29/09/20. SS line north side dwelling



Notes: Drainage - Default #6 29/09/20. 7 x 900mm dia soak rings 4 deep linked with 100mm PVCu



Notes: Drainage - Default #7 29/09/20. SS water test leaving site through connection



30 September 2020

Paul Colin and Katie Creamer
51 Te Wharo Drive
Papamoa Beach
Papamoa 3118

Dear Sir or Madam,

Building Consent Number: BC301286
Project Location: 1 Te Wharo Drive
Papamoa Beach
Papamoa 3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Erect single level, three bedroom dwelling with attached single garage.
IR Number: 5

Inspection Results:
DRAINAGE - 30 Sep 2020 @ 11:20 by Brad Donald

Inspection Outcome: PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

Inspection Summary: In office update after receiving documentation in alpha .
Drainage inspection updated to reflect changes.
OK to continue

Your next inspection will be: **Framing / Pre-wrap**
Please plan your project ahead of time and book inspections as early as possible.

Outstanding Required Documents for this Building
Floor Slab

- B1: Slab - PS4 And Construction Monitoring Records

Drainage

- G13: As-builts, drainlayer details, pipework test

Building Final

- Form 6a - LBP Record Of Building Work - Roofing - Pressed Metal Tile

- Form 6a - LBP Record Of Building Work - External Plastering - Hebel PowerPanel 50 With Plaster Facade System
- Form 6a - LBP Record Of Building Work - Foundations - TC2 Slab
- B1: Slab - Concrete Verification - 25 MPa Concrete With 15kgm3 Of Dramix 3D8060BG TC2
- B1: Truss And Frame Certification - PS3 To Confirm Compliance Of The Manufactured Zog Metal Framing And Trusses
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- Form 6a - LBP record of building work - Carpentry
- Form 6a - LBP record of building work - Brick and blocklaying
- G9: Energy works certificate

History

Inspection Name	**Summary**
Siting and Site Scrape Inspection	**PASS** - 11 Sep 2020
Wastepipes	**PASS** - 08 Sep 2020
Floor Slab	**PASS** - 14 Sep 2020
Framing / Pre-wrap	-
Post Wrap / Cavity	-
Pre-plaster	-
Half High Brick	-
Preline Plumbing	-
Preline Building	-
Post Line	-
Drainage	**PASS** - 30 Sep 2020
P+D final	-
Building Final	-

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Yours Sincerely,

Brad Donald
Inspector
On behalf of: Tauranga City Council

20 October 2020

Paul Colin and Katie Creamer
51 Te Wharo Drive
Papamoa Beach
Papamoa 3118

Dear Sir or Madam,

Building Consent Number: BC301286
Project Location: 1 Te Wharo Drive
Papamoa Beach
Papamoa 3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Erect single level, three bedroom dwelling with attached single garage.
IR Number: 6

Inspection Results:
FRAMING / PRE-WRAP - 20 Oct 2020 @ 11:01 by Donna Malcolm

Inspection Outcome: PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

Site Communication: warren

Inspection Summary: single story dwelling
sighted
framing connections, braces, lintels and connections
roof framing connections , bracing,
ok to continue

Your next inspection will be: **Post Wrap / Cavity**
Please plan your project ahead of time and book inspections as early as possible.

Outstanding Required Documents for this Building
Floor Slab

- B1: Slab - PS4 And Construction Monitoring Records

Building Final

- Form 6a - LBP Record Of Building Work - Roofing - Pressed Metal Tile
- Form 6a - LBP Record Of Building Work - External Plastering - Hebel PowerPanel 50 With Plaster Facade System
- Form 6a - LBP Record Of Building Work - Foundations - TC2 Slab
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- Form 6a - LBP record of building work - Carpentry
- Form 6a - LBP record of building work - Brick and blocklaying
- G9: Energy works certificate

History

Inspection Name	**Summary**
Siting and Site Scrape Inspection	**PASS** - 11 Sep 2020
Wastepipes	**PASS** - 08 Sep 2020
Floor Slab	**PASS** - 14 Sep 2020
Framing / Pre-wrap	**PASS** - 20 Oct 2020
Post Wrap / Cavity	-
Pre-plaster	-
Half High Brick	-
Preline Plumbing	-
Preline Building	-
Post Line	-
Drainage	**PASS** - 30 Sep 2020
P+D final	-
Building Final	-

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accepted. Thank you.

Yours Sincerely,

Donna Malcolm
BCOI
On behalf of: Tauranga City Council

Notes: lbp framing



Notes: brace



Notes: type f lintel



Notes: roof brace



Notes: lintel



Notes: roof wall connection



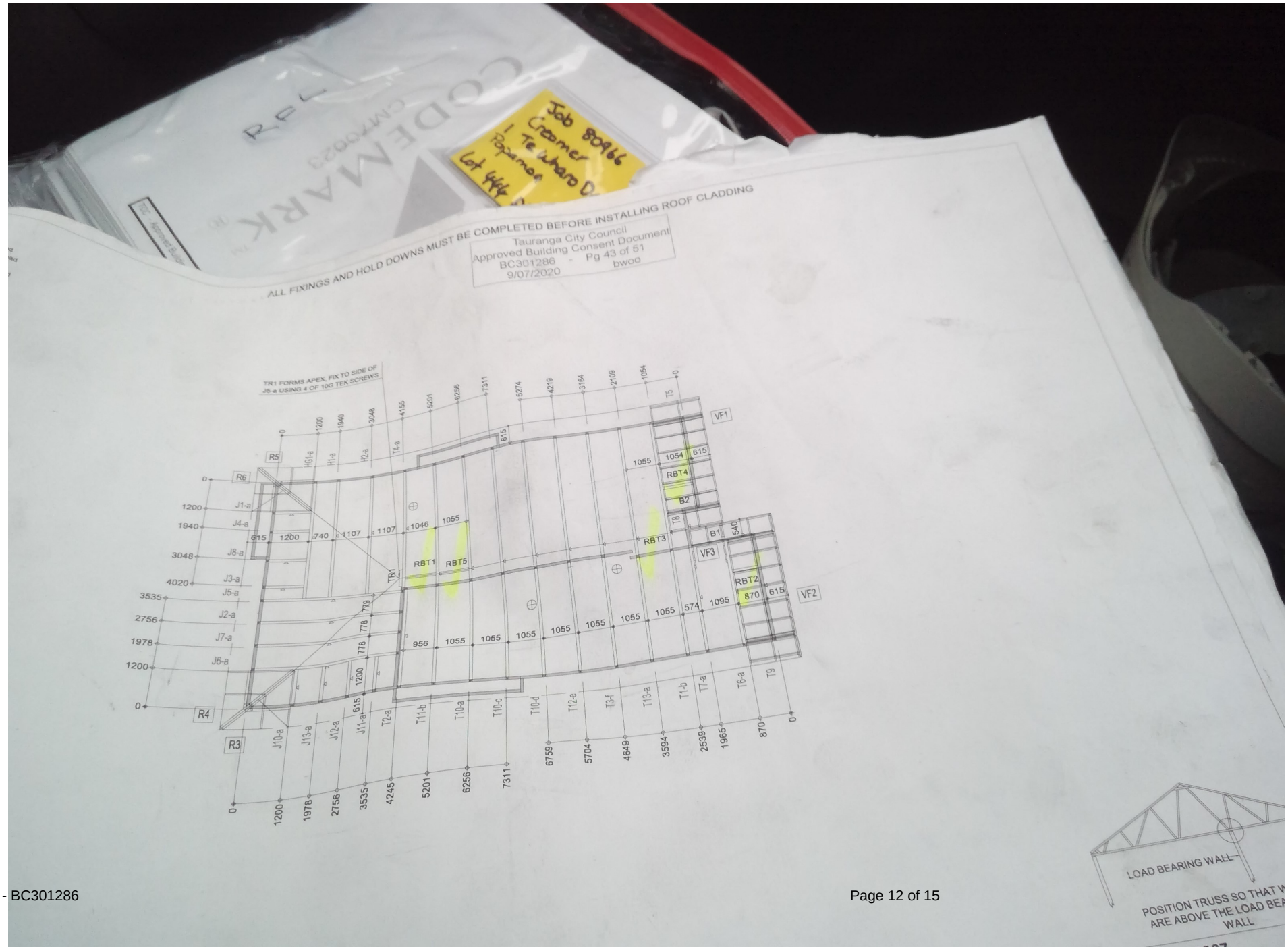
Notes: rondo battens



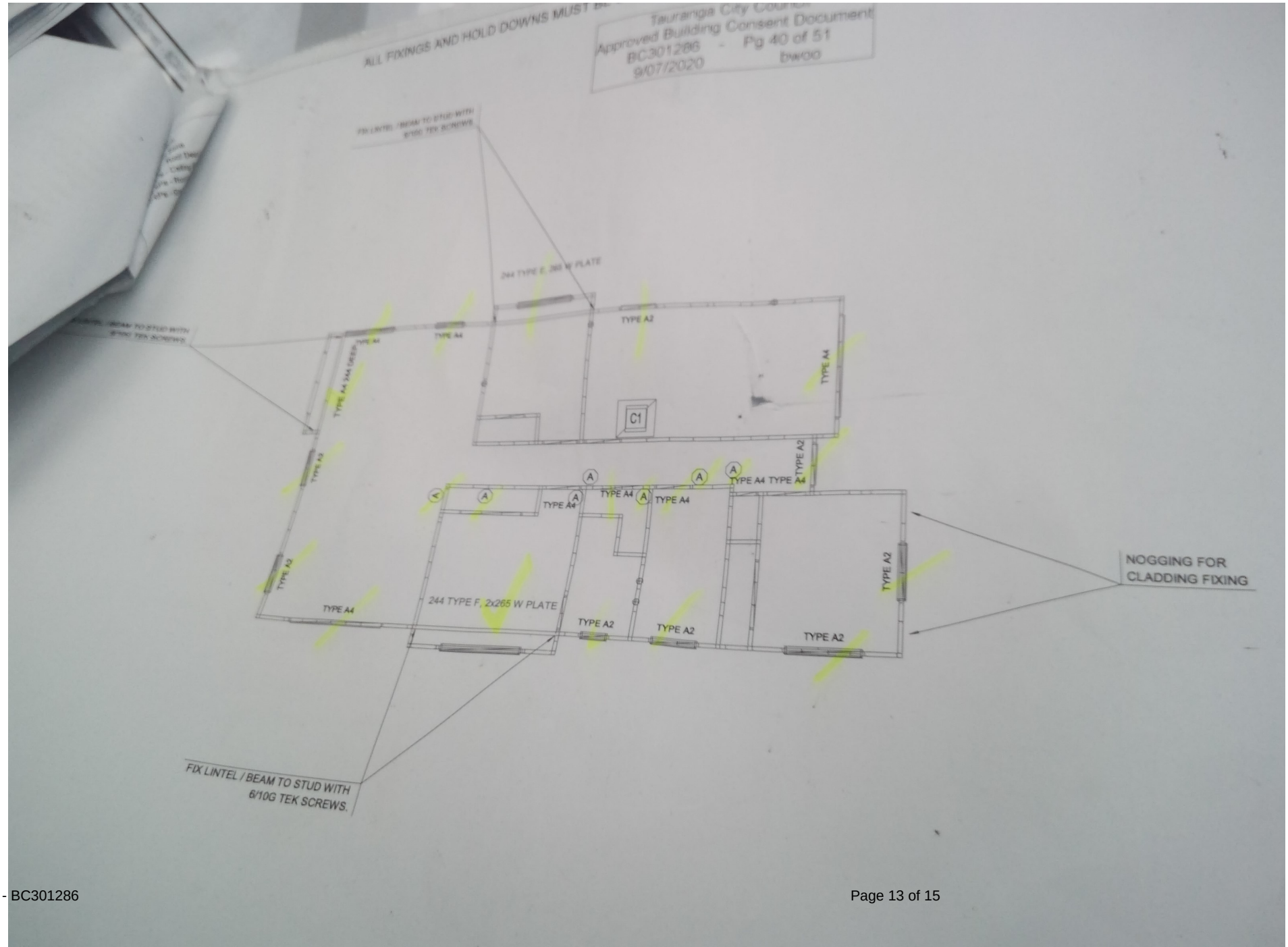
Notes: roof to exterior wall connection



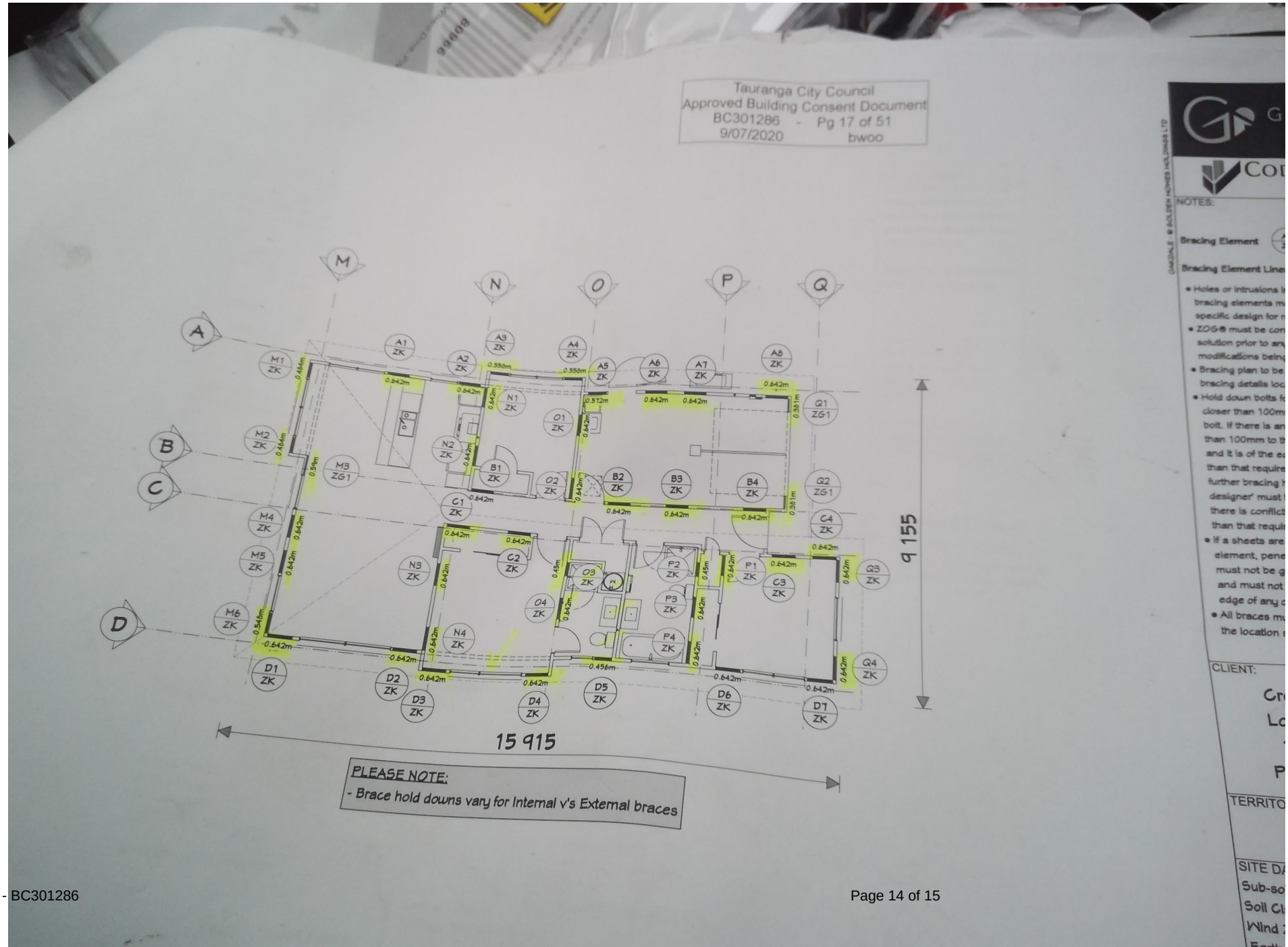
Notes: roof plan marked up



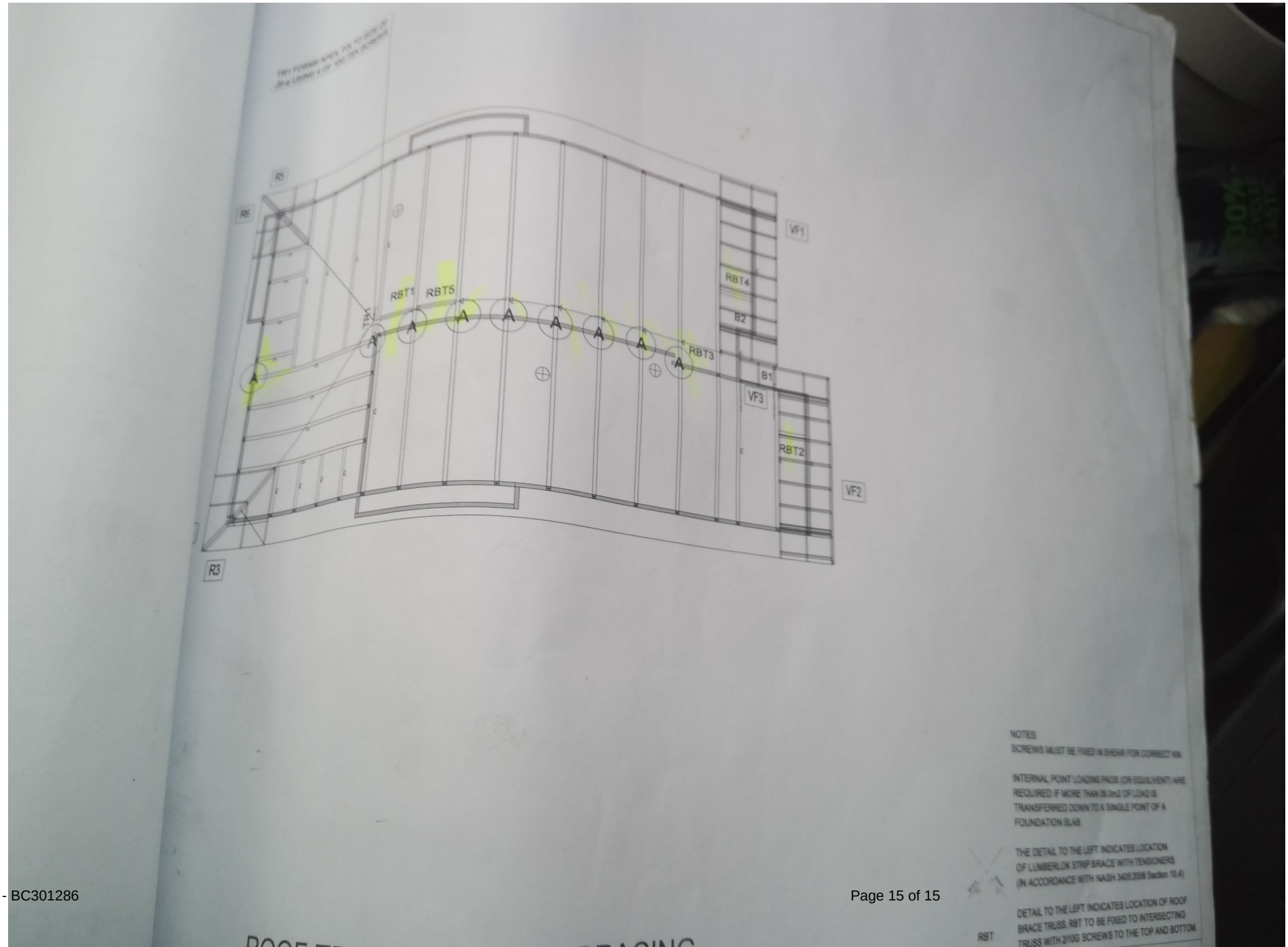
Notes: lintel plan marked up



Notes: bracing pan marked up



Notes: roof fixing and bracing



02 November 2020

Paul Colin and Katie Creamer
51 Te Wharo Drive
Papamoa Beach
Papamoa 3118

Dear Sir or Madam,

Building Consent Number: BC301286
Project Location: 1 Te Wharo Drive
Papamoa Beach
Papamoa 3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Erect single level, three bedroom dwelling with attached single garage.
IR Number: 7

Inspection Results:
PRELINE PLUMBING - 02 Nov 2020 @ 09:54 by Hamish Alexander

Inspection Outcome: PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

P+D FINAL - 02 Nov 2020 @ 09:54 by Hamish Alexander

Inspection Outcome: FAIL- The following aspects of this inspection have resulted in a Fail result -- see the item(s) below:

G13: Foul Water:
1. upon completion of plumbing fixtures as discussed with Greg Swanberg
- AAV valve to be fitted under kitchen sink to vent 65mm branch line of kitchen and laundry
- AAV traps to be fitted to vanities due to combined 40mm waste pipe to gully.

These may be viewed at time of next inspection.

Inspection Summary: Pre line plumbing inspection.
Works appears in line with consented documentation and means of compliance G12 AS/1 and G13 AS/3 VVMP HWC Refer to photos.
Water test sighted.

50mm vent completed through roof.
Refer to photos.

Your next inspection will be: **Half High Brick**
Please plan your project ahead of time and book inspections as early as possible.

Outstanding Required Documents for this Building
Floor Slab

- B1: Slab - PS4 And Construction Monitoring Records

Building Final

- Form 6a - LBP Record Of Building Work - Roofing - Pressed Metal Tile
- Form 6a - LBP Record Of Building Work - External Plastering - Hebel PowerPanel 50 With Plaster Facade System
- Form 6a - LBP Record Of Building Work - Foundations - TC2 Slab
- B1: Slab - Concrete Verification - 25 MPa Concrete With 15kgm3 Of Dramix 3D8060BG TC2
- PS3 - Installer To Confirm Truss And Frame Construction Is In Accordance With Consented Plans
- Form 6a - LBP record of building work - Carpentry
- Form 6a - LBP record of building work - Brick and blocklaying
- G9: Energy works certificate

History

Inspection Name	**Summary**
Siting and Site Scrape Inspection	**PASS** - 11 Sep 2020
Wastepipes	**PASS** - 08 Sep 2020
Floor Slab	**PASS** - 14 Sep 2020
Framing / Pre-wrap	**PASS** - 20 Oct 2020
Post Wrap / Cavity	-
Pre-plaster	-
Half High Brick	-
Preline Plumbing	**PASS** - 02 Nov 2020
Preline Building	-
Post Line	-
Drainage	**PASS** - 30 Sep 2020
P+D final	**IN-PROGRESS** - 02 Nov 2020 **View at next inspection**
Building Final	-

If you'd like to email us about this inspection report, please address it to 301286@tauranga.abcs.co.nz.

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Yours Sincerely,

Hamish Alexander
BCO Inspections
On behalf of: Tauranga City Council

Notes: Preline Plumbing - Default #1 02/11/20.Nefa 4 in 1 valve garage wall



Notes: Preline Plumbing - Default #3 02/11/20. VVMP HWC hall cupboard 20mm 15mm rehau sliding sleeve



Notes: Preline Plumbing - Default #4 02/11/20. bridge in place at mixers during test



Notes: Preline Plumbing - Default #5 02/11/20. 50mm vent top plate brace installed



Notes: Preline Plumbing - Default #7 02/11/20. 50mm vent completed through roof top plate bracket fitted



Notes: Preline Plumbing - Default #6 02/11/20. water test sighetd



18 November 2020

Paul Colin and Katie Creamer
51 Te Wharo Drive
Papamoa Beach
Papamoa 3118

Dear Sir or Madam,

Building Consent Number: BC301286
Project Location: 1 Te Wharo Drive
Papamoa Beach
Papamoa 3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Erect single level, three bedroom dwelling with attached single garage.
IR Number: 8

Inspection Results:
PRELINE BUILDING - 18 Nov 2020 @ 09:27 by Alastair Aitchison

Inspection Outcome: PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

Site Communication:
Phone call with Steve Allen of Golden Homes to confirm inspection and LBP details

Inspection Summary:
Preline Building:
HomeRAB used as weather protection until cladding is complete
Layout is as per consented documents
Air seals around joinery completed
Insulation complies with the consented documents. Ceiling R3.6 Walls R2.2
Bracing layout complies with the building consent
Metal ceiling battens @450mm centers
Ducting in place in wet areas for extractor fans
Ok to continue

Your next inspection will be: **Post Wrap / Cavity**
Please plan your project ahead of time and book inspections as early as possible.

Unresolved Matters:
The following issues are noted as still to be resolved:

Inspection: P+D final on 02 Nov 2020 by Hamish Alexander
CM: 1. upon completion of plumbing fixtures as discussed with Greg Swanberg
- AAV valve to be fitted under kitchen sink to vent 65mm branch line of kitchen and laundry
- AAV traps to be fitted to vanities due to combined 40mm waste pipe to gully.

Outstanding Required Documents for this Building
Floor Slab

- B1: Slab - PS4 And Construction Monitoring Records

Building Final

- Form 6a - LBP Record Of Building Work - Roofing - Pressed Metal Tile
- Form 6a - LBP Record Of Building Work - External Plastering - Hebel PowerPanel 50 With Plaster Facade System
- Form 6a - LBP Record Of Building Work - Foundations - TC2 Slab
- B1: Slab - Concrete Verification - 25 MPa Concrete With 15kgm3 Of Dramix 3D8060BG TC2
- PS3 - Installer To Confirm Truss And Frame Construction Is In Accordance With Consented Plans
- Form 6a - LBP record of building work - Carpentry
- Form 6a - LBP record of building work - Brick and blocklaying
- G9: Energy works certificate

History

Inspection Name	Summary
Siting and Site Scrape Inspection	**PASS** - 11 Sep 2020
Wastepipes	**PASS** - 08 Sep 2020
Floor Slab	**PASS** - 14 Sep 2020
Framing / Pre-wrap	**PASS** - 20 Oct 2020
Post Wrap / Cavity	-
Pre-plaster	-
Half High Brick	-
Preline Plumbing	**PASS** - 02 Nov 2020
Preline Building	**PASS** - 18 Nov 2020
Post Line	-
Drainage	**PASS** - 30 Sep 2020
P+D final	**IN-PROGRESS** - 02 Nov 2020

	View at next inspection
Building Final	-

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Yours Sincerely,

Alastair Aitchison
Building Control Officer - Inspections
On behalf of: Tauranga City Council

Notes: Preline Building - Default #1 18/11/20. Air seals completed around joinery



Notes: Preline Building - Default #2 18/11/20. Certification stamp on joinery for High windzones



Notes: Preline Building - Default #3 18/11/20. Ducting in place in bathrooms for extractor fans



Notes: Preline Building - Default #4 18/11/20. Metal ceiling battens @450mm centers for 10mm GIB



Notes: Preline Building - Default #5 18/11/20. Safety stamps on windows in bathrooms



Notes: Preline Building - Default #6 18/11/20. Insulation walls R2.2 ceiling R3.6



Notes: Preline Building - Default #7 18/11/20. LBP Warren Airey BP133936



30 November 2020

Paul Colin and Katie Creamer
51 Te Wharo Drive
Papamoa Beach
Papamoa 3118

Dear Sir or Madam,

Building Consent Number: BC301286
Project Location: 1 Te Wharo Drive
Papamoa Beach
Papamoa 3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Erect single level, three bedroom dwelling with attached single garage.
IR Number: 9

Inspection Results:
HALF HIGH BRICK - 30 Nov 2020 @ 09:19 by Frank Lucas

Inspection Outcome: **PASS** - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

POST LINE - 30 Nov 2020 @ 09:19 by Frank Lucas

Inspection Outcome: **PASS** - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

Inspection Summary: Post line inspections:
The fixing of the bracing elements ZG1 are complete
Standard gib to wet areas.
10mm gib fixed @ 450 cls

Brick cavity inspection:
Wall tie treatment galv. 600mm vertically & 320 mm horizontal
The veneer cavity is clear of mortar
Control joints installed to Bowers specs
Back flashings with sill kick out & support bars installed to windows.

Ok to proceed

Your next inspection will be: **Post Wrap / Cavity**
Please plan your project ahead of time and book inspections as early as possible.
Unresolved Matters:
The following issues are noted as still to be resolved:

Inspection: P+D final on 02 Nov 2020 by Hamish Alexander
CM: 1. upon completion of plumbing fixtures as discussed with Greg Swanberg
- AAV valve to be fitted under kitchen sink to vent 65mm branch line of kitchen and laundry
- AAV traps to be fitted to vanities due to combined 40mm waste pipe to gully.

Outstanding Required Documents for this Building
Floor Slab

- B1: Slab - PS4 And Construction Monitoring Records

Building Final

- Form 6a - LBP Record Of Building Work - External Plastering - Hebel PowerPanel 50 With Plaster Facade System
- Form 6a - LBP Record Of Building Work - Foundations - TC2 Slab
- PS3 - Installer To Confirm Truss And Frame Construction Is In Accordance With Consented Plans
- Form 6a - LBP record of building work - Carpentry
- Form 6a - LBP record of building work - Brick and blocklaying
- G9: Energy works certificate

History

Inspection Name	**Summary**
Siting and Site Scrape Inspection	**PASS** - 11 Sep 2020
Wastepipes	**PASS** - 08 Sep 2020
Floor Slab	**PASS** - 14 Sep 2020
Framing / Pre-wrap	**PASS** - 20 Oct 2020
Post Wrap / Cavity	-
Pre-plaster	-
Half High Brick	**PASS** - 30 Nov 2020
Preline Plumbing	**PASS** - 02 Nov 2020
Preline Building	**PASS** - 18 Nov 2020
Post Line	**PASS** - 30 Nov 2020
Drainage	**PASS** - 30 Sep 2020

P+D final	IN-PROGRESS - 02 Nov 2020 **View at next inspection**
Building Final	-

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Yours Sincerely,

Frank Lucas
Inspector
On behalf of: Tauranga City Council

Notes: Half High Brick - Default #1 30/11/20



Notes: Post Line - Default #1 30/11/20



Notes: Half High Brick - Default #2 30/11/20



Notes: Half High Brick - Default #3 30/11/20



Notes: Half High Brick - Default #4 30/11/20



Notes: Half High Brick - Default #5 30/11/20



Notes: Half High Brick - Default #6 30/11/20



Notes: Half High Brick - Default #7 30/11/20



Notes: Half High Brick - Default #8 30/11/20



03 December 2020

Paul Colin and Katie Creamer
51 Te Wharo Drive
Papamoa Beach
Papamoa 3118

Dear Sir or Madam,

Building Consent Number: BC301286
Project Location: 1 Te Wharo Drive
Papamoa Beach
Papamoa 3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Erect single level, three bedroom dwelling with attached single garage.
IR Number: 10

Note: No inspections have been recorded since last inspection report was generated.

Inspection Summary:

*** Inspection already completed by F.Lu. on 30 Nov - This inspection slot may not have been cancelled by PM ***

Your next inspection will be: **Building Final**
Please plan your project ahead of time and book inspections as early as possible.
Unresolved Matters:
The following issues are noted as still to be resolved:

Inspection: P+D final on 02 Nov 2020 by Hamish Alexander
CM: 1. upon completion of plumbing fixtures as discussed with Greg Swanberg
- AAV valve to be fitted under kitchen sink to vent 65mm branch line of kitchen and laundry
- AAV traps to be fitted to vanities due to combined 40mm waste pipe to gully.

Outstanding Required Documents for this Building
Floor Slab

- B1: Slab - PS4 And Construction Monitoring Records

Building Final

- Form 6a - LBP Record Of Building Work - External Plastering - Hebel PowerPanel 50 With Plaster Facade System
- Form 6a - LBP Record Of Building Work - Foundations - TC2 Slab
- PS3 - Installer To Confirm Truss And Frame Construction Is In Accordance With Consented Plans
- Form 6a - LBP record of building work - Carpentry
- Form 6a - LBP record of building work - Brick and blocklaying
- G9: Energy works certificate

History

Inspection Name	**Summary**
Siting and Site Scrape Inspection	**PASS** - 11 Sep 2020
Wastepipes	**PASS** - 08 Sep 2020
Floor Slab	**PASS** - 14 Sep 2020
Framing / Pre-wrap	**PASS** - 20 Oct 2020
Post Wrap / Cavity	-
Pre-plaster	-
Half High Brick	**PASS** - 30 Nov 2020
Preline Plumbing	**PASS** - 02 Nov 2020
Preline Building	**PASS** - 18 Nov 2020
Post Line	**PASS** - 30 Nov 2020
Drainage	**PASS** - 30 Sep 2020
P+D final	**IN-PROGRESS** - 02 Nov 2020
	View at next inspection
Building Final	-

If you'd like to email us about this inspection report, please address it to 301286@tauranga.abcs.co.nz.

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Yours Sincerely,

Jason Moore
Inspector
On behalf of: Tauranga City Council

04 December 2020

Paul Colin and Katie Creamer
51 Te Wharo Drive
Papamoa Beach
Papamoa 3118

Dear Sir or Madam,

Building Consent Number: BC301286
Project Location: 1 Te Wharo Drive
Papamoa Beach
Papamoa 3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Erect single level, three bedroom dwelling with attached single garage.
IR Number: 11

Inspection Results:
POST WRAP / CAVITY - 04 Dec 2020 @ 11:56 by Alastair Aitchison

Inspection Outcome: PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

Formal Directive:
Cavity construction above garage door has not started. Upon inspection all cavity construction is an accordance with the consented documents and believe that the cavity above the garage door will be constructed in the same good workmanship practices as the rest of the works

Site Communication:
No one onsite at time of inspection

Inspection Summary:
Steel frame plaster cladding
Post wrap cavity:
Cavity construction complies with consented documents
DPC used around joinery for plaster cladding
Sill support bars installed
Head flashings installed and sealed to RAB
Aluminum cavity closer installed at base of cavity
Roof construction in accordance with consented documents

Ok to continue

Your next inspection will be: **Building Final**

Please plan your project ahead of time and book inspections as early as possible.

Unresolved Matters:

The following issues are noted as still to be resolved:

Inspection: P+D final on 02 Nov 2020 by Hamish Alexander

CM: 1. upon completion of plumbing fixtures as discussed with Greg Swanberg

- AAV valve to be fitted under kitchen sink to vent 65mm branch line of kitchen and laundry
- AAV traps to be fitted to vanities due to combined 40mm waste pipe to gully.

Outstanding Required Documents for this Building

Floor Slab

- B1: Slab - PS4 And Construction Monitoring Records

Building Final

- Form 6a - LBP Record Of Building Work - External Plastering - Hebel PowerPanel 50 With Plaster Facade System
- Form 6a - LBP Record Of Building Work - Foundations - TC2 Slab
- PS3 - Installer To Confirm Truss And Frame Construction Is In Accordance With Consented Plans
- Form 6a - LBP record of building work - Carpentry
- Form 6a - LBP record of building work - Brick and blocklaying
- G9: Energy works certificate

History

Inspection Name	**Summary**
Siting and Site Scrape Inspection	**PASS** - 11 Sep 2020
Wastepipes	**PASS** - 08 Sep 2020
Floor Slab	**PASS** - 14 Sep 2020
Framing / Pre-wrap	**PASS** - 20 Oct 2020
Post Wrap / Cavity	**PASS** - 04 Dec 2020
Pre-plaster	-
Half High Brick	**PASS** - 30 Nov 2020
Preline Plumbing	**PASS** - 02 Nov 2020
Preline Building	**PASS** - 18 Nov 2020
Post Line	**PASS** - 30 Nov 2020

Drainage	**PASS** - 30 Sep 2020
P+D final	**IN-PROGRESS** - 02 Nov 2020
	View at next inspection
Building Final	-

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Yours Sincerely,

Alastair Aitchison
Building Control Officer - Inspections
On behalf of: Tauranga City Council

Notes: Post Wrap / Cavity - Default #1 04/12/20. Elevation 3. Hardies HomeRAB installed as Air barrier tape and sealed with 3M tape. DPC installed around joinery as flashing for plaster cladding. Sill support bars installed under all joinery. Aluminum cavity closer installed at base of cavity. 18mm hardies used as flashing at top of joiner as per consented plan. Metal cavity battens @600mm centers with metal C channels closing off brick cavity from plaster cladding.



Notes: Post Wrap / Cavity - Default #2 04/12/20. Elevation 2. Hardies HomeRAB installed as Air barrier tape and sealed with 3M tape. DPC installed around joinery as flashing for plaster cladding. Sill support bars installed under all joinery. Aluminum cavity closer installed at base of cavity. Aluminum head flashing installed above joinery and sealed to RAB. Metal cavity battens @600mm centers with metal C channels closing off brick cavity from plaster cladding.



Notes: Post Wrap / Cavity - Default #3 04/12/20. LBP Roofer Julio Masigan BP125562



Notes: Post Wrap / Cavity - Default #4 04/12/20. LBP Cavity Murray Christie BP119346



17 February 2021

Paul Colin and Katie Creamer
51 Te Wharo Drive
Papamoa Beach
Papamoa 3118

Dear Sir or Madam,

Building Consent Number: BC301286
Project Location: 1 Te Wharo Drive
Papamoa Beach
Papamoa 3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Erect single level, three bedroom dwelling with attached single garage.
IR Number: 12

Inspection Results:
P+D FINAL - 17 Feb 2021 @ 08:33 by Frank Lucas

Inspection Outcome: PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

BUILDING FINAL - 17 Feb 2021 @ 08:33 by Frank Lucas

Inspection Outcome: **PASS** - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

Inspection Summary: A visual on site final inspection was undertaken with no obvious issues.
Interior of dwelling is complete with carpet & vinyl laid.
Smoke alarms installed within 3 meters of all bedrooms.
Concrete drive & paths laid. Top soil to be placed.
Document assessment complete

CCC can be issued subject to checking of fees

Your next inspection will be: **No further inspection required**

Outstanding Required Documents for this Building

Building Final

- G9: Energy works certificate

History

Inspection Name	Summary
Siting and Site Scrape Inspection	**PASS** - 11 Sep 2020
Wastepipes	**PASS** - 08 Sep 2020
Floor Slab	**PASS** - 14 Sep 2020
Framing / Pre-wrap	**PASS** - 20 Oct 2020
Post Wrap / Cavity	**PASS** - 04 Dec 2020
Pre-plaster	**NOT APPLICABLE**
Half High Brick	**PASS** - 30 Nov 2020
Preline Plumbing	**PASS** - 02 Nov 2020
Preline Building	**PASS** - 18 Nov 2020
Post Line	**PASS** - 30 Nov 2020
Drainage	**PASS** - 30 Sep 2020
P+D final	**PASS** - 17 Feb 2021
Building Final	**PASS** - 17 Feb 2021

If you'd like to email us about this inspection report, please address it to 301286@tauranga.abcs.co.nz.

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Yours Sincerely,

Frank Lucas

Inspector
On behalf of: Tauranga City Council

Notes: Building Final - Default #1 17/02/21



Notes: Building Final - Default #2 17/02/21



Notes: Building Final - Default #1 17/02/21



Notes: Building Final - Default #2 17/02/21



Notes: Building Final - Default #3 17/02/21



Notes: Building Final - Default #4 17/02/21



Notes: Building Final - Default #5 17/02/21



Notes: Building Final - Default #6 17/02/21



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Siting and Site Scrape Inspection
Question: Section 84 - 89: Restricted Building Work: Have the names of Licensed Building Practitioners undertaking restricted building work been obtained and entered into AlphaOne?
Inspector: Frank Lucas
Timestamp: 2020-09-11 07:07:49
Comment: Siting and Site Scrape Inspection - Default #1 11/09/20



Building: Main Building
Inspection: Wastepipes
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Blair Johnstone
Timestamp: 2020-09-08 14:29:37
Comment: 65mm Kitchen Wastepipes - Default #1 08/09/20



Building: Main Building
Inspection: Wastepipes
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Blair Johnstone
Timestamp: 2020-09-08 14:29:37
Comment: 65mm Laundry Wastepipes - Default #2 08/09/20



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Wastepipes
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Blair Johnstone
Timestamp: 2020-09-08 14:29:37
Comment: Ensuite and HWC Wastepipes - Default #3 08/09/20



Building: Main Building
Inspection: Wastepipes
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Blair Johnstone
Timestamp: 2020-09-08 14:29:37
Comment: Bathroom Wastepipes - Default #4 08/09/20



Building: Main Building
Inspection: Wastepipes
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Blair Johnstone
Timestamp: 2020-09-08 14:29:37
Comment: Gradient check Wastepipes - Default #5 08/09/20

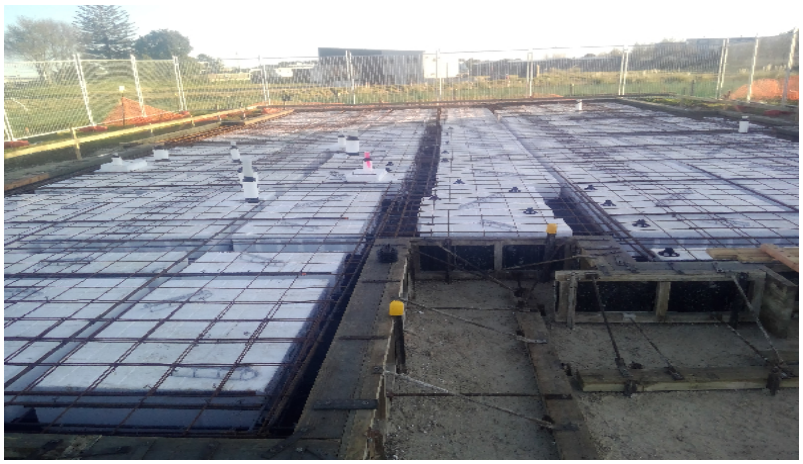


Inspection Photos Record on Project 301286

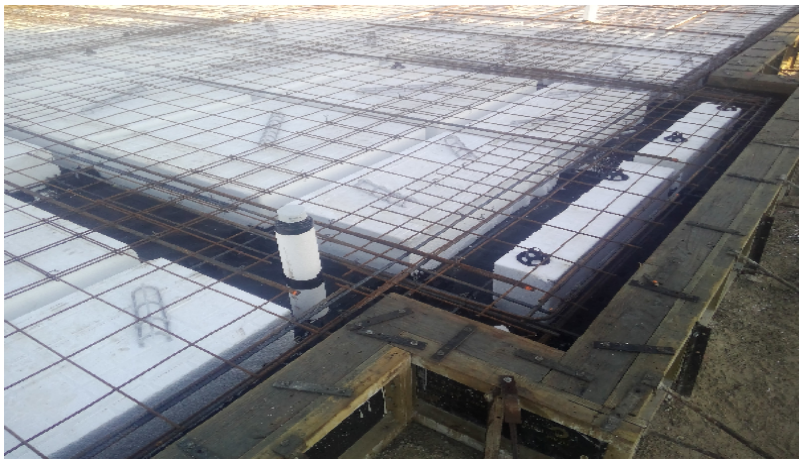
Building: Main Building
Inspection: Wastepipes
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Blair Johnstone
Timestamp: 2020-09-08 14:29:37
Comment: Water test Wastepipes - Default #6 08/09/20



Building: Main Building
Inspection: Floor Slab
Question: B1: Floor Slab: Is floor slab siting and construction in accordance with building consent?
Inspector: Frank Lucas
Timestamp: 2020-09-11 07:07:49
Comment: Floor Slab - Default #1 11/09/20

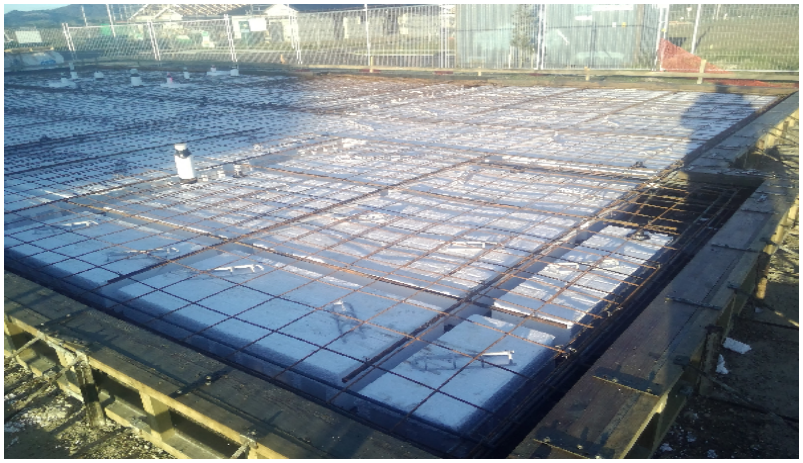


Building: Main Building
Inspection: Floor Slab
Question: B1: Floor Slab: Is floor slab siting and construction in accordance with building consent?
Inspector: Frank Lucas
Timestamp: 2020-09-11 07:07:49
Comment: Floor Slab - Default #2 11/09/20



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Floor Slab
Question: B1: Floor Slab: Is floor slab siting and construction in accordance with building consent?
Inspector: Frank Lucas
Timestamp: 2020-09-11 07:07:49
Comment: Floor Slab - Default #3 11/09/20



Building: Main Building
Inspection: Floor Slab
Question: B1: Floor Slab: Is floor slab siting and construction in accordance with building consent?
Inspector: Frank Lucas
Timestamp: 2020-09-11 07:07:49
Comment: Floor Slab - Default #4 11/09/20



Building: Main Building
Inspection: Framing / Pre-wrap
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Donna Malcolm
Timestamp: 2020-10-20 11:01:18
Comment: lbp framing



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Framing / Pre-wrap
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Donna Malcolm
Timestamp: 2020-10-20 11:01:18
Comment: brace



Building: Main Building
Inspection: Framing / Pre-wrap
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Donna Malcolm
Timestamp: 2020-10-20 11:01:18
Comment: type f lintel



Building: Main Building
Inspection: Framing / Pre-wrap
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Donna Malcolm
Timestamp: 2020-10-20 11:01:18
Comment: roof brace



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Framing / Pre-wrap
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Donna Malcolm
Timestamp: 2020-10-20 11:01:18
Comment: lintel



Building: Main Building
Inspection: Framing / Pre-wrap
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Donna Malcolm
Timestamp: 2020-10-20 11:01:18
Comment: roof wall connection



Building: Main Building
Inspection: Framing / Pre-wrap
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Donna Malcolm
Timestamp: 2020-10-20 11:01:18
Comment: rondo battens

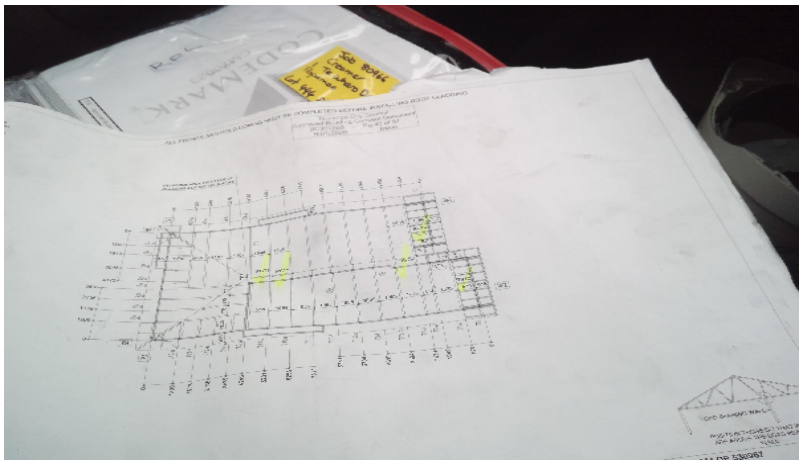


Inspection Photos Record on Project 301286

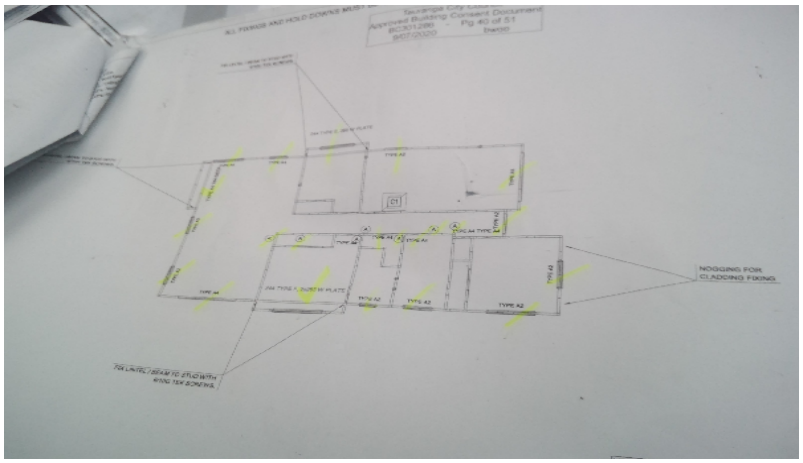
Building: Main Building
Inspection: Framing / Pre-wrap
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Donna Malcolm
Timestamp: 2020-10-20 11:01:18
Comment: roof to exterior wall connection



Building: Main Building
Inspection: Framing / Pre-wrap
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Donna Malcolm
Timestamp: 2020-10-20 11:01:18
Comment: roof plan marked up

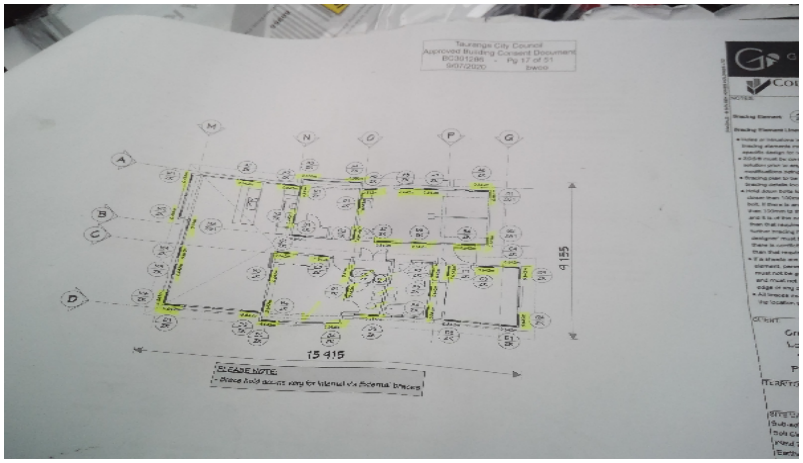


Building: Main Building
Inspection: Framing / Pre-wrap
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Donna Malcolm
Timestamp: 2020-10-20 11:01:18
Comment: lintel plan marked up

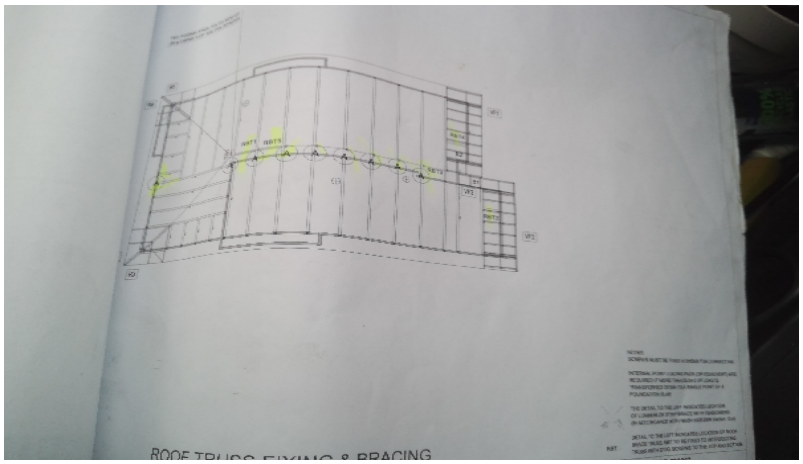


Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Framing / Pre-wrap
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Donna Malcolm
Timestamp: 2020-10-20 11:01:18
Comment: bracing pan marked up



Building: Main Building
Inspection: Framing / Pre-wrap
Question: B1: Roof Truss Certification, Layout & Bracing: Is roof truss construction, layout, bracing and connections in accordance with building consent?
Inspector: Donna Malcolm
Timestamp: 2020-10-20 11:01:18
Comment: roof fixing and bracing



Building: Main Building
Inspection: Post Wrap / Cavity
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Alastair Aitchison
Timestamp: 2020-12-04 11:56:49
Comment: Post Wrap / Cavity - Default #1 04/12/20. Elevation 3. Hardies HomeRAB installed as Air barrier tape and sealed with 3M tape. DPC installed around joinery as flashing for plaster cladding. Sill support bars installed under all joinery. Aluminum cavity closer installe...



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Post Wrap / Cavity
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Alastair Aitchison
Timestamp: 2020-12-04 11:56:49
Comment: Post Wrap / Cavity - Default #2 04/12/20. Elevation 2. Hardies HomeRAB installed as Air barrier tape and sealed with 3M tape. DPC installed around joinery as flashing. Plaster cladding. Sill support over Wrap / Cavity



Building: Main Building
Inspection: Post Wrap / Cavity
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Alastair Aitchison
Timestamp: 2020-12-04 11:56:49
Comment: Post Wrap / Cavity - Default #3 04/12/20. LBP Roofer Julio Masigan BP125562

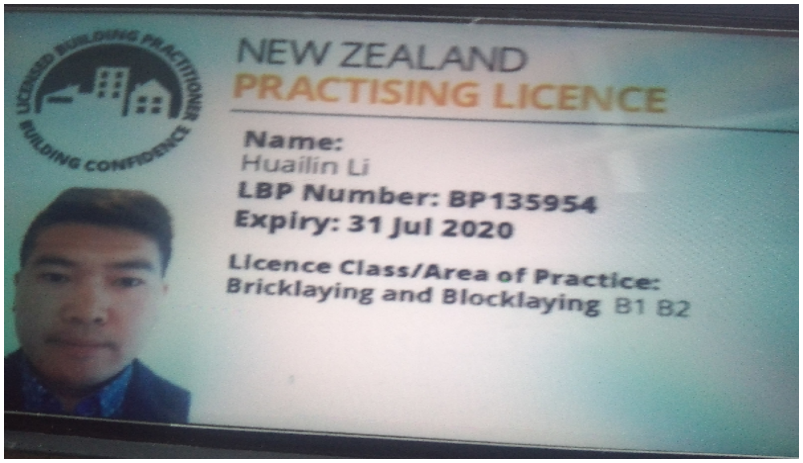


Building: Main Building
Inspection: Post Wrap / Cavity
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Alastair Aitchison
Timestamp: 2020-12-04 11:56:49
Comment: Post Wrap / Cavity - Default #4 04/12/20. LBP Cavity Murray Christie BP119346



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Half High Brick
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Frank Lucas
Timestamp: 2020-11-30 09:14:35
Comment: Half High Brick - Default #1 30/11/20



Building: Main Building
Inspection: Half High Brick
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Frank Lucas
Timestamp: 2020-11-30 09:19:33
Comment: Half High Brick - Default #2 30/11/20



Building: Main Building
Inspection: Half High Brick
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Frank Lucas
Timestamp: 2020-11-30 09:19:33
Comment: Half High Brick - Default #3 30/11/20



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Half High Brick
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Frank Lucas
Timestamp: 2020-11-30 09:19:33
Comment: Half High Brick - Default #4 30/11/20



Building: Main Building
Inspection: Half High Brick
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Frank Lucas
Timestamp: 2020-11-30 09:19:33
Comment: Half High Brick - Default #5 30/11/20



Building: Main Building
Inspection: Half High Brick
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Frank Lucas
Timestamp: 2020-11-30 09:19:33
Comment: Half High Brick - Default #6 30/11/20



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Half High Brick
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Frank Lucas
Timestamp: 2020-11-30 09:19:33
Comment: Half High Brick - Default #7 30/11/20



Building: Main Building
Inspection: Half High Brick
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Frank Lucas
Timestamp: 2020-11-30 09:19:33
Comment: Half High Brick - Default #8 30/11/20



Building: Main Building
Inspection: Preline Plumbing
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-11-02 09:54:08
Comment: Preline Plumbing - Default #1 02/11/20.Nefa 4 in 1 valve garage wall



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Preline Plumbing
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-11-02 09:54:08
Comment: Preline Plumbing - Default #3 02/11/20. VVMP HWC hall cupboard 20mm 15mm rehau sliding sleeve



Building: Main Building
Inspection: Preline Plumbing
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-11-02 09:54:08
Comment: Preline Plumbing - Default #4 02/11/20. bridge in place at mixers during test



Building: Main Building
Inspection: Preline Plumbing
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-11-02 09:54:08
Comment: Preline Plumbing - Default #5 02/11/20. 50mm vent top plate brace installed



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Preline Plumbing
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-11-02 09:54:08
Comment: Preline Plumbing - Default #7 02/11/20. 50mm vent completed through roof top plate bracket fitted



Building: Main Building
Inspection: Preline Plumbing
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-11-02 09:54:08
Comment: Preline Plumbing - Default #6 02/11/20. water test sighetd



Building: Main Building
Inspection: Preline Building
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Alastair Aitchison
Timestamp: 2020-11-18 09:27:47
Comment: Preline Building - Default #1 18/11/20. Air seals completed around joinery



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Preline Building
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Alastair Aitchison
Timestamp: 2020-11-18 09:27:47
Comment: Preline Building - Default #2 18/11/20. Certification stamp on joinery for High windzones



Building: Main Building
Inspection: Preline Building
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Alastair Aitchison
Timestamp: 2020-11-18 09:27:47
Comment: Preline Building - Default #3 18/11/20. Ducting in place in bathrooms for extractor fans



Building: Main Building
Inspection: Preline Building
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Alastair Aitchison
Timestamp: 2020-11-18 09:27:47
Comment: Preline Building - Default #4 18/11/20. Metal ceiling battens @450mm centers for 10mm GIB



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Preline Building
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Alastair Aitchison
Timestamp: 2020-11-18 09:27:47
Comment: Preline Building - Default #5 18/11/20. Safety stamps on windows in bathrooms



Building: Main Building
Inspection: Preline Building
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Alastair Aitchison
Timestamp: 2020-11-18 09:27:47
Comment: Preline Building - Default #6 18/11/20. Insulation walls R2.2 ceiling R3.6



Building: Main Building
Inspection: Preline Building
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Alastair Aitchison
Timestamp: 2020-11-18 09:27:47
Comment: Preline Building - Default #7 18/11/20. LBP Warren Airey BP133936



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Post Line
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Frank Lucas
Timestamp: 2020-11-30 09:14:35
Comment: Post Line - Default #1 30/11/20



Building: Main Building
Inspection: Drainage
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-09-29 13:31:24
Comment: Drainage - Default #1 29/09/20. 1x 100mm type 1 sump connection driveway, 100mm SS @ 2%+ 100mm SW @ 3%



Building: Main Building
Inspection: Drainage
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-09-29 13:31:24
Comment: Drainage - Default #2 29/09/20. Flexible connections installed at exit from slab on SS connections



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Drainage
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-09-29 13:31:24
Comment: Drainage - Default #3 29/09/20. 100mm 90mm SW



Building: Main Building
Inspection: Drainage
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-09-29 13:31:24
Comment: Drainage - Default #4 29/09/20. water test sighed, ORG 150mm below overflow of lowest fixture RE head of SS line



Building: Main Building
Inspection: Drainage
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-09-29 13:31:24
Comment: Drainage - Default #5 29/09/20. SS line north side dwelling



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Drainage
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-09-29 13:31:24
Comment: Drainage - Default #6 29/09/20. 7 x 900mm dia soak rings 4 deep linked with 100mm PVCu



Building: Main Building
Inspection: Drainage
Question: F5: Construction and Demolition Hazards: Is site safety properly managed with work-site hazards identified and mitigated, and with suitable barriers, fences / hoardings provided to ensure public safety and restrict unauthorized site access by children?
Inspector: Hamish Alexander
Timestamp: 2020-09-29 13:31:24
Comment: Drainage - Default #7 29/09/20. SS water test leaving site through connection



Building: Main Building
Inspection: Drainage
Question: E1: Surface Water: Does the location and construction of sumps and drains comply with building consent?
Inspector: Hamish Alexander
Timestamp: 2020-09-29 13:31:24
Comment: Drainage - Default #1 29/09/20



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Drainage
Question: E1: Surface Water: Does the location and construction of sumps and drains comply with building consent?
Inspector: Hamish Alexander
Timestamp: 2020-09-29 13:31:24
Comment: Drainage - Default #2 29/09/20



Building: Main Building
Inspection: Building Final
Question: G7 - Natural Light: Are windows and openings that have been provided to provide natural light located and sized in accordance with building consent?
Inspector: Frank Lucas
Timestamp: 2021-02-17 08:34:04
Comment: Building Final - Default #1 17/02/21



Building: Main Building
Inspection: Building Final
Question: G7 - Natural Light: Are windows and openings that have been provided to provide natural light located and sized in accordance with building consent?
Inspector: Frank Lucas
Timestamp: 2021-02-17 08:34:04
Comment: Building Final - Default #2 17/02/21



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Building Final
Question: G8 - Artificial Light: Is the type & placement of light switches and light fittings that provide artificial lighting in accordance with building consent?
Inspector: Frank Lucas
Timestamp: 2021-02-17 08:34:04
Comment: Building Final - Default #1 17/02/21



Building: Main Building
Inspection: Building Final
Question: G8 - Artificial Light: Is the type & placement of light switches and light fittings that provide artificial lighting in accordance with building consent?
Inspector: Frank Lucas
Timestamp: 2021-02-17 08:34:04
Comment: Building Final - Default #2 17/02/21



Building: Main Building
Inspection: Building Final
Question: G8 - Artificial Light: Is the type & placement of light switches and light fittings that provide artificial lighting in accordance with building consent?
Inspector: Frank Lucas
Timestamp: 2021-02-17 08:34:04
Comment: Building Final - Default #3 17/02/21



Inspection Photos Record on Project 301286

Building: Main Building
Inspection: Building Final
Question: G8 - Artificial Light: Is the type & placement of light switches and light fittings that provide artificial lighting in accordance with building consent?
Inspector: Frank Lucas
Timestamp: 2021-02-17 08:34:04
Comment: Building Final - Default #4 17/02/21



Building: Main Building
Inspection: Building Final
Question: G8 - Artificial Light: Is the type & placement of light switches and light fittings that provide artificial lighting in accordance with building consent?
Inspector: Frank Lucas
Timestamp: 2021-02-17 08:34:04
Comment: Building Final - Default #5 17/02/21



Building: Main Building
Inspection: Building Final
Question: G8 - Artificial Light: Is the type & placement of light switches and light fittings that provide artificial lighting in accordance with building consent?
Inspector: Frank Lucas
Timestamp: 2021-02-17 08:34:04
Comment: Building Final - Default #6 17/02/21



Professional
Consulting
Engineers

01/09/20
Ref. 6860

Tauranga City Council
Private Bag 12022
Tauranga 3143

Attention: Manager: Building Services

Re: 6860 - 80966 - Creamer - Lot 444, DP 530967 - BC Number 301286

Dear Sir/Madam,

We write to inform you that we have inspected the fill for the proposed house and have undertaken Scala Penetrometer tests of the fill and underlying ground to check suitable ground bearing conditions.

The tests results gave an ultimate bearing capacity of over 200kPa (6 Blows per 300mm) as per requirement in the calculations.

We believe on reasonable grounds that the site is suitable to support the proposed house.

Yours faithfully
e3 Consultants NZ Ltd

Hamish Pearse-Danker
CPEng 1011810

Professional Consulting Engineers

Job No.: 6860
Job Name: 80966 - Creamer
Client: ZOG Ltd
Subject:
Date: 1/9/20

Ground check start: finish:

Site Address: **1 Te Wharo Drive, Papamoa, Tauranga 3118** Lot 444

Check Building Consent for specific requirements if issued BC. Number 301286

Vegetation, topsoil, organic or deleterious material removed ✓

Proximity to sloping ground min 1m and outside of 1:2 influence line ✓

Formation area extends at least 1m beyound building footprint ✓

Check location of underground services ✓

Carry out 1 test per 50m2
And mark locations and results on site plan ✓

Check ground condition (i.e. Penetrometer test, shear vane test) ✓

Blows per 300mm	Allowable Bearing kPa	Ultimate kPa
10	118	354
9	100	300
8	91	273
7	79	237
6	70	210
5	50	150
4	40	120
3	29	87
2	21	63

Bearing capacity > as requirement on drawings/calculations ✓

Carry out hand augers to determine soil build up
(Topsoil, pumice, fines, sand, silty clay, orange clay…) ✓

Site notes:

Site visit carried out by:

Hamish Pearse-Danker

Site Foreman:

Golden Homes.

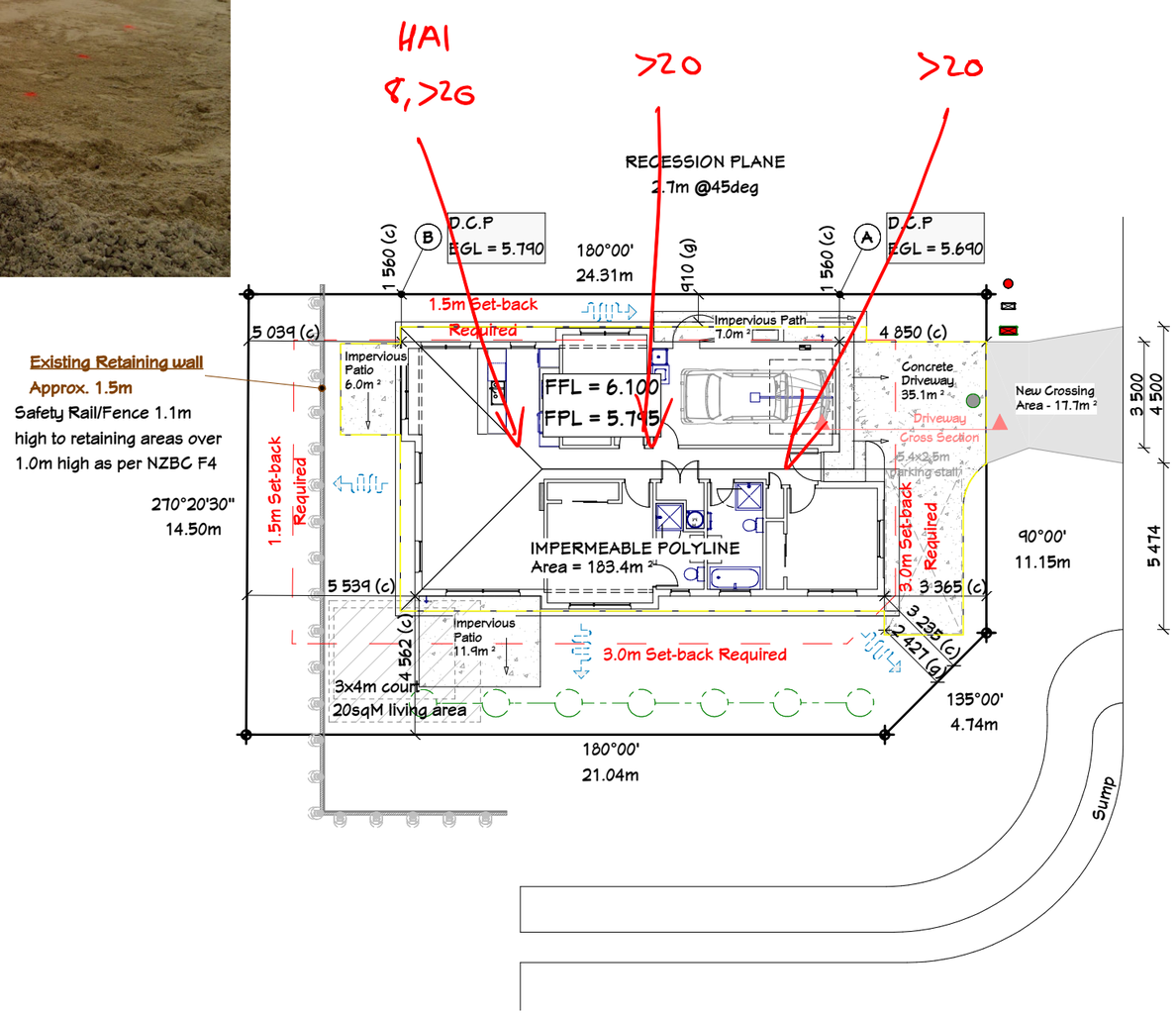


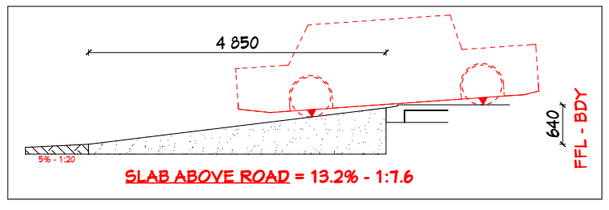
Blow/ 300

HAI
8, >26

>20

>20





1 Te Wharo Drive

HAI
0-25 sand
25-75 quarry fines
75 -> sand



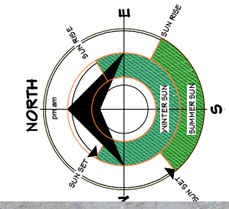
OAKDALE - © GOLDEN HOMES HOLDINGS LTD

GOLDEN HOMES™

NOTES:

KEY

FFL = Finished floor level
FGL = Finished ground level
FPL = Finished platform level
EGL = Existing ground level
D.C.P = Daylight control point
(f) = Dimension to foundation
(c) = Dimension to cladding
(g) = Dimension to gutter/eave
= Phone/Fibre
= Power
= Water
= Bubble Up Chamber
= Type 1 sump
= Type 2 sump
= Drainage channel
= Overland flow path
= Fall of paving



31142

Building Location Certificate

Tauranga City

TCC Reference: (BC / RC)	**BC301286**		
Applicant/Owner:	**Paul Colin and Katie Creamer**		
Property Address:	**1 Te Wharo Drive, Papamoa, Tauranga**		
Legal Description: (Lot / DP)	**Lot 444 DP 530967**	**CT / CFR**	**866647**

A. Floor Level survey required by TCC? ✓ Yes ☐ No (go to Section B)

1. The following was surveyed: ☐ Completed Floor ✓ Other (specify) **Boxing**
2. Do the approved Building Consent plans have a specified minimum floor level? ✓ Yes ☐ No
   (If 'Yes' then complete Option A and Option B below)
3. Survey Date: **08/09/2020**

4. **Option A**	**Option B**
The Surveyed floor level is **RL = 6.11m (Boxing)** ✓ Moturiki Datum ☐ Other (E.g. assumed Datum) Origin of Levels: **TCC BM1349 RL 5.07m**	The surveyed floor level complies with: **Minimum FFL = 6.05m** (E.g. consent notice requirement, approved BC plans, etc.)

5. Comments: **Boxing Level = 0.01m above Design FFL**

B. Building Location survey required by TCC? ✓ Yes ☐ No (go to Section C)

1. The following was surveyed: ☐ Completed Floor ✓ Other (please comment below) **Boxing**
2. Survey Date: **08/09/2020**
3. The surveyed building footprint is in accordance with the setbacks shown on the approved Building Consent Plans. ☐ Yes ✓ No ✓ See attached plan/photos (if required)
   NB: where necessary the 'footprint' will factor in the exterior cladding projecting past the foundation. Walls and eaves must comply with C/AS1/5.1.1(a), 5.2. & Fig. 5.1. Attach drawings or photos with comments if you think there is an issue.
4. Comments: **Setback dimensions are as shown on the attached plan (20-31142-01-S1) and are generally in accordance with the design, with differences in the order of 0.01-0.03m**
   Design Reference Plan: Golden Homes, Job No 80966, Site Works, Sheet 4 of 39, Dated 09/06/2020

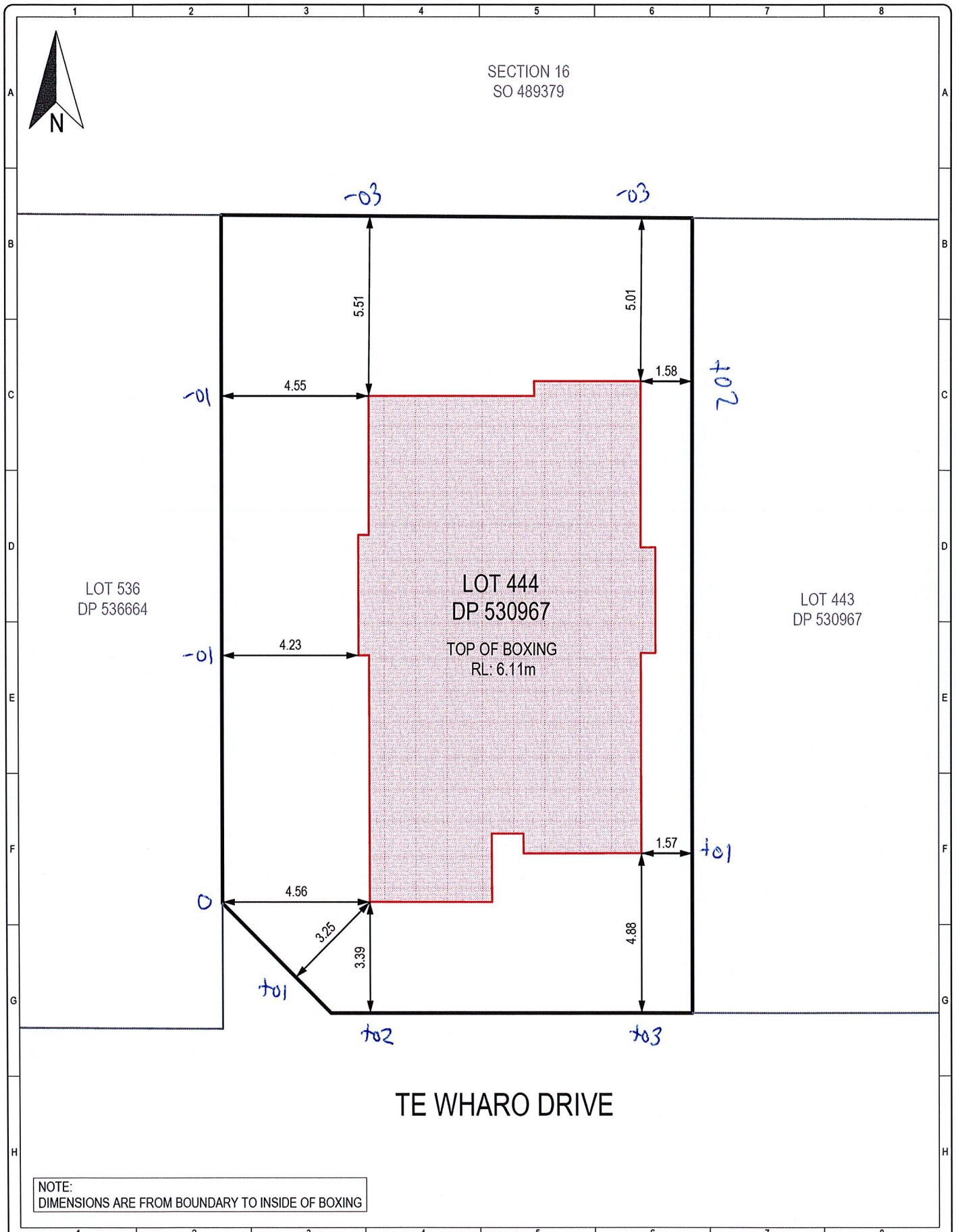
C. Overshadowing survey required by TCC? ☐ Yes ✓ No (go to Section D)

1. The building was surveyed and complies with the City Plan rules for overshadowing or relevant Resource Consent. ☐ Yes ☐ No ☐ See attached plan/photos (as/if required)
   NB: Where overshadowing is allowed by permitted intrusions, written approval, or Resource Consent, illustrations are required.
2. Survey Date:
3. Comments (including boundaries specified):

D. Survey Firm Declaration

1. We have been engaged by the applicant stated above and have carried out the necessary field survey(s) to confirm the items detailed above and believe on reasonable grounds that the information provided is true and accurate within acceptable survey tolerances.

2.	**Survey Firm:**	**S & L**	
3.	**Survey Firm Contact Details:**	Postal Address: **P.O. Box 231, Tauranga 3140**	
		Email: info@sltga.co.nz Phone: **07 577 6069**	
4.	**Licensed Cadastral Surveyor** (delete as appropriate) **Registered Professional Surveyor** (signed on behalf of Survey Firm)	Print Name: **Cameron Martin** Signature:	License No: **500531** RPSurv No: **455** Date: 10-9-2020



S&L
Land Development and Design Specialists
Ph. 07 577 6069
Email: info@sltga.co.nz
36 Kereiti Street, Mt Maunganui, Tauranga 3116
P.O. Box 231, Tauranga 3140
www.sltga.co.nz

Title

BUILDING LOCATION SURVEY

LOT 444 DP 530967
1 TE WHARO DRIVE, PAPAMOA, TAURANGA
PREPARED FOR GOLDEN HOMES

Rev	Description	Drn	Ckd	App	Date
1	ISSUED FOR REVIEW	HNC	CAM	CAM	09/2020
0	PRELIMINARY	HNC	CAM	CAM	09/2020

	Name	Date		Name	Date
Surveyed	HNC	08/09/2020	Designed		

Coordinate System: NZGD2000 (BAY OF PLENTY CIRCUIT)
Origin of Coordinates: BM 23 DP 530967
Height Datum: MOTURIKI DATUM 1953
Origin of Height: TCC BM1349 RL: 5.07m

Original Scales @ A4: 1:150
Do Not Scale Dimensions

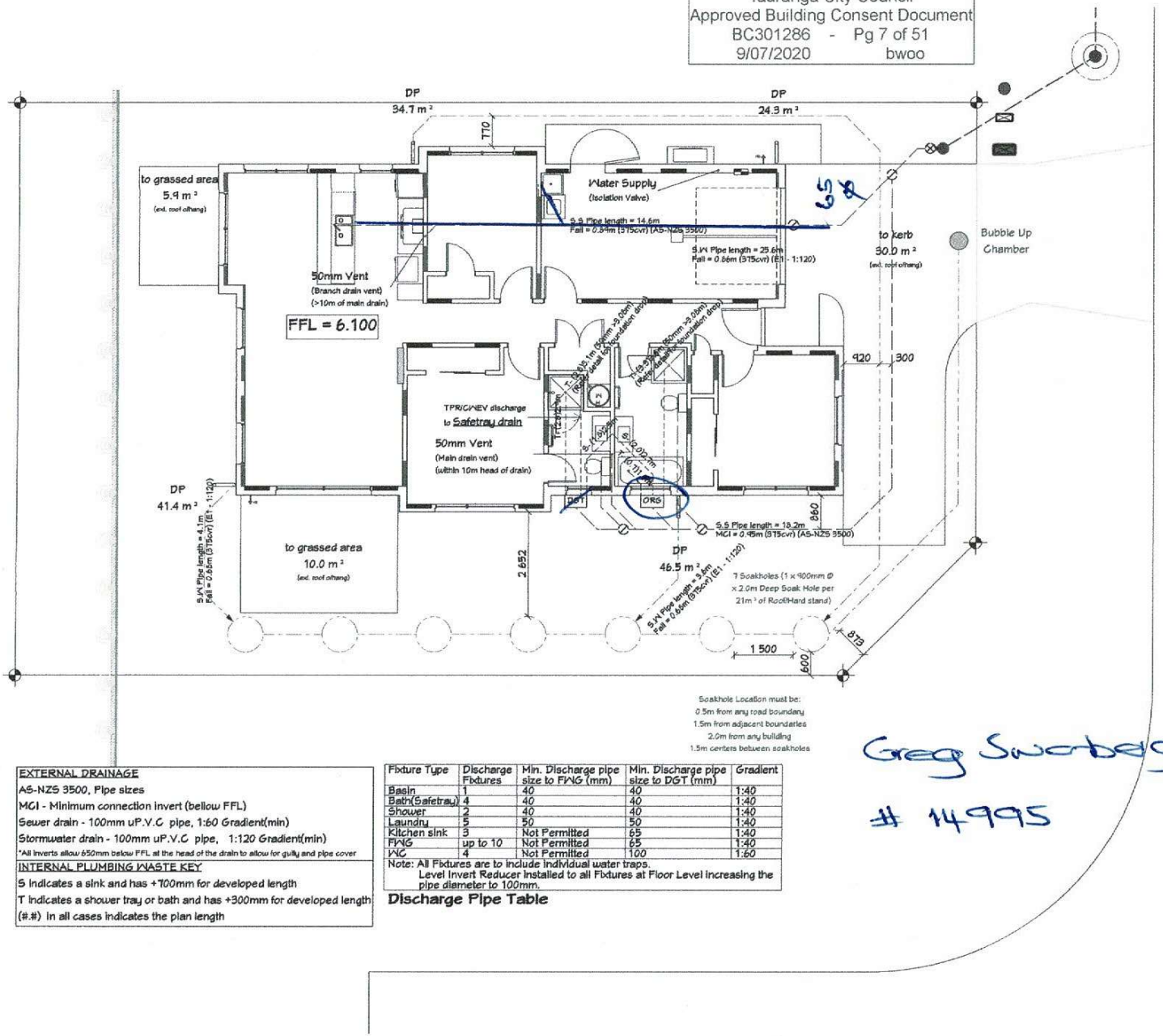
Status: FOR REVIEW

Drawing No: 20-31142-01-S1

Revision: 1

Copyright on this drawing is reserved

Tauranga City Council
Approved Building Consent Document
BC301286 - Pg 7 of 51
9/07/2020 bwoo



Soakhole Location must be:
0.5m from any road boundary
1.5m from adjacent boundaries
2.0m from any building
1.5m centers between soakholes

Greg Swarbrig
14995

EXTERNAL DRAINAGE

AS-NZS 3500, Pipe sizes
MGI - Minimum connection invert (bellow FFL)
Sewer drain - 100mm uP.V.C pipe, 1:60 Gradient(min)
Stormwater drain - 100mm uP.V.C pipe, 1:120 Gradient(min)
*All inverts allow 650mm below FFL at the head of the drain to allow for gully and pipe cover

INTERNAL PLUMBING WASTE KEY

S indicates a sink and has +700mm for developed length
T indicates a shower tray or bath and has +300mm for developed length
(#.#) in all cases indicates the plan length

Fixture Type	Discharge Fixtures	Min. Discharge pipe size to FWG (mm)	Min. Discharge pipe size to DGT (mm)	Gradient
Basin	1	40	40	1:40
Bath(Safetray)	4	40	40	1:40
Shower	2	40	40	1:40
Laundry	5	50	50	1:40
Kitchen sink	3	Not Permitted	65	1:40
FWG	up to 10	Not Permitted	65	1:40
WC	4	Not Permitted	100	1:60

Note: All Fixtures are to include individual water traps.
Level Invert Reducer installed to all Fixtures at Floor Level increasing the pipe diameter to 100mm.

Discharge Pipe Table

GOLDEN HOMES

CODEMARK CM70023

OAKDALE - © GOLDEN HOMES HOLDINGS LTD

NOTES:

Bracing Element Lines

- Prior to making penetrations for pipe work or other, the contractor must review the plans to ensure the work will not effect the ZOG® structural framing or bracing elements.
- Vanity Wastes - All vanity wastes to be put into wall frame to allow for wall hung vanities.
- Laundry tub volume - N/A due to washing machine connections provided
- Kitchen sink volume, sink shall be capable of fully containing a solid cylinder of 300 mm diameter and 125 mm depth.

Key

- IP = Inspection Point
- RE = Rodding Eye
- DP = Down Pipe
- DGT = Disconnector Gully Trap
- FWG = Floor Waste Gully Trap
- ORG = Overflow Relief Gully Trap
- = 100mm uPVC Stormwater Drain
- = 150mm uPVC Stormwater Drain
- = 100mm uPVC Wastewater Drain
- = Fixture Waste Pipes
- = Bubble Up Chamber
- = Type 1 sump
- = Type 2 sump
- = Drainage channel

CLIENT:

Creamer Residence
Lot 444, DP 530967
1 Te Wharo Drive
Papamoa, Tauranga

TERRITORIAL AUTHORITY:
Tauranga City Council
Wairakei Residential Zone

SITE DATA (for zones upto & including):

Sub-soil Classification:	E
Soil Classification	REF GEOTECH
Wind Zone:	High
Earthquake Zone:	2
Exposure Zone:	C
Climate Zone:	3
Rain Intensity (10%AEP):	126mm/hr
Snowload:	0.0kPa

Site Drainage

JOB No:	80966	SALES:	Darren
LBP:	C.Weame 101178		
DRAWN:	Katherine	DATE:	04/06/2020
SCALE:	1:100	SHEET No.	7 OF 39

Building Code Clause(s) B1

PRODUCER STATEMENT – PS4 – CONSTRUCTION REVIEW

(Guidance on use of Producer Statements (formerly page 2) is available at www.engineeringnz.org)

ISSUED BY: e3 Consultants NZ Ltd
(Construction Review Firm)

TO: Steel Frame Construction Ltd
(Owner/Developer)

TO BE SUPPLIED TO: Tauranga City Council
(Building Consent Authority)

IN RESPECT OF: 80966 - Creamer (e3 Project No. 6860)
(Description of Building Work)

AT: 1 Te Wharo Drive, Papamoa, Tauranga 3118
(Address)

Town/City:..... **LOT** 444 **DP** 530967 **SO**.....
(Address)

We e3 Consultants NZ Ltd have been engaged by Steel Frame Construction Ltd
(Construction Review Firm)

To provide ☐ CM1 ■ CM2 ☐ CM3 ☐ CM4 ☐ CM5 (Engineering Categories) or ☐ observation as per agreement with owner/developer.....

or ■ other Construction observation of waffle slab reinforcing services
(Extent of Engagement)

in respect of clause(s) B1..... of the Building Code for the building work described in documents relating to Building Consent No. 301286..... and those relating to Building Consent Amendment(s) Nos. ..... issued during the course of the works. We have sighted these Building Consents and the conditions of attached to them.

Authorised instructions/variations(s) No. ..... (copies attached) or by the attached Schedule ☐ have been issued during the course of the works.

On the basis of ☐ this review ■ these review(s) and information supplied by the contractor during the course of the works and **on behalf of the firm** undertaking this Construction Review, **I believe on reasonable grounds** that ☐ All or ■ Part only of the building works have been completed in accordance with the relevant requirements of the Building Consent and Building Consent Amendments identified above, with respect to Clause(s) B1..... of the Building Code. I also believe on reasonable grounds that the persons who have undertaken this construction review have the necessary competency to do so.

I, Hamish Pearse-Danker am: ■ CPEng 1011810 # ☐ Reg Arch ..... #
(Name of Construction Review Professional)

I am a member of: ■ Engineering New Zealand ☐ NZIA and hold the following qualifications MEng (hons) CMEngNZ CPEng IntPE
The Construction Review Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Construction Review Firm is a member of ACENZ: ☐

SIGNED BY Hamish Pearse-Danker (Signature) 
(Name of Construction Review Professional)

ON BEHALF OF e3 Consultants NZ Ltd Date 11/09/20
(Construction Review Firm)

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000.*

This form is to accompany **Forms 6 or 8 of the Building (Form) Regulations 2004** for the issue of a Code Compliance Certificate.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, ENGINEERING NEW ZEALAND AND NZIA

GUIDANCE ON USE OF PRODUCER STATEMENTS

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects, Institution of Professional engineers New Zealand, Association of Consulting Engineers New Zealand in consultation with the Building Officials Institute of New Zealand. The original suit of producer statements has been revised at the date of this form as a result of enactment of the Building Act (2004) by these organisations to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with reasonable grounds for the issue of a Building Consent or a Code Compliance Certificate, without having to duplicate design or construction checking undertaken by others.

PS1 Design Intended for use by a suitably qualified independent design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 Design Review Intended for use by a suitably qualified independent design professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 Construction Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011[2]

PS4 Construction Review Intended for use by a suitably qualified independent design professional who undertakes construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACENZ, IPENZ and NZIA to interpret the Producer Statement.

Competence of Design Professional

This statement is made by a Design Firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its designers.

A competent design professional will have a professional qualification and proven current competence through registration on a national competence based register, either as a Chartered Professional Engineer (CPEng) or a Registered Architect.

Membership of a professional body, such as the Institution of Professional Engineers New Zealand (IPENZ) or the New Zealand Institute of Architects (NZIA), provides additional assurance of the designer's standing within the profession. If the design firm is a member of the Association of Consulting Engineers New Zealand (ACENZ), this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent design professional".

***Professional Indemnity Insurance**

As part of membership requirements, ACENZ requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI Insurance minimum stated on the front of this form reflects standard, small projects. If the parties deem this inappropriate for large projects the minimum may be up to $500,000.

Professional Services during Construction Phase

There are several levels of service which a Design Firm may provide during the construction phase of a project (CM1-CM5 for Engineers[3]). The Building Consent Authority is encouraged to require that the service to be provided by the Design Firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design firm's engagement.

Attached Particulars

Attached particulars referred to in this producer statement refer to supplementary information appended to the producer statement.

Refer Also:

1 Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2013

2 NZIA Standard Conditions of Contract SCC 2011

3 Guideline on the Briefing & Engagement for Consulting Engineering Services (ACENZ/IPENZ 2004)

4 PN Guidelines on Producer Statements

www.acenz.org.nz
www.ipenz.org.nz
www.nzia.co.nz

e3 Professional Consulting Engineers

Job No.: 6860
Job Name: 80966 - Creamer
Client: ZOG Ltd
Subject: Site inspection
Date: 11/9/20

Waffle slab pre-pour site report start: finish:

Site Address: **1 Te Wharo Drive, Papamoa, Tauranga 3118** Lot 444

Check Building Consent for specific requirements	BC. Number	301286
Ground condition confirmed (i.e. Penetrometer test)		✓
Vegetation, topsoil, organic or deleterious material removed		✓
Proximity to sloping ground min 1m and outside of 1:2 influence line		✓
Formation area extends at least 1m beyond building footprint		✓
Compressible materail around pipes		✓
Load bearing rib position/ size as per consent drawings		✓
Check reinforcement as per consent drawings		✓
Check cover to bottom and sides and against pipes		✓
Reinforcement continuous through internal corner overlaps (TC2)		✓
Bars lapped as per minimum lap length		✓
Control joint for slabs > 30m long		N/A
Check cover of bars	75mm against ground	N/A
	50mm against membrane	✓
Isolated pad foundations		N/A

Elements observed:

Slab reinforcing

Site notes:

Site visit carried out by:

Hamish Pearse-Danker

Memorandum from licensed building practitioner: Record of building work

Section 88, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING

Street address: 1 Te Wharo Drive	
Suburb: Papamoa	
Town/City: Tauranga	Postcode: 3118

THE PROJECT

Building consent number: BC301286

THE OWNER(S)

Name(s): Paul Collin and Katie Creamer	
Mailing address: 51 Te Wharo Drive	
Suburb: Papamoa Beach	PO Box/Private Bag:
Town/City: Papamoa	Postcode: 3118
Phone number: 021920440	Email address: pkcreamer@gmail.com

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick ✓	If necessary, describe the restricted building work.	Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Foundations and subfloor framing ☑	Hamish Pearce-Danker designed TC2 Rib-raft floor (e3 Consultants NZ Ltd), built to the plans and specification's provided. Reinforcing steel checked and passed by engineer.	☑ Carried out ☑ Supervised
Walls ☐	N/A	○ Carried out ○ Supervised
Roof ☐	N/A	○ Carried out ○ Supervised
Columns and beams ☐	N/A	○ Carried out ○ Supervised
Bracing ☐	N/A	○ Carried out ○ Supervised
Other ☐	N/A	○ Carried out ○ Supervised

EXTERNAL MOISTURE MANAGEMENT SYSTEMS		
Work that is restricted building work	**Description of restricted building work**	**Carried out or supervised**
Tick ✓	If necessary, describe the restricted building work.	Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Damp proofing ☑	Polythene under slab as per plans and specification's provided.	☑ Carried out ☑ Supervised
Roof cladding or roof cladding system ☐	N/A	◯ Carried out ◯ Supervised
Ventilation system (for example, subfloor or cavity) ☐	N/A	◯ Carried out ◯ Supervised
Wall cladding or wall cladding system ☐	N/A	◯ Carried out ◯ Supervised
Waterproofing ☐	N/A	◯ Carried out ◯ Supervised
Other ☐	N/A	◯ Carried out ◯ Supervised

ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work.

Name: Jeremy Kirk	LBP number: 127278
Class(es) licensed in:	
Carpentry	
Plumbers, Gasfitters and Drainlayers registration number (if applicable):	
Mailing address (if different from below):	
Street address/Registered office: 704 Pukehina Parade	
Suburb: Pukehina RD9	Town/City: Te Puke
PO Box/Private Bag	Postcode: 3189
Phone number:	Mobile: 0272384719
After hours: 07 5334385	Fax:
Email address: nz.kirkbuildersltd@gmail.com	Website:

DECLARATION

I Jeremy Kirk carried out or supervised the restricted building work recorded on this form.

Signature: J Kirk

Date: 10/09/2020

Building Location Certificate

TCC Reference: (BC / RC)	**BC301286**		
Applicant/Owner:	**Paul Colin and Katie Creamer**		
Property Address:	**1 Te Wharo Drive, Papamoa**		
Legal Description: (Lot / DP)	**Lot 444 DP 530967**	**CT / CFR**	**866647**

A. Floor Level survey required by TCC? ☑ Yes ☐ No (go to Section B)

1. The following was surveyed: ☐ Completed Floor ☑ Other (specify) **Soakage Hole Base**
2. Do the approved Building Consent plans have a specified minimum floor level? ☑ Yes ☐ No
   (If 'Yes' then complete Option A and Option B below)
3. Survey Date: **28/09/2020**

4. **Option A**	**Option B**
The Surveyed base of soakage hole is RL = **3.44m** ☑ Moturiki Datum ☐ Other (E.g. assumed Datum) Origin of Levels: **TCC BM1349 RL 5.07m**	The surveyed floor level complies with: **"Confirming Soakage System Founded At 3.0 RL"** (E.g. consent notice requirement, approved BC plans, etc.)

5. Comments: **Base of soakage hole is above RL 3.0m and no groundwater was encountered during excavation.**

B. Building Location survey required by TCC? ☐ Yes ☑ No (go to Section C)

1. The following was surveyed: ☐ Completed Floor ☐ Other (please comment below)
2. Survey Date:
3. The surveyed building footprint is in accordance with the setbacks shown on the approved Building Consent Plans. ☐ Yes ☐ No ☐ See attached plan/photos (if required)
   NB: where necessary the 'footprint' will factor in the exterior cladding projecting past the foundation. Walls and eaves must comply with C/AS1/5.1.1(a), 5.2. & Fig. 5.1. Attach drawings or photos with comments if you think there is an issue.
4. Comments:

C. Overshadowing survey required by TCC? ☐ Yes ☑ No (go to Section D)

1. The building was surveyed and complies with the City Plan rules for overshadowing or relevant Resource Consent. ☐ Yes ☐ No ☐ See attached plan/photos (as/if required)
   NB: Where overshadowing is allowed by permitted intrusions, written approval, or Resource Consent, illustrations are required.
2. Survey Date:
3. Comments (including boundaries specified):

D. Survey Firm Declaration

1. We have been engaged by the applicant stated above and have carried out the necessary field survey(s) to confirm the items detailed above and believe on reasonable grounds that the information provided is true and accurate within acceptable survey tolerances.

2.	**Survey Firm:**	**S&L (Shrimpton & Lipinski Limited Partnership)**	
3.	**Survey Firm Contact Details:**	Postal Address: **PO Box 231, Tauranga**	
		Email: **info@sltga.co.nz** Phone: 07 **577 6069**	
4.	**Licensed Cadastral Surveyor** (delete as appropriate) **Registered Professional Surveyor** (signed on behalf of Survey Firm)	Print Name: **Scott Carley** Signature:	License No: **500854** Date: **29/09/2020**

Tauranga City



On-Site Application for Minor Variation to Approved Plans

This application is to advise Tauranga City Council that the following minor variation is proposed to be undertaken on the building situation at the address listed below. Please refer to the government's website for guidance information about what constitutes a minor variation: https://www.building.govt.nz/projects-and-consents/build-to-the-consent/making-changes-to-your-plans/minor-variations-guidance/

It is the owner's (or authorised agent's) responsibility to notify Council of any changes to the approved plans under Section 40 of the Building Act 2004; this variation must be approved by the Building Inspector before work can proceed. If the variation involves restricted building work, the design must provide an amended certificate of works for the changes to the design work.

Minor Variation 1 of	1	Building Consent No.	301286
Site address:	1 Te Wharo Street, Papamoa, Tauranga 3118 Lot 444 DP 530967		
Owner/agent's name:	Agent - Steel Frame Construction Limited		
Postal address:	P.O. Box 270 Tauranga Postcode: 3140		
Applicant's role in project:	Builder		
Contact phone no:	07 577 9934		

- ☑ One copy of plans must accompany application (minimum A3 size)
- ☑ One copy of certificate of design work from the designer, if involving restricted building work
- ☑ One copy of this T-803 minor variation form must accompany application
- ☑ Variations must be agreed to by the owner or authorised agent

Record of variation

Please identify the location and changes of the variation. After completing the form, give all documentation to the inspector to verify and stamp documentation. After inspector has stamped documentation, the agent/owner must scan and load the documentation with the building consent number into Alpha.

Owner signature:		Date:	16/09/2020
Agents signature:		Agent has written authority to act for owner	☑ Yes ☐ No

Location of changes in building

Note to window head changed to moulding from 180 smooth weatherboard as there is no room for a window head
Sheet 10-11, 39

Identify changes made to the building element or product

Was	Altered or replaced?	Now
180 Smooth Weatherboard	Altered	Moulding

Removed or deleted building work (please describe item/s that will not be constructed)

Council use only:

The variation affects restricted building work ☑ Yes ☐ No
(If yes, updated certificate of design work must be provided)

The variation is minor and does not materially affect compliance ☑ Yes ☐ No

Work may proceed ☑ Yes ☐ No

Variation ☑ Approved ☐ Declined

Inspector's signature: F R Lucas

Date: 1/10/2020

Inspector's name: F R Lucas.

Note: If the scope of work has been reduced, please check the computer to see whether an update is required to the description of work

CLIENT CONSENT FOR PIM AND / OR BUILDING CONSENT APPLICATION

To whom it may concern:

I/We Paul Colin Creamer & Katie Creamer

Confirm that I/we give consent to DINEX Ltd and to Steel Frame Construction Ltd to act as our agent for the lodgement of either a PIM or a Building Consent Application for the completion of the work they are currently undertaking on our behalf for the property located at:

Section Address: 1 TeWharo Drive

Lot 444 DP 530967 CT No: -

Name: Katie Creamer Signed: [signature]

Name: Paul Creamer Signed: [signature]

Name: _____ Signed: _____

Dated this 13th day of FEB 2020

Memorandum from licensed building practitioner: Certificate of design work

Section 45 and section 30C, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING			
Street address:	Lot 444 DP 530967 01 Te Wharo Drive		
Suburb:	Papamoa		
Town/City:	Tauranga	Postcode:	3118

THE OWNER(S)			
Name(s):	Paul Colin and Katie Creamer		
Mailing address:	51 Te Wharo Drive		
Suburb:	Papamoa	PO Box/Private Bag:	
Town/City:	Tauranga	Postcode:	3118
Phone number:	021920440	Email address:	pkcreamer@gmail.com

BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as the: Please tick the option that applies ✓

☐	**sole** designer of all of the RBW design outlined in this memorandum – I carried out all of the RBW design work myself – no other person will be providing any additional memoranda for the project
☐	**lead** designer who carried out some of the RBW design myself but also supervised other designers – this memorandum covers their RBW design work as well as mine, and **no other** person will be providing any additional memoranda for the project
☑	**lead** designer for all but specific elements of RBW – this memorandum only covers the RBW design work that I carried out or supervised and the **other** designers will provide their own memorandum relating to their specific RBW design
☐	**specialist** designer who carried out specific elements of RBW design work as outlined in this memorandum – other designers will be providing a memorandum covering the remaining RBW design work

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK (RBW)

I *Craig Wearne* carried out / supervised the following design work that is restricted building work

PRIMARY STRUCTURE: B1

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
All RBW design work relating to B1 ☐ ☒		○ Carried out ☐ Supervised	
Foundations and subfloor framing ☐ ☒		○ Carried out ☐ Supervised	-

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
Walls ☐ ☒		○ Carried out ☐ Supervised	
Roof ☐ ☒		☐ Carried out ☐ Supervised	
Columns and beams ☐ ☒		○ Carried out ☐ Supervised	
Bracing ☐ ☒		○ Carried out ☑ Supervised	
Other ☐ ☒		○ Carried out ☐ Supervised	

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ✗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
EXTERNAL MOISTURE MANAGEMENT SYSTEMS: E2			
All RBW design work relating to E2 ☐ ☒		○ Carried out ☐ Supervised	
Damp proofing ☐ ☒		○ Carried out ☐ Supervised	
Roof cladding or roof cladding system ☐ ☒		☐ Carried out ☐ Supervised	
Ventilation system *(for example, subfloor or cavity)* ☑ ☐	Cavity to Wall Cladding	○ Carried out ☑ Supervised	Refer to Cross Section and Cladding Details pages
Wall cladding or wall cladding system ☑ ☐	Moulding	○ Carried out ☑ Supervised	Refer to Elevations and Wall Cladding Details pages
Waterproofing ☐ ☒		○ Carried out ☐ Supervised	
Other ☐ ☒		☐ Carried out ☐ Supervised	

TAURANGA CITY COUNCIL
Minor Variation Approved
BC# 301286
Inspector:
Date: 1/10/2020

Design work that is RBW	Description of RBW	Carried out or supervised	Reference to plans and specifications
Tick ✓ if included. Cross ⊗ if excluded	If appropriate, provide details of the RBW	Tick ✓ whether you carried out this design work or supervised someone else carrying out this design work	If appropriate, specify references
FIRE SAFETY SYSTEMS: C1 - C6			
☐ ☒ Emergency warning systems		☐ Carried Out ☐ Supervised	
☐ ☒ Evacuation and fire service operation systems		☐ Carried Out ☐ Supervised	
☐ ☒ Suppression or control systems		☐ Carried Out ☐ Supervised	
☐ ☒ Other		☐ Carried Out ☐ Supervised	
Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.			

WAIVERS AND MODIFICATIONS

Waivers or modifications of the Building Code are required. ☐ Yes ☑ No

If Yes, provide details of the waivers or modifications below:

Clause	**Waiver/modification required**
List relevant clause numbers of building code	Specify nature of waiver or modification of building code required

ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise design work that is restricted building work.

Name: **Craig Wearne**	LBP or Registration number: **BP101178**
The practitioner is a: ☑ Design LBP ○ Registered architect ☐ Chartered professional engineer	
Design Entity or Company (optional): **RCDC Limited**	
Mailing address (if different from below): **P.O Box 4411**	
Street address/Registered office: **63 Hewletts Road**	
Suburb: **Mount Maunganui**	Town/City: **Tauranga**
PO Box/Private Bag: **4411**	Postcode: **3149**
Phone number: **07 574 2340**	Mobile:
After hours:	Fax: **07 574 9537**
Email address: **tauranga@zog.co.nz**	Website: **N/A**

DECLARATION

I ***Craig Wearne*** LBP, state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work (RBW) described in this form, and that based on this, I also state that the RBW:

- Complies with the building code, or
- ~~Complies with the building code subject to any waiver or modification of the building code recorded on this form~~

Signature: 

Date: 08/09/2020

TAURANGA CITY COUNCIL
Minor Variation Approved
BC# 301286
Inspector:
Date: 1/10/2020

PRODUCT CERTIFICATE

This is to certify that

DINEX Building Design Method

CODEMARK™

BUREAU VERITAS

Product description

The DINEX Building Design Method is a controlled design method for creating site-specific plans and specifications, as defined by S7 of the Building Act 2004, for building consent application, and post consent alterations.

Product Use and Scope

The DINEX Building Design Method is a controlled design method for creating site specific plans and specifications for building consent applications, and post consent alterations.
The DINEX Building Design Method may be applied to buildings of the following classified uses:

- Housing (Building Code Clauses A1 2.0.2, 2.0.3, 2.0.4)
- Communal Residential (Building Code Clause A1 3.0.2)
- Outbuildings (Building Code Clause A1 7.0.1) limited to garages, carports.
- Ancillary (Building Code Clause A1 8.0.1) limited to retaining walls, fences, free standing outdoor fireplace, and detached decking and pergolas

That meet all of the following requirements

- Building height less than 10m, design risk score <20 when calculated using the E2/AS1 risk matrix
- For all seismic, snow, wind and corrosion exposure zones, as defined in NZS3604:2011 Timber-framed buildings and all climate zones, as defined in NZS 4218:2009 Thermal insulation - Housing and small buildings

The DINEX Building Design Method may be applied to those Communal Residential buildings for which access and facilities for people with disabilities are required. Swimming pool design and fencing of a swimming pool are excluded from the CodeMark certificate.

Certificate Holder

DINEX Limited
63 Hewletts Road
Mount Maunganui, 3116
Ph: 021 730 400

CodeMark Product Certification Body

Bureau Veritas Australia Pty Ltd
3/435 Williamstown Road,
Port Melbourne VIC, 3207
Ph: 1800 855 190
www.bureauveritas.com.au

Sam Guindi
Product Certification Manager

For and on behalf of
Bureau Veritas Australia Pty Ltd

Complies with the New Zealand Building Code (NZBC):

When plans and specifications are prepared in accordance with the DINEX Building Design Method and the conditions of this certificate, compliance with the following NZBC clauses will be met where the building work is carried out in accordance with the documentation:

B1.3.1, B1.3.2,
B1.3.3 (a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r),
B1.3.4 (a, b, c, d, e), B1.3.6 (a, b), B1.3.7 (a, b, c)
B2.3.1 (a, b, c), B2.3.2 (a, b)
C2.2, C2.3
C3.4 (a, b, c), C3.6, C3.7 (a, c)
C4.3 (a, b, c), C4.5
C5.3 (a, b), C5.4, C5.5, C5.6 (a, b, c), C5.7 (a, b, c),
C5.8
C6.2 (a)
D1.3.1 (a, b, c), D1.3.2 (a, b, c),
D1.3.3 (a, b, c, d, e, f, g, h, i, j, k, l, m),
D1.3.4 (a, b, c, d, e, f, g, h)
D2.3.1 (a, b, c, d, e, f), D2.3.2 (a, b, c),
D2.3.3 (a, b, c, d), D2.3.4 (a, b, c, d)
E1.3.1, E1.3.2, E1.3.3 (a, b, c, d, e, f)
E2.3.1, E2.3.2, E2.3.3, E2.3.4, E2.3.5, E2.3.6,
E2.3.7 (a, b, c)
E3.3.1, E3.3.2, E3.3.3, E3.3.4, E3.3.5, E3.3.6
F2.3.1, F2.3.2, F2.3.3 (a, b, c)
F4.3.1, F4.3.4 (a, b, c, d, e, g, h)
F7.3.1, F7.3.2, F7.3.3
G1.3.1, G1.3.2 (a, b, c, d, e, f, g, h), G1.3.3, G1.3.4
G2.3.1, G2.3.2, G2.3.3
G3.3.1 (a, b, c, d), G3.3.2 (a, b, c), G3.3.3, G3.3.4,
G3.3.5
G4.3.1, G4.3.3 (a, b, c, i), G4.3.4, G4.3.5
G5.3.1, G5.3.2, G5.3.3, G5.3.4
G6.3.1, G6.3.2
G7.3.1, G7.3.2
G8.3
G9.3.1 (a, b, c, d, e, f, g), G9.3.3, G9.3.4
G10.3.1 (a, b, c, d), G10.3.2, G10.3.3, G10.3.4,
G10.3.5, G10.3.6
G11.3.1, G11.3.2, G11.3.3, G11.3.4, G11.3.5 (a, b, c),
G11.3.6
G12.3.1, G12.3.2 (a, b, c), G12.3.3, G12.3.4,
G12.3.5 (a, b), G12.3.6, G12.3.7 (a, b, c, d),
G12.3.8 (a, b), G12.3.9, G12.3.10
G13.3.1 (a, b, c, d), G13.3.2 (a, b, c, d, e, f), G13.3.3,
G13.3.4 (a, b, c, d, e, f, g, h, i, j, k),
H1.3.1 (a, b), H1.3.2E, H1.3.3 (a, b, c, d, e, f),
H1.3.4 (a, b, c), H1.3.5 (a, b)

JAS-ANZ

WWW.JAS-ANZ.ORG/REGISTER

Subject to the following conditions and limitations:

1. Each page of the plans and specifications produced under this certificate and submitted for building consent must bear the mark of conformity and certificate number, and the building consent application must include a signed and dated DINEX Design Summary/Declaration.
2. Each page of the plans and specifications produced under this certificate and submitted as a post-consent alteration must bear the mark of conformity and certificate number, and must include a signed and dated DINEX Design Summary/Declaration – Post Consent Alteration.
3. Compliance with Clauses E1.3.3 (e) and G13.3.3 is subject to the approvals of the relevant network utility operators for surface water drainage systems affecting an outfall, and connections to sewer.

24 September 2019 — **Date of issue**

CM70023 — **Certificate Number**

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

- This certificate is issued by an independent certification body accredited by JAS-ANZ, the product certification body appointed by the Chief Executive of the Ministry of Business, Innovation and Employment under the Building Act 2004. The Ministry does not in any way warrant, guarantee, or represent that the building method or product the subject of this certificates conforms with the New Zealand Building Code, nor accept any liability arising out of the use of the building method or product. The Ministry disclaims to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages, and costs arising as a result of the use of the building method(s) or product(s) referred to in this certificate.
- The certificate holder must maintain compliance with the conditions set out in section 15 of the Building (Product Certification) Regulations 2008.This certificate may only be reproduced in its entirety.
It is advised to check that this certificate is currently valid and not withdrawn or suspended by referring to the Register of Product Certificates on the Building Performance website http://www.building.govt.nz.

DINEX Design Summary/ Declaration - POST CONSENT ALTERATION

Project Creamer

BC Number 301286

Job code 80966

Job name Creamer

Address
Lot 444 DP 530967
1 Te Wharo Drive
Papamoa
Tauranga 3118

CODEMARK™
CM70023

Alteration(s) to building being made are:
Note to window head changed to moulding from 180 smooth weatherboard as there is no room for a window head
Sheet 10-11, 39

Alteration(s) to building element or product:

Was	**Now**
180 Smooth weather board	Moulding

The signatory of this declaration confirms that:

- the post consent altered plans and specifications have been prepared in accordance with the DINEX Building Design Method; and

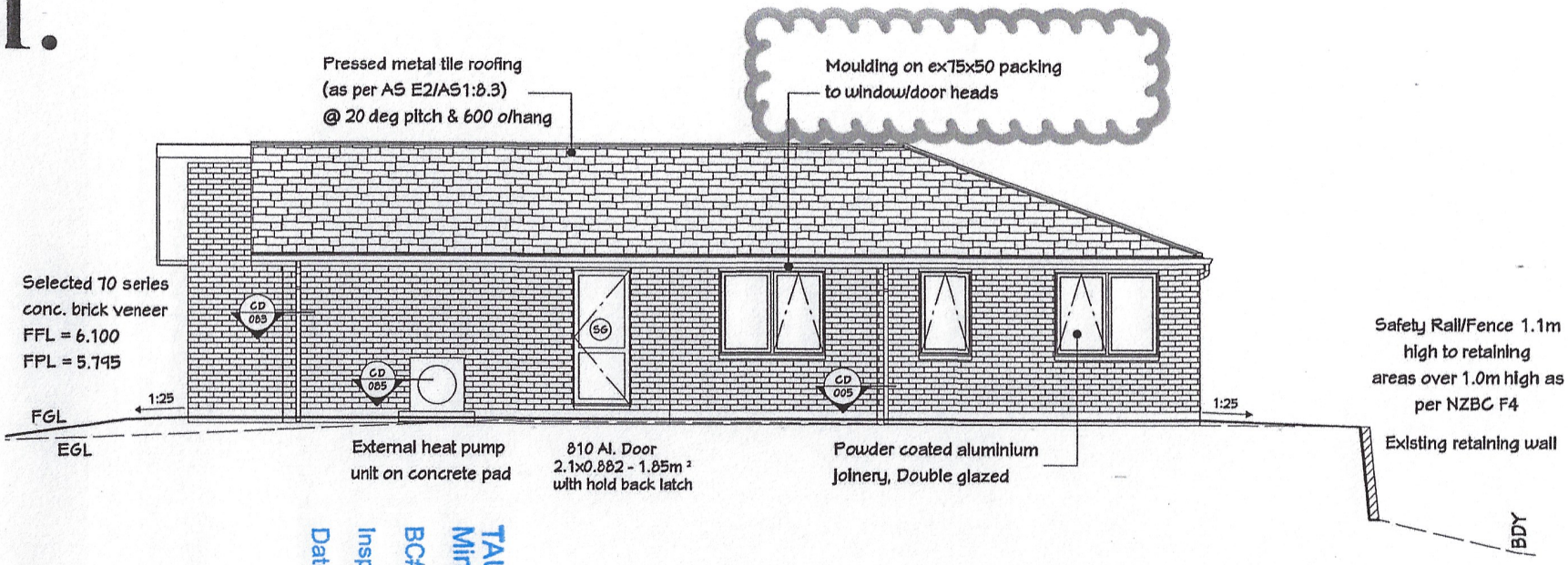
- there are no additional code obligations that are not covered by the Codemark certificate CM70023.

Dated: 16 Sep 2020
Approved Signatory of DINEX Limited

CRAIG WEARNE

TAURANGA CITY COUNCIL
Minor Variation Approved
BC# 301286
Inspector: T Thomas
Date: 1/10/2020

1.



TAURANGA CITY COUNCIL
Minor Variation Approved
BC# 301286
Inspector:
Date: 1/10/2020

2.

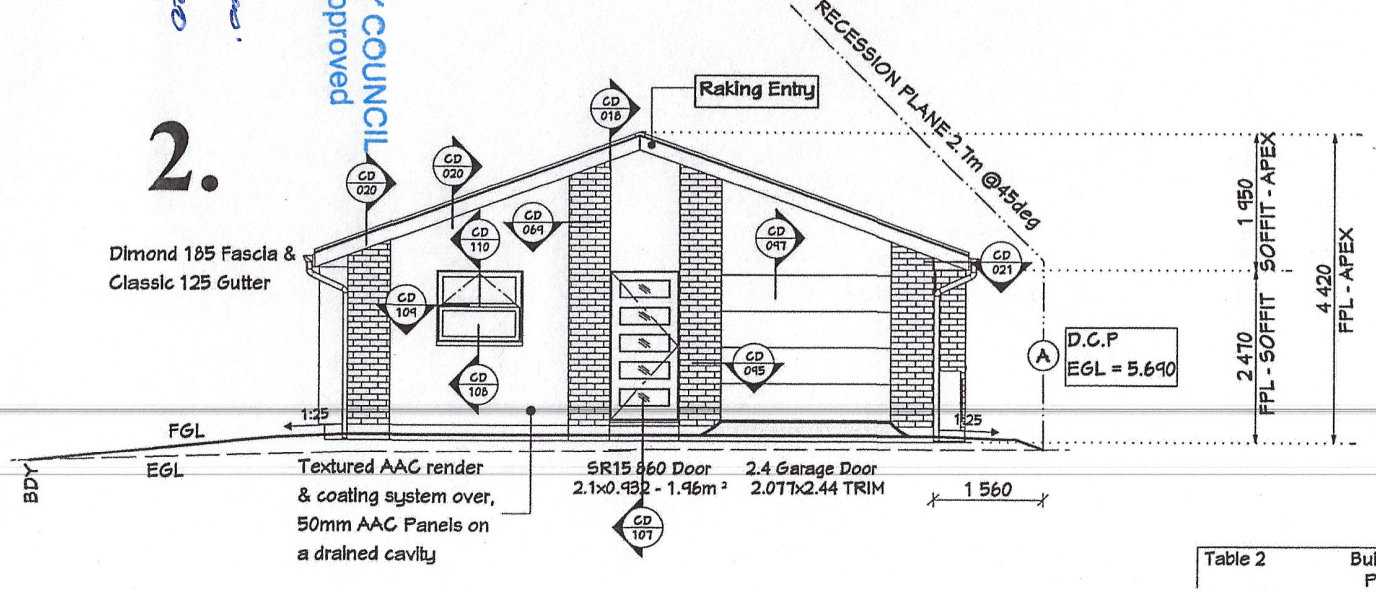
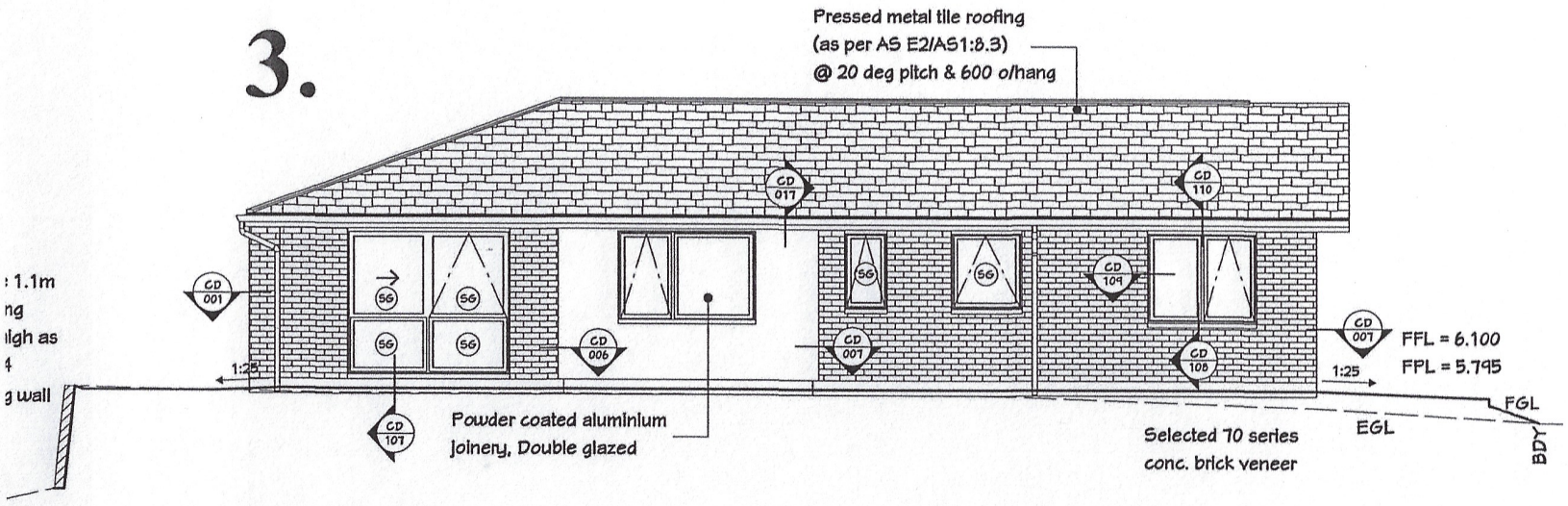


Table 2 Building envelope risk matrix
Paragraph 3.1.2. Figure 1

3.



: 1.1m
ng
ıigh as
4
g wall

TAURANGA CITY COUNCIL
Minor Variation Approved
BC# 301286
Inspector:
Date: 1/10/2020

4.

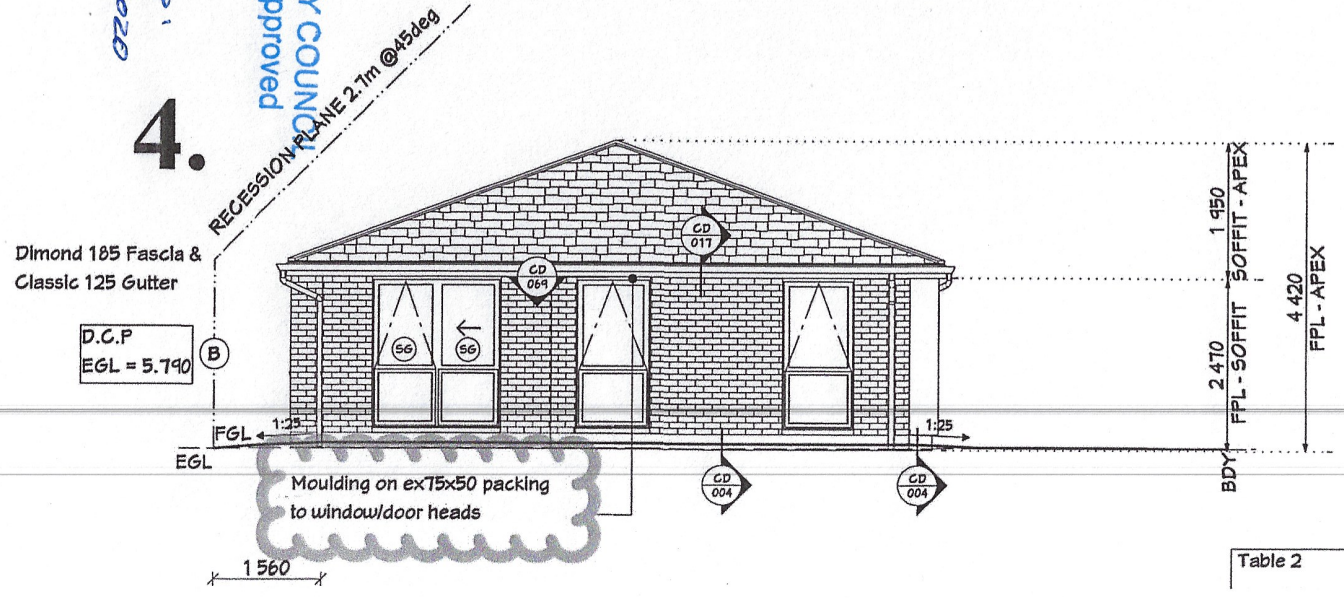


Table 2	Building envelope risk matrix Paragraph 3.1.2. Figure 1

er System - Suspended

mm
er System - Suspended

Fink® Batts® Steel R2.2 Wall
Garage - None
Ceiling lining
Gib® Standard 10mm - All rooms
Ceiling Finish
Resene SpaceCote paint - All rooms
Wall lining
Gib® Standard 10mm - All rooms
Wall Finish
Resene SpaceCote paint - All rooms
Wall angle trims
Gib® Goldline™ Square Corner Trim
Ceiling hatch
The Hatch 600x500mm
Cornice
Gib-Cove® Classic 55mm
Cornice cpds & closets
Square stopped
Skirting
No20 60x10mm Rad FJ Single Bevel
Architraves
No19 40x10mm Rad FJ Single Bevel
Door jambs
19mm Rad FJ Flat Jamb & Planted Stops
Doors
Flush PQ HC
Door furniture
Schlage Elan
Door finish
Resene Lustacryl Paint
Hot water heater
Rheem Mains Pressure Electric 180L 312 180 15
HVAC Safe Tray
Metal Tray
Laundry tub
Robinhood Supertub ST7002

Toilet
Stylus Venecia
Vanity
Clearlite Cashmere 900
Splashback
Tiles
Mirror
Organic-backed safety mirror (vinyl-backed)
Shower cubicle
Clearlite Sierra 900x900
Waterproofing membrane
Mapelastic Aquadefense Membrane
Tile Adhesive
Elastorapid Tile Adhesive
Heated towel rail
Heirloom Euro Std WE575

ENSUITE
Toilet
Stylus Venecia
Vanity
Clearlite Cashmere 900
Splashback
Tiles
Mirror
Organic-backed safety mirror (vinyl-backed)
Shower cubicle
Clearlite Sierra 900x900
Waterproofing membrane
Mapelastic Aquadefense Membrane
Tile Adhesive
Elastorapid Tile Adhesive
Heated towel rail
Heirloom Euro Std WE575

OAKDALE - © GOLDEN HC
NOT
CLIE
TER
SITE
Sub-
Soil
Wind
Earth
Expo
Clim

RCDC LTD
p. (07) 574 2340
f. (07) 574 9537
e. tauranga@zog.co.nz
63 Hewletts Road.
P.O.Box 4411
Mt. Maunganui.

Producer Statement - Date: 8/9/2020

In respect of Manufactured Zog Metal Framing and Trusses for:

Job Number:	80966
Consent Number:	BC301286
Lot number:	444
Deposited plan:	530967
Address:	1 Te Wharo Drive
	Papamoa
	Tauranga 3118

From: RCDC Ltd

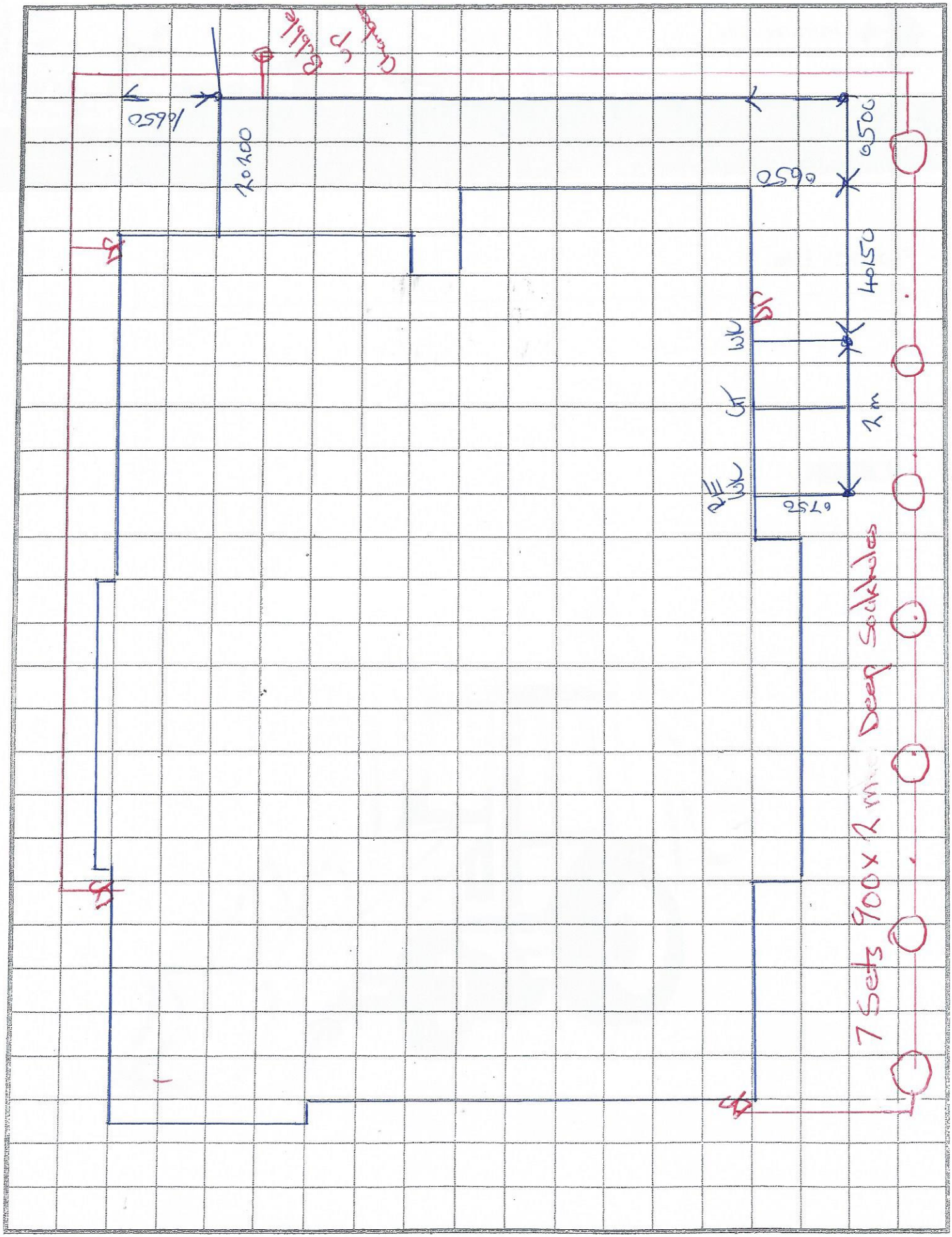
Engaged by: GOLDEN HOMES

In respect of clauses B1 Structure of the building regulations 1992, for the manufacture of Zog metal frames and trusses described by the drawings and specifications prepared by RCDC Ltd.

Steel work adheres to the following codes:
AS1397 for cold formed, thin gauged coated steel components
AS B194 for tapping screws
AS3566 for self drilling screws
NASH 3405:2008 Steel Framed Buildings

ZOG can confirm that the manufactured works have been carried out in accordance with the requirements of the New Zealand Building Code, the relevant steel codes listed above, the design drawings and specifications and in accordance with the listed variations (if any).

Craig Wearne
Director



Road Name ..... 1 Te Whoro Drive .....

As Built Drainage Plan

Drainage Plan for:

Street Number 1 Street Name Te Whara Drive

Lot 444 DP 530967

Suburb Papamoa

Owner Creamer

Certifying Drainlayer Garry Palmer Registration No. 08037

Building Consent No. 301286

Drainage Company AC Drainage Ltd

Contact details – Landline: 07 5755647 Mobile: 0274 755147

Email: ac drainage @ extra . co . nz

Note : Plan to be drawn in black ballpoint on graph opposite

Plan to include:

1. The correct position of the drains in relation to the building and boundaries.
2. The position of the street frontage.
3. Depth of drains at connection point.
4. Both foulwater and stormwater drains to be drawn.
5. Clearly define all inspection openings, with accurate measurements from two points.
6. Clearly define all buildings and boundaries.
7. Refer to example drain plan back page.

Privacy Information

Pursuant to the Privacy Act 1993 the following information is brought to your attention.

This document collects personal information about you and is collected pursuant to Section 33 and/or Section 45 of the Building Act 2004. Pursuant to Section 216 of the Building Act 2004, the information contained in this document will be made available and passed on to the public on request.

The information contained in the document is being collected and held by the Tauranga City Council. You do have the right of access to and correction of this information subject to the provisions of the Privacy Act 1993.

Pursuant to Section 217 of the Building Act 2004 the building owner may request the plans and specifications be marked confidential for the purposes of security. Such a request must be in writing and addressed to:

Group Manager: Environmental Services
Tauranga City Council
Private Bag 12 022, Tauranga 3143

Memorandum from licensed building practitioner: Record of building work

Section 88, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING

Street address: 1 Te Wharo Drive	
Suburb: Terrace Views	
Town/City: Papamoa	Postcode: 3118

THE PROJECT

Building consent number: 301286

THE OWNER(S)

Name(s): Paul Colin and Katie Creamer	
Mailing address: 51 Te Wharo Drive	
Suburb: Terrace Views	PO Box/Private Bag:
Town/City: Papamoa	Postcode: 3118
Phone number: 021 920440	Email address:

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick ✓	If necessary, describe the restricted building work.	Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Foundations and subfloor framing ☐	NA	◯ Carried out ◯ Supervised
Walls ☑	Framing as per plans	☑ Carried out ◯ Supervised
Roof ☑	Framing as per plans	☑ Carried out ◯ Supervised
Columns and beams ☐	NA	◯ Carried out ◯ Supervised
Bracing ☑	As per plans	☑ Carried out ◯ Supervised
Other ☑	NA	◯ Carried out ◯ Supervised

EXTERNAL MOISTURE MANAGEMENT SYSTEMS		
Work that is restricted building work	**Description of restricted building work**	**Carried out or supervised**
Tick ✓	If necessary, describe the restricted building work.	Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Damp proofing ☑	Mullseal as per plans	☑ Carried out ○ Supervised
Roof cladding or roof cladding system ☐	NA	○ Carried out ○ Supervised
Ventilation system (for example, subfloor or cavity) ☐	NA	○ Carried out ○ Supervised
Wall cladding or wall cladding system ☑	RAB Board as per plans	☑ Carried out ○ Supervised
Waterproofing ☐	NA	○ Carried out ○ Supervised
Other ☑	Install windows & flashings as per plans	☑ Carried out ○ Supervised

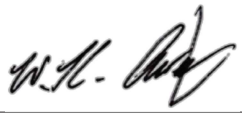
ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work.

Name: Warren Airey	LBP number: 133936
Class(es) licensed in:	
Carpentry	
Plumbers, Gasfitters and Drainlayers registration number (if applicable):	
Mailing address (if different from below):	
Street address/Registered office: 9 Fourteenth Avenue	
Suburb: Tauranga South	Town/City: Tauranga
PO Box/Private Bag	Postcode: 3112
Phone number:	Mobile: 021 0786191
After hours:	Fax:
Email address: w.k.airey@gmail.com	Website:

DECLARATION

I Warren Airey carried out or supervised the restricted building work recorded on this form.

Signature: 

Date: 01/11/2020

Form 6A

Memorandum from licensed building practitioner: Record of building work

Section 88, Building Act 2004

Please fill in the form as fully and correctly as possible.
If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING			
Street address:	1 TE WHARO DRIVE		
Suburb:	PAPAMOA		
Town/City:	TAURANGA	Postcode:	3118

THE PROJECT	
Building consent number:	BC301286

THE OWNER(S)			
Name(s):	PAUL COLIN & KATIE CREAMER		
Mailing address:	51 TE WHARO DRIVE		
Suburb:	PAPAMOA BEACH	PO Box/Private Bag:	
Town/City:	TAURANGA	Postcode:	3118
Phone number:	021 920 440	Email address:	pkcreamer@gmail.com

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick ✓	If necessary, describe the restricted building work.	Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Foundations and subfloor framing ☐	N/A	○ Carried out ○ Supervised
Walls ☐	N/A	○ Carried out ○ Supervised
Roof ☐	N/A	○ Carried out ○ Supervised
Columns and beams ☐	N/A	○ Carried out ○ Supervised
Bracing ☐	N/A	○ Carried out ○ Supervised
Other ☐	N/A	○ Carried out ○ Supervised

EXTERNAL MOISTURE MANAGEMENT SYSTEMS		
Work that is restricted building work	**Description of restricted building work**	**Carried out or supervised**
Tick ✓	If necessary, describe the restricted building work.	Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Damp proofing ☐	N/A	○ Carried out ○ Supervised
Roof cladding or roof cladding system ☑	Installed all metal tiles and associated flashings over roof underlay. All work complies with council approved plans. NO Penetration through roof.	✓ Carried out ✓ Supervised
Ventilation system (for example, subfloor or cavity) ☐	N/A	○ Carried out ○ Supervised
Wall cladding or wall cladding system ☐	N/A	○ Carried out ○ Supervised
Waterproofing ☐	N/A	○ Carried out ○ Supervised
Other ☐	N/A	○ Carried out ○ Supervised

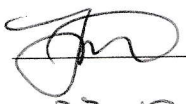
ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work.

Name: JULIO MASIGAN	LBP number: BP125562
Class(es) licensed in: R3 METAL TILE	
Plumbers, Gasfitters and Drainlayers registration number (if applicable):	
Mailing address (if different from below):	
Street address/Registered office: 8 KOMATA CRESCENT	
Suburb: PAPAMOA	Town/City: TAURANGA
PO Box/Private Bag	Postcode: 3118
Phone number: 021 774 470	Mobile: 021 774 470
After hours:	Fax:
Email address: masigan23@gmail.com	Website:

DECLARATION

I Julio carried out or supervised the restricted building work recorded on this form.

Signature: 

Date: 27.10.2020

Firth

Tax Invoice

GST Reg No: 76-485-070

Customer No: RFL001
Sales Order No: 4006
Cust Order No: 1 Te Wharo Dr, Papamoa
Job: QT
Price Contract: FB34721

DELIVERY TO
1 Te Wharo Dr, Papamoa
Delivery Date: 14 September 2020

Reliable Foundations NZ Ltd
Unit 8
16-20 Alpito Place
Pukekohe 2120

INVOICE NO: [redacted]
Invoice Date: 14 September 2020

TOTAL INVOICE VALUE :

YOUR PAYMENT IS DUE BY : **20 October 2020**

Please pay promptly to avoid inconvenience and interest charges to you.

DESCRIPTION	PRODUCT CODE	PACKING SLIP	QUANTITY	PRICE	TOTAL
25MPa 19mm TC2 Ribraft Mix	RP2519TC2	4907906	5 m3		
		4907907	5 m3		
		4907908	6 m3		
		4907910	5 m3		
		4907916	1.4 m3		
		Sub-Total	22.4 m3		

TOTAL EXCL GST
GST
INVOICE TOTAL

Overdue Accounts: Interest may be charged on accounts not paid by the due date.
Terms and Conditions: For a full list of our Terms and Conditions please visit **Firth.co.nz/Terms**

Where applicable, this invoice will be deemed a Payment Claim under the Construction Contracts Act 2002.

107201 00116 FIRTH_INV_EMAIL_20200916052752_01.prr

ONLINE PAYMENT DETAILS
Payable to: Firth Industries
Bank Account: ANZ 01-0242-0028380-00
CODE: RFL001
REFERENCE: [redacted]

PAYING BY CHEQUE
Make your cheque payable to:
Firth Industries

FOR ACCOUNT ENQUIRIES
Phone: 09 583 2110
Email: creditteam@firth.co.nz
Admin Office: F02
Fax: 09 525 9295

Memorandum from licensed building practitioner: Record of building work

Section 88, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING

Street address: 1 Te Wharo Drive	
Suburb: Terrace Views	
Town/City: Papamoa	Postcode: 3118

THE PROJECT

Building consent number: 301286

THE OWNER(S)

Name(s): Paul Colin and Katie Creamer	
Mailing address: 51 Te Wharo Drive	
Suburb: Terrace Views	PO Box/Private Bag:
Town/City: Papamoa	Postcode: 3118
Phone number: 021 920440	Email address:

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick ✓	If necessary, describe the restricted building work.	Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Foundations and subfloor framing ☐	NA	◯ Carried out ◯ Supervised
Walls ☑	Gib Fixing as per plan specs	☑ Carried out ◯ Supervised
Roof ☐	NA	◯ Carried out ◯ Supervised
Columns and beams ☐	NA	◯ Carried out ◯ Supervised
Bracing ☑	as per plans	☑ Carried out ◯ Supervised
Other ☐	NA	◯ Carried out ◯ Supervised

EXTERNAL MOISTURE MANAGEMENT SYSTEMS		
Work that is restricted building work	**Description of restricted building work**	**Carried out or supervised**
Tick ✓	If necessary, describe the restricted building work.	Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Damp proofing ☐	NA	◯ Carried out ◯ Supervised
Roof cladding or roof cladding system ☐	NA	◯ Carried out ◯ Supervised
Ventilation system (for example, subfloor or cavity) ☐	NA	◯ Carried out ◯ Supervised
Wall cladding or wall cladding system ☐	NA	◯ Carried out ◯ Supervised
Waterproofing ☐	NA	◯ Carried out ◯ Supervised
Other ☐	NA	◯ Carried out ◯ Supervised

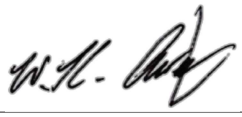
ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work.

Name: Warren Airey	LBP number: 133936
Class(es) licensed in:	
Carpentry	
Plumbers, Gasfitters and Drainlayers registration number (if applicable):	
Mailing address (if different from below):	
Street address/Registered office: 9 Fourteenth Avenue	
Suburb: Tauranga South	Town/City: Tauranga
PO Box/Private Bag	Postcode: 3112
Phone number:	Mobile: 021 0786191
After hours:	Fax:
Email address: w.k.airey@gmail.com	Website:

DECLARATION

I Warren Airey carried out or supervised the restricted building work recorded on this form.

Signature: 

Date: 30/11/2020

Form 6A

Memorandum from licensed building practitioner: Record of building work

Section 88, Building Act 2004

Please fill in the form as fully and correctly as possible.
If there is insufficient room on the form for requested details, please continue on another sheet and attach the additional sheet(s) to this form.

THE BUILDING	
Street address: 1 Te Wharo Drive,	
Suburb: Papamoa	
Town/City: Tauranga	Postcode: 3118

THE PROJECT
Building consent number: BC301286

THE OWNER(S)	
Name(s): Paul Colin and Katie Creamer	
Mailing address: 51 Te Wharo Drive,	
Suburb: Papamoa	PO Box/Private Bag: N/A
Town/City: Tauranga	Postcode: 3118
Phone number: 021920440	Email address: pkcreamer@gmail.com

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE

Work that is restricted building work	Description of restricted building work	Carried out or supervised
Tick ✓	If necessary, describe the restricted building work.	Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Foundations and subfloor framing ☐	N/A	◯ Carried out ◯ Supervised
Walls ☐	N/A	◯ Carried out ◯ Supervised
Roof ☐	N/A	◯ Carried out ◯ Supervised
Columns and beams ☐	N/A	◯ Carried out ◯ Supervised
Bracing ☐	N/A	◯ Carried out ◯ Supervised
Other ☐	N/A	◯ Carried out ◯ Supervised

EXTERNAL MOISTURE MANAGEMENT SYSTEMS		
Work that is restricted building work	**Description of restricted building work**	**Carried out or supervised**
Tick ✓	If necessary, describe the restricted building work.	Tick ✓ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work.
Damp proofing ☐	N/A	◯ Carried out ◯ Supervised
Roof cladding or roof cladding system ☐	N/A	◯ Carried out ◯ Supervised
Ventilation system (for example, subfloor or cavity) ☑	Wet cavity system 50mm, Galvanized brick ties. Brick 70 series. Weep holes and vents in top and bottom courses left open to allow for airflow in accordance with the building standards	☑ Carried out ☑ Supervised
Wall cladding or wall cladding system ☑	Brick veneer completed as per consented plans. Bricks laid to NZ building code. Cavity washed out and clean	☑ Carried out ☑ Supervised
Waterproofing ☐	N/A	◯ Carried out ◯ Supervised
Other ☐	N/A	◯ Carried out ◯ Supervised

ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work.

Name: Huailin LI	LBP number: BP135954
Class(es) licensed in:	
Bricklaying and Blocklaying B1 + B2	
Plumbers, Gasfitters and Drainlayers registration number (if applicable):	
Mailing address (if different from below):	
Street address/Registered office: 68 Bannings Way	
Suburb: Hobsonville	Town/City: Auckland
PO Box/Private Bag	Postcode: 0618
Phone number: 09 214 1268	Mobile: 022 334 7620
After hours: 022 334 7620	Fax: N/A
Email address: info@eproconstruction.co.nz	Website: www.eproconstruction.co.nz

DECLARATION

I HUAILIN LI carried out or supervised the restricted building work recorded on this form.

Signature: Huailin LI

Date: 23/12/2020

Tauranga City



T-804 Self-Certified Inspection Sheet

Building Consent No. 301286 Date: 27/01/21

Property Address

1 Te Wharo Dr, Terraceviews, Papamoa 3118

LBP No. of person confirming that the work is in accordance with the building consent 107019

Name	Signature	Contact Number:
Matthew Christie		0275518505

The LBP will need to discuss/advise the BCA of the intention to carry out a Self-Certified inspection. If the BCA agrees please see the below

- Please upload this completed form to: The Building Consent Portal (Alphaone)
- Please advise the BCA you wish to carry out a self-certified inspection by phoning 07 5777 334
- **Please Note:** To complete the process, tick and confirm all building elements as completed or the inspections will not be passed.

Foundation Block Inspection

Building Element	Comment	Tick to confirm
As per approved plans, no more than 3 blocks high (If more than 3 blocks high then a council inspection must be called for)		N/A
Steel has not been over bent		N/A
Steel laps as per plan or at least 40 diameters (not less than 500mm)		N/A
Horizontal corner bars outside verticals		N/A
Reinforcing tied to ensure correct clearance for steel		N/A
Running bond not stacked		N/A
Vertical steel extends sufficient for laps into floor		N/A
Cavity Clean		N/A

Pre Plaster Inspection for R1 single storey buildings

Building Element	Comment	Tick to confirm
Substrate brand as per the approved plans		✓
Control joints located as per the manufacturers specifications		✓
Reinforcement at substrate joints/corners		✓
Flashings in place and sealed		✓

Please Note: Tick and confirm all building elements as completed or the inspections will not be passed.

Pre-stopping/Bracing for R1/single story with no fire rated walls or tiled showers

Building Element	Comment	Tick to confirm
Any outstanding framing issues have been resolved		N/A
Cladding all complete/building weather tight		N/A
Brace types and locations correct		N/A
Fixing type size and spacing correct		N/A
Braces connect bottom to top plates		N/A
Penetration size and location correct		N/A
No fire rated walls or tiled showers		N/A

Tauranga City Council's Building Consent Authority (BCA) has allowed some building inspections to be carried out only by licenced building practitioners who hold the appropriate licence. These have been introduced in order to help alleviate the inspection waiting times. LBP's can now self-certify inspections for pre-plaster, pre-stopping/bracing, R1 single story with no tile showers or firewalls and block foundations (no more than 3 blocks high).

A copy of this should also be retained on site for the next inspector to review. It is imperative that the builder calls for each inspection to be self-certified so we can confirm if there are any outstanding failed inspections and update the system. **Please note:** rechecks will be required and charged for if there are outstanding items. Failure to do this may result in delays or refusal of the Code Compliance Certificate (CCC). This also allows Council to carry out spot audits, so Council needs to be aware of when the work is to be carried out. (There will be no charge for an audit which will be on a random basis).

Please note:

If you fail three audits, your ability to self-certify these inspections will be withdrawn.

Electrical Workers Registration Board

SAFETY | COMPETENCY | COMPLIANCE

Electrical Certificate of Compliance and Electrical Safety Certificate

Reference/Certificate ID No:	80966a

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under **Part 1 or Part 2 of AS/NZS 3000** are safe to be connected to the **specified** system of electrical supply.

LOCATION AND CONTACT

Location Details	1 te wharo dr papamoa	**Contact Address**	021462334
Contact Name	Creamer		**Postcode**

Name of Electrical worker:	Grant Cartwright	Registration/Practising licence number:	E19675
Organisation/ company:	Wilde sparkz		
Phone:	021570155	Email:	Grant@wildesparkz.co.nz
Name of person(s) supervised:	Brent roguski		

CoC

Type of work:	☐ Additions	☐ Alterations	☒ New work
The prescribed electrical work is:	☐ Low risk	☒ General	☒ High risk (specify):
Reference Standards:	☐ Part 1 of AS/NZS 3000		☒ Part 2 of AS/NZS 3000
	☐ Additional Standards:		

Description of work: (including date/s of work and type of supply system)

Wire and complete of rear house as per plan on file, all polarity ok, earth cont. 18 Ohm, fault loop .36 ohm. Rcd test 23,22,22 ms. air cond not included. Lights x 21, 17. socket ,

I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct in that the installation, or part of the installation:

Select those that apply:

- ☐ Has been installed in accordance with the specified certified design[1]
- ☒ Has an earthing system that is correctly rated (where applicable)
- ☒ Contains fittings that are safe to connect to a power supply
- ☒ Relies on a supplier Declaration of Conformity[1]
- ☒ Has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010
- ☒ Is safe to connect

Test Results	
Polarity (independent earth):	0.2 ohm
Insulation resistance:	<20mohm
Earth Continuity:	.18. Ohm
Bonding:	.4 ohm
Fault Loop impedance:	.36 Ohm
Other (specify):	

Electronic/Other reference: J a russells

Certifier's signature: Grant Cartwright

Date: 27 / 01 / 2021

[1] Attach or reference. If it is impractical to attach a copy of a particular manufacturer's instructions, or of any certified design or supplier declaration of conformity, provide a reference to where the documents can be found, in a readily accessible format, by electronic means.

ESC

I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name:	Grant cartwright	Registration/Practising licence number:	E19675
Certifier's signature:	Grant Cartwright	Certificate Issue Date: 27 / 01 / 2021	Connection Date: 27 / 01 / 2021

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

Electrical Safety Certificate
pursuant to the Electricity (Safety) Regulations 2010

ID Number: ESC22555

Connectors Details

Name: David Cox

Registration Number: I3061 Phone: +64272467701 Email: dave@2inspect.co.nz

Location Details

Address: 1 Te Wharo Drive, Papamoa, Tauranga Related COC: 80966

- ☐ Full Installation
- ☑ Part Installation
- ☑ Mains work up to the MEN switchboard closet to the point of supply
- ☐ Other:

I certify that the installation or part of the installation, to which the Electrical Safety Certificate applies is connected to a power supply and is safe to use

Signature:  Date: 15/12/20

Document Created: 15/12/20 12:17

MATT'S PLASTERING & PAINTING LTD
41a Macdonald street, Mt maunganui
Tauranga , 3016
office@mattsplastering.co.nz

PS3 PRODUCER / CONSTRUCTION STATEMENT EXTERNAL CLADDING

Job Number :	71986
Site Address :	1 TeWharo Drive, Papamoa, Papamoa
Consent No :	301286
Building Owner :	Paul Colin & Katie Creamer
Builder :	Golden Homes
Registered Plasterer :	Matt's Plastering & Painting Ltd
Systems Used :	Masonry Render System
Substrates Used :	Hebel Panel
Textures Used :	PSL Ezytex Float
Colours Used :	Double Sea fog.
Installation/Application Start Date :	12-Jan-2021
Installation/Application End Date :	11-Feb-2021
Clauses and Further Information :	

I (Matt Christie) certify that the Resene Construction Systems Masonry Render System has been installed to Resene Construction Systems Specifications and complies with clause B2 and E2 of the New Zealand Building Code



Signed by Matt Christie from Matt's Plastering & Painting Ltd Date: 11/02/2021

License Number
BP107019

Memorandum from licensed building practitioner:

Record of building work - Section 88, Building Act 2004

THE BUILDING	
Street address: 1 TeWharo Drive	
Suburb: Papamoa	
Town / City: Papamoa	Postcode: 3118

THE PROJECT
Building consent number: 301286

THE OWNERS	
Name(s): Paul Colin & Katie Creamer	
Mailing address: 51 Te Wharo Dr	
Suburb: Papamoa beach	P O Box/Private Bag: N/A
Town / City: Tauranga	Postcode: 3118
Phone number: 021462334	Email address: pkcreamer@gmail.com

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK		
EXTERNAL MOISTURE MANAGEMENT SYSTEMS		
Wall cladding or wall cladding system:	Applied the plaster system to the Masonry Render System according to the manufacturers specifications. I supervised non-lbp's doing this work. All sitework complies with council approved documents on site.	Supervised

ISSUED BY	
Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work	
Name: Matt Christie	LBP number: BP107019
Class(es) licensed in: Exterior Plastering (PPCS)	
Mailing address(if different from below):	
Street address / Registered office: 41a Macdonald street, Mt maunganui	
Suburb:	Town / City: Tauranga
PO Box / Private Bag: N/A	Postcode: 3016
Phone number:	Mobile: 027 551 8505
After hours:	Fax:
Email address: office@mattsplastering.co.nz	Website: N/A

DECLARATION
I Matt Christie carried out or supervised the restricted building work recorded on this form.

Signature: 	Date: 11/02/2021

NZ Product Warranty

Low-rise Residential Systems

Date: 15th January 2021 **Warranty No.** 1599

Description:

Hebel® Autoclaved Aerated Concrete panels and blocks (**Hebel Products**)
Hebel® Related accessories **(Hebel Accessories)**

Who is providing the Warranty:

CSR Building Products (NZ) Limited (trading as CSR Hebel). This warranty is authorised by:

The NZ Manager (CSR Hebel)
- Phone 0800 4 HEBEL (0800 443 235)
- Email: info@csrhebel.co.nz
- PO Box 188, Takanini, Auckland 2245, New Zealand

Who the Warranty is provided to:

Steel Frame Construction Ltd

Address:

1 Te Wharo Drive, Papamoa, Tauranga

Where an address is provided this warranty is limited only to the Hebel Products and/or Hebel Accessories supplied for use at that address. CSR Hebel is not responsible for ensuring that the Hebel Products and /or Hebel Accessories are appropriate for the intended application.

What this Warranty applies to:

Hebel Products and Hebel Accessories described above when used in low rise residential systems (for panels: frame construction - up to 3 storeys; for blocks: block homes up to 3 storeys) and handled, installed and maintained in accordance with CSR Hebel literature including installation and maintenance guides current as at the time of purchase and installation (**Literature**).

Risks Covered:

Subject to the conditions and exclusions set out in this warranty document and for the term of this warranty the Hebel Products and Hebel Accessories are free from any inherent defects in manufacture and shall not materially degrade, corrode or break down to the extent such is caused by inherent defects in manufacture ("**Hebel Warranty**").

Term of Warranty

Hebel Products – **20 years** from the date of purchase
Hebel Accessories – **15 years** from the date of purchase

Conditions

This Hebel Warranty will only apply where:

(a) The Hebel Products and/or Hebel Accessories have been paid for in full;
(b) CSR Hebel is notified within 12 weeks after the alleged defect is discovered (or after the alleged defect ought to have been discovered) and in no circumstances after the expiry of the relevant Hebel warranty;
(c) CSR Hebel is provided a reasonable opportunity to inspect the alleged defective Hebel Products and/or Hebel Accessories in situ and prior to their removal, repair or replacement
(d) The Hebel Products and/or Hebel Accessories have been handled, installed and maintained in accordance with CSR Hebel's Literature current as at the time of purchase;
(e) In addition to [or without limitation to] the above, where the Hebel Products and/or Hebel Accessories are used as part of a Hebel building system:
    i. all components used in the Hebel building system were as specified and sold by CSR Hebel; and
    ii. the relevant Hebel building system was constructed in compliance with CSR Hebel's Literature current as at the time of purchase and in accordance with the New Zealand Building Code and any other relevant New Zealand laws, regulations and industry codes
(f) Block homes have been designed and certified by a third party engineer in accordance with the New Zealand Building Code and any other relevant New Zealand laws, regulations and industry codes.

Hebel® is a registered trademark of the Xella group. CSR Hebel is a licensee of Xella and a division of CSR Building Products (NZ) Limited.

NZ Product Warranty

Exclusions

For the avoidance of doubt, this Hebel Warranty does not apply and CSR Hebel is not liable for matters including but not limited to:

(a) Damage or deterioration to Hebel Products and/or Hebel Accessories arising from external causes outside the CSR Hebel's control including but not limited to, building structure movement, welding or other heating, pollution, exposure to conditions that would normally be deleterious to conventional concrete products (e.g. acidic environments), mechanical damage, hydrostatic pressure, electrical or electrolytic damage, incorrect cleaning, neglect, fire, explosion, radiation, collision, or other accident, acts of God, wars, riots, civil commotion, vandalism, or malicious damage, industrial action, adverse weather conditions (such as, for example, hail storms, sand storms) and the like.

(b) Damage or deterioration of any part of a Hebel Products and/or Hebel Accessories caused by work carried out on the Hebel Products and/or Hebel Accessories or any other part of the structure of which they form part after installation.

(c) Any faults to the extent that they are caused or contributed to by any third party design or engineering of the building or structure to which the Hebel Products and/or Hebel Accessories is attached (including but not limited to the design of the frame or foundations to which the Hebel Products and/or Hebel Accessories are incorporated or affixed).

(d) Any faults to the extent they are caused or contributed to by any materials or accessories supplied by third parties.

(e) Cracking in any coatings applied over any Hebel Products and/or Hebel Accessories (Note: Before choosing a coating system, it is the purchaser's responsibility to liaise with the coating manufacturer to ensure that the coating system is suitable to the Hebel Products substrate and that it provides the minimum elasticity & water ingress protection in accordance with CSR Hebel Literature current as at the time of purchase)

Other than as expressly set out in this Hebel Warranty, and other than the warranties that cannot be excluded under the Consumers Guarantees Act 1993 (NZ) and any other relevant New Zealand law, CSR Hebel excludes all warranties and guarantees and has no liability with regard to Hebel Products and Hebel Accessories including all implied warranties and guarantees.

Nature of Recompense

If a valid claim is made pursuant to this Warranty, CSR Hebel will, at its sole option:

(a) Supply a replacement of the defective Hebel Products and/or Hebel Accessories or supply equivalent goods; or

(b) Repair the defective Hebel Products and/or Hebel Accessories; or

(c) Pay for the supply of a replacement for the defective Hebel Products and/or Hebel Accessories; or

(d) Payment for the repair of the defective Hebel Products and/or Hebel Accessories.

This Warranty and the processing of any claim pursuant to it is conditional upon the completion of a binding settlement deed in full and final settlement of any associated claims relating to the Hebel Products or Hebel Accessories relevant to the applicable claim(s).

Other than liability which cannot be excluded by law except as set out above, CSR Hebel otherwise excludes all liability for loss and damage (including without limitation all indirect and consequential loss).

Any remedial work carried out or paid for under the provisions of this warranty will not extend the term of the warranty.

In all cases, CSR Hebel's liability is limited to the value of the Hebel Products and/or Hebel Accessories.

Disclaimer

The mere granting of this warranty to a particular person, organisation, or in respect of a specific building, should not be taken to infer in any way that CSR Hebel has satisfied itself as to the compliance of any particular building with any of the conditions of this warranty, including (without limitation) that Hebel Products and/or Hebel Accessories were exclusively used in its construction. The beneficiary of the warranty should satisfy themselves in this regard.

Related Warranties

This Hebel Warranty does not apply in respect of third party coating products or systems. Please see your coatings supplier for details of their warranty

Claim Process

Please contact The Manager (contact details above) for consideration of your claim in the first instance. All expense of claiming under the Hebel Warranty will be borne by the person making the claim. CSR Hebel may require documents and other information supporting the claim including but not limited to proof of purchase to be provided.

Hebel® is a registered trademark of the Xella group. CSR Hebel is a licensee of Xella and a division of CSR Building Products (NZ) Limited.

Form 6A

Memorandum from licensed building practitioner: Record of building work

Section 88, Building Act 2004

Please fill in the form as fully and correctly as possible.

If there is insufficient room on the form for requested details, please continue on another page and attach the additional sheet(s) to this form.

THE BUILDING	
Street address of building; 1 Te Wharo Dr	
Suburb: Papamoa Beach	
Town / City: Papamoa	Postcode: 3118

THE PROJECT
Building consent number:BC 301286

THE OWNER(S)	
Name(s): Paul Colin and Katie Creamer	
Mailing address: 51 Te Wharo Dr	
Suburb; Papamoa Beach	PO Box / Private Bag:
Town / City: Papamoa	Postcode:3118
Phone number: 021920440	Email pkcreamer@gmail.com

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK		
PRIMARY STRUCTURE		
Work that is restricted building work	**Description**	**Carried out or supervised**
Tick ☑	If necessary, describe the restricted building work	Tick ☑ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work
Foundations and subfloor framing ☐	NA	☐ Carried out ☐ Supervised
Walls ☐	NA	☐ Carried out ☐ Supervised
Roof ☐	NA	☐ Carried out ☐ Supervised
Columns and beams ☐	NA	☐ Carried out ☐ Supervised
Bracing ☐	NA	☐ Carried out ☐ Supervised
Other ☐	NA	☐ Carried out ☐ Supervised

EXTERNAL MOISTURE MANAGEMENT SYSTEMS		
Work that is restricted building work	**Description of restricted building work**	**Carried out or supervised**
Tick ☑	If necessary, describe the restricted building work	Tick ☑ whether you carried out the restricted building work or supervised someone else carrying out the restricted building work
Damp proofing ☐	NA	☐ Carried out ☐ Supervised
Roof cladding or roof cladding system ☐	NA	☐ Carried out ☐ Supervised
Ventilation system (for example, ☑ subfloor or cavity)	Install cavity battens including required flashings as per Hebel installation manual. I supervised non LB's doing this work. All site work complies with the council approved documents on site	☐ Carried out ☑ Supervised
Wall cladding or wall cladding ☑ system	Install Hebel AAC Panel. Fixed as per Hebel installation manual. I supervised non LB's doing this work. All site work complies with the council approved documents on site	☐ Carried out ☑ Supervised
Waterproofing ☐	NA	Carried out Supervised
Other ☐	NA	☐ Carried out ☐ Supervised

Note: continue on another page if necessary.

ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted building work

Name :Murray Christie	LBP number: BP119346
Class(es) licensed in: E2	
Plumbers, Gasfitters and Drainlayers Board registration number (if applicable):	
Mailing address (if different from below): PO Box 14321 Tauranga Mail Centre 3143	
Street address / Registered office: Matley Limited, 150 Grantham Street, Hamilton Central, Hamilton, 3204 , New Zealand	
Phone number: Landline: NA	Mobile:0275363696
	After hours::NA
Fax:	
Email murraychristie@outlook.com	Website:NA

DECLARATION

I, Murray Christie, [*name of practitioner*]

carried out or supervised the restricted building work recorded on this form.

Signature 

Date: 15 Feb 2020

Combined Certificate of Compliance & Electrical Safety Certificate

MASTER ELECTRICIANS
Electrical Contractors Association of NZ

Customer Name: Creamer Cf Steel Frame Construction.

Location of Installation: 1 Te Wharo Drive
Papamoa

CE 152627

Description of work: (or see attached) Installed Fujitsu ASTG18KMTC air conditioning unit to lounge internal wall fed from switchboard in 2.5mm t&e cable protected by 20A MCB, with 1.5mm 3c&e interconnecting cable to outdoor isolation switch, connected and tested.

Reference / Job / ID

54082.

This work has been carried out in accordance with a Certified Design ☒ Certified Design Attached ☒

Name of Issuer of Certified Design: _____ ICP Number (if known)

Supplier Declaration of Conformity Attached: ☑ (please attach or list Certificate serial numbers or web address below)

Manufacturers Instructions used or relied on in this work: ☑ refer to invoice (please attach or list web address below)
fujitsugeneral.co.nz

All parts of the installation are safe to connect to a power supply
If not, please detail which parts are safe to connect. ☐

This work is:		This work has been done in accordance with:		Supply system this work is suitable for:	
Low Risk (Certificate of Compliance not required)	☐	Part 2 of AS/NZS 3000	☑	230/400V MEN system	☑
General	☑	Part 1 of AS/NZS 3000	☐	Other (Please specify)	☐
High Risk (Record of Inspection required)	☐				

Other Standards this work complies with: _____

Record of Inspection (If Required)

Name of Inspector: _____

The aspects of the work which make it high risk are:

☐ Work on Mains	☐ Mains Parallel Generation	☐ Animal Stunning
☐ Work on Main Earthing System	☐ Mines N A	☐ Work to Part 1 of AS/NZS 3000 *
☐ Electromedical	☐ Photovoltaic	☐ High Voltage *
☐ Hazardous Area		* Certified Design Required

Date on, or period in, which the work was done: 29/10/2020 – 16/2/2021

I confirm that I am satisfied that the work detailed in this Certificate of Compliance has been done lawfully and safely, and that the information contained in this certificate is correct and accurate.

This certificate is issued by: Steve Swanson **Registration No:** E1849

Signature: _____ **Date:** 16/2/2021

Name and Registration Numbers of Workers Under Supervision Attached ☑ Josh Harris E-TLC 157294

Electrical Safety Certificate To be completed once all work on the CoC above is completed.

Date the connection was done: 16/02/2021

I am satisfied that the work detailed in this Electrical Safety Certificate and the installation or part installation to which it relates is connected to a power supply and is safe to use.

The work described above was connected by: Steve Swanson **Registration No:** E1849

Signature: _____ **Date:** 16/2/2021.

Date Submitted: Tuesday, 16 February 2021

Form 6
Application for code compliance certificate

Section 92, Building Act 2004

The building consent

Building consent number:	BC301286
Issued by:	Tauranga City Council

Agent

Name of agent:	Kimberley Mcgregor
Contact person:	
Mailing address:	P.o Box 4411 Mount Maunganui Tauranga Bay Of Plenty 3149
Street address/registered office:	
Phone number:	Landline: 072811720
Daytime:	Landline: 072811720
After hours:	Landline: 072811720
Facsimile number:	No information provided
Email address:	kimberley.mcgregor@goldenhomes.co.nz
Website:	No information provided
Relationship to owner:	Application made on owners behalf

First point of contact for communications with the building consent authority:

Full name:	Kimberley Mcgregor
Mailing address:	P.o Box 4411 Mount Maunganui Tauranga Bay Of Plenty Taurnga 3149
Phone number(s):	072811720
Facsimile number(s):	N/A
Email address(es):	kimberley.mcgregor@goldenhomes.co.nz

Application

All building work to be carried out under the building consent specified on this form was completed on:
16 February 2021

The licensed building practitioner(s) who carried out or supervised the restricted building work is/are as follows:

Name	Craig Wearne
Licensing class	Design
Licensed building practitioner number (or registration number if treated as being licensed under section 291 of Act)	BP101178
Particular work carried out or supervised	No information provided

Name	Anthony Fox
Licensing class	Foundations
Licensed building practitioner number (or registration number if treated as being licensed under section 291 of Act)	BP129554
Particular work carried out or supervised	No information provided

Name	Andrew Mudge
Licensing class	Carpentry
Licensed building practitioner number (or registration number if treated as being licensed under section 291 of Act)	BP103543
Particular work carried out or supervised	No information provided

Name	Matthew Christie
Licensing class	External Plastering
Licensed building practitioner number (or registration number if treated as being licensed under section 291 of Act)	BP107019
Particular work carried out or supervised	No information provided

The personnel who carried out building work other than restricted building work are as follows:

Name	Greg Swanberg
Address	No information provided
Phone number	021 626 026
Registration number	14995
Licensed building practitioner number	N/A

Name	Garry Palmer
Address	No information provided
Phone number	027 475 5147
Registration number	08037
Licensed building practitioner number	N/A

Name	Warren Airey
Address	Tauranga, 3112
Phone number	0210786191
Registration number	BP133936
Licensed building practitioner number	N/A

Name	Steve Allen
Address	No information provided
Phone number	027 232 3948
Registration number	N/A
Licensed building practitioner number	N/A

Name	Murray Christie
Address	Tuapiri, 3
Phone number	0275363696
Registration number	BP119346
Licensed building practitioner number	N/A

Name	Jonas Li
Address	No information provided
Phone number	027 973 8779
Registration number	N/A
Licensed building practitioner number	N/A

The following specified systems are contained on the compliance schedule for the building and, in the opinion of the personnel who installed them, are capable of performing to the performance standards set out in the building consent:

There are no specified systems associated with this project.

I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004.
The code compliance certificate should be sent to:

Agent: P.o Box 4411 Mount Maunganui Tauranga Bay Of Plenty 3149

Signature of agent on behalf of and with the authority of the owner:

KIMBERLEY MCGREGOR

Name of person signing:	Kimberley Mcgregor
Date:	16 Feb 2021

Attachments

The following documents are attached to this application:

No attachments

Form 7
Code compliance certificate

Section 95, Building Act 2004

The building

Street address of building:	1 TE WHARO DRIVE, PAPAMOA, TAURANGA
Legal description of land where building is located:	LOT 444 DP 530967
Building name:	N/A
Location of building within site/block number:	1 Te Wharo Drive Papamoa Beach Papamoa 3118
Level/unit number:	N/A
Current, lawfully established, use:	2.0 Housing: 2.0.2 Detached Dwelling
Year first constructed:	2021

The owner

Name of owner:	Paul Colin and Katie Creamer
Customer number:	356970
Contact person:	Paul Creamer
Mailing address:	51 Te Wharo Drive, Papamoa Beach, Papamoa
Street address/registered office:	51 Te Wharo Drive, Papamoa Beach, Papamoa
Phone number:	Landline: 021920440 Mobile: 021920440
Daytime:	Landline: 021920440 Mobile: 021920440
After hours:	Landline: 021920440 Mobile: 021920440
Facsimile number:	No information provided
Email address:	pkcreamer@gmail.com
Website:	No information provided

First point of contact for communications with the council/building consent authority:
Barbara Moore (STEEL FRAME CONSTRUCTION LIMITED); Mailing Address: P.O. Box 4411Mount Maunganui 3149; Phone: 075742340; Email: Barbara.Moore@goldenhomes.co.nz

Building work

Building consent number:	BC301286
Description:	Erect single level, three bedroom dwelling with attached single garage.
Issued by:	Tauranga City Council

Code compliance

The building consent authority named below is satisfied, on reasonable grounds, that -
the building work complies with the building consent.

No Compliance Schedule

Signature: Ray Day
Position: Manager Building Consent Services
On behalf of: Tauranga City Council
Date: 17 February 2021

Email #85019: BC301286

Project ID: 301286
Date Received: 2020-07-03 10:50:07
Sender: vanessa.regidor@tauranga.govt.nz
Checked By: Bronwyn Woodney
Accepted By: Bronwyn Woodney
Subject:
Information Received Via Email: BC301286 - 1 TE WHARO DRIVE
Message:
Hello

I have updated the file notes for this consent.

Kind regards,
Vanessa Regidor | Graduate Development Engineer
Tauranga City Council | 07 577 7000 | 7498 |
vanessa.regidor@tauranga.govt.nz<mailto:vanessa.regidor@tauranga.govt.nz> |
www.tauranga.govt.nz<http://www.tauranga.govt.nz/>

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