Scanning Cover Sheet

Add document

Please use one staple only and remove all the others

Service Request No	368659	Document No	
Requestor Name	Hayley Scurr	Date	15/09/2016
Business Unit	Dev & Plan Com	Phone	3461
Scanning Code	APRC - Application - Resource Consent		
WUFI / Link No	1039017	Item No	
For Filing Purposes	Property File		
Allocate To	Anna Hensen	Peer Reviewer (if applicable)	Bill
Duplicates Provided	Yes		
Address	232, 264, 270 and 276 Shelly Bay Road		
Extra Notes			

Type	Land Use	Fees Paid$	$2700 - Invoice sent
Description	Land Use and Subdivision: Multi-use residential, mixed use and non-residential buildings, associated earthworks and subdivision		
Pre-Apps	353737 - Anna		
Complexity	2		
Extra Notes	Concerned Neighbour	352610, 237232, 200097	
	Previous Resource Consents	179669, 171186	
	Archive Files		
	Other Notes		

Application for resource consent for a qualifying development in an approved Special Housing Area (SHA)

Absolutely Positively **Wellington** City Council
Me Heke Ki Pōneke

Under Section 25, Housing Accord and Special Housing Areas Act 2013

Notes for the applicant

Use this form to apply for resource consent for a qualifying development in an approved Special Housing Area (SHA).
It provides the Council with your contact information and details about your proposal.

If you have any questions, visit **wellington.govt.nz/resourceconsents**, email planning@wcc.govt.nz or phone us on 04 801 3590

Send the completed application or hand it in to us at:
Resource Consents
Wellington City Council
PO Box 2199, 101 Wakefield Street, Wellington

General details

This application is for ☑ land use consent ☐ subdivision consent ☑ combined land use/subdivision consent

The site to which this application relates is described as 232, 264, 270 and 276

No	Street Shelly Bay Road	Suburb Shelly Bay

Applicant details

☐ Owner ☐ Occupier ☐ Leasee ☐ Prospective ☐ Purchaser ☑ Other

Full name	The Wellington Company Limited C/- Earl Hope-Pearson
Postal address	PO Box 24 379 Wellington
Phone *(day)*	Mobile
Email	Fax

Your agent *(if applicable)*

Name	The Property Group Limited Attn: Angela Jones
Postal address	PO Box 2874 Wellington
Phone *(day)*	Mobile 021 976373
Email ajones@propertygroup.co.nz	Fax

Owner of the site that is the subject of this application

Name	Shelly Bay Limited and Wellington City Council.
Postal address	
Phone *(day)*	Mobile
Email	Fax

Important

Send all invoices to ☑ Applicant ☐ Agent ☐ Owner

Description of activity

Describe clearly the proposal to which this application relates

See attached application.

(Continue on another page if necessary.)

Limited notification of your application

Have you provided the written approvals of all adjacent landowners, infrastructure providers and designated authorities?

☐ Yes ☑ No

If 'yes', your application can be processed non-notified. If 'no' then an executive summary and a copy on a flash drive of your application for limited notification purposes may be required.

Are any other resource consent(s) required for this proposal? ☑ Yes ☐ No
(To find out, please contact a planning technician on 801 3590)

If yes, show any other resource consent(s) required as part of this proposal by ticking the relevant boxes

	Resource consent required	Resource consent applied for
Land use consent	☐	☐
Subdivision consent	☐	☐
Coastal permit (Wellington Regional Council)	☑	☐
Water permit (Wellington Regional Council)	☐	☐
Discharge permit (Wellington Regional Council)	☑	☐
Land use consent (Wellington Regional Council)	☑	☐

Information which must be submitted with this application

To satisfy the requirements of Section 27 of the HASHA Act 2013, please attach the following information to your application

☑ **Four copies (unbound) of all information, including plans to a measurable scale**

☐ **Initial application deposit fee** – refer to the Council's Fees and Charges Schedule

Will be paid electronically as soon as invoice is received.

Indicate method of payment below.

☐ Cheque attached ☐ Credit card ☐ Online

Amount paid $_____

- [x] **Certificates of title (computer freehold registers) for the subject site (no more than three months old)** including any relevant consent notice(s), covenants and easements registered on the computer register
- [x] **Locality plan (1:500) or aerial photograph (1:500) showing:**
  - [x] the location of the site in relation to other streets or landmarks
  - [x] street number of the subject site and those of adjoining sites, (rural sites can be shown at 1:1000 if required)
  - [x] details of the resource consent(s) being applied for, including reference to the specific rule(s) in the Wellington City District Plan
  - [x] an assessment of effects on the environment in accordance with Schedule 4 of the RMA at a level of detail that corresponds with the scale and significance of the effects that the proposed activity may have on the environment. This may require one of more technical specialist reports. Include a full description of the proposed activity, the effects that may be generated and how these would be managed.
  - [x] all other information required by the relevant sections of the Wellington City District Plan, the HASHA Act 2013 and the Housing Accord. Please refer to section 3 of the Wellington City District Plan for general requirements, including design statements. Please note that there may be other special information requirements associated with the specific activities/rule.
  - [x] statement of how the proposal meets the relevant qualifying development criteria for the SHA.
  - [x] include details (name, postal and site address) of consultation undertaken (including iwi) and any responses from persons consulted.

- [ ] **Information required to calculate any development contribution:**
  - [ ] Household units: number existing
  - [ ] Number proposed
  - [ ] Commercial: gross floor area existing
  - [ ] Gross floor area proposed
  - [ ] Residential subdivision: allotments existing
  - [ ] Allotments proposed

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

This site may be subject to or covered by the NES for Assessing and Managing Contaminants in Soil to Protect Human Health Regulations 2011. This is determined by reference to the Hazardous Activities and Industries List (HAIL) which identifies those activities and industries which are more likely to use or store hazardous substances and therefore have a greater probability of site contamination. A full list can be found on the Ministry for the Environment's website www.mfe.govt.nz/issues/hazardous/contaminated/hazardous-activities-industries-list.pdf

Has the piece of land subject to this application been used for *(including its present use)*, or is it more likely than not to have been used for an activity on the HAIL?	[x] Yes	[ ] No

If 'Yes', and your application involves subdividing or changing the use of the land, sampling or disturbing soil, or removing or replacing a fuel storage system, then the NES may apply and you may need to seek consent for this concurrently in your application.

Site visit requirements

In order to assess your application it will generally be necessary for the planning officer to visit your site. This typically involves an outdoor inspection only, and there is no need for you to be home for this purpose.

Are there any locked gates, security systems or anything else restricting access by Council staff?	[x] Yes	[ ] No
Are there any dogs on the property?	[ ] Yes	[x] No
Do you require notice prior to the site visit eg if the property is tenanted?	[ ] Yes	[x] No

Are there any other health and safety issues Council staff should be aware of before visiting your site?
If so please provide details so Council staff can take the necessary precautions:

Fees

An initial fee must be paid before we can process your application.

I enclose the initial fee of $ _____ paid by (please tick the applicable box):

☐ Credit card ☐ Cheque attached ☑ Internet banking ☐ Service Centre (receipt attached)

I understand that the Council may invoice me for the actual and reasonable costs incurred to process this application - as identified in Section 36 of the Resource Management Act and the Council's current fee schedule. Subject to the applicant's right under Sections 82-84 of the HASHA Act 2013 to object to any costs, undertake to pay all and future processing costs incurred by the Council.

Additional fees

If we spend additional time processing requests or incur expenses we need to invoice additional fees. This may happen during processing or once a decision on your application is made. We only charge for amounts over $65. Likewise, refunds will only be made for unused amounts over $65.

The Council may issue interim invoices for applications. If any steps, including the use of debt collectors and or lawyers, are necessary to recover unpaid processing costs, the applicant agrees to pay all collection costs. If this application is made on behalf of a trust (private or family), a society (incorporated or unincorporated) or a company, in signing this application the applicant binds the trust, society or company to pay all the above costs and guarantee to pay all the above costs in their personal capacity.

Refer to the Council's Fee Schedule found at **wellington.govt.nz/resourceconsents**

Our payment terms

Additional fees are due by the 20th of the month following an invoice. If payment is not received, you will be liable for all legal and collection fees.

The declaration below must be signed by the person(s) or entity responsible for paying the application processing costs. If you are an agent, you will need to obtain the signature of the person(s) responsible for paying the fees before submitting the resource consent application to the Council.

How to pay

Internet banking

The Council's bank account number is 06 0582 0106111 00. Use "RC" followed by the site address as a reference.

Cheque

Attach a cheque with your application and send it or hand it in to us at:

Resource Consents
Wellington City Council
PO Box 2199
101 Wakefield Street, Wellington

Online

Pay online using your credit card. Visit **wellington.govt.nz/payonline**, choose Property from the dropdown box and follow the instructions.

In person

You can make payments by cash, cheque or EFTPOS at:

Wellington City Council Service Centre
101 Wakefield Street
8am–5pm, Monday to Friday.

We also accept Visa, MasterCard and American Express.

Phone

You can pay over the phone with your credit card.
Phone us on 04 801 3718.

Declaration

Subject to my rights under sections 357B and 358 of the RMA to object to any costs, I undertake to pay all costs associated with this application. I also agree to pay all the costs *(including debt collection or legal fees)* of recovering any unpaid costs.

Send all invoices to

Full name The Wellington Company Limited C/- Earl Hope-Pearson	
Postal address PO Box 24 379 Wellington	
Applicant/Agent/Other *(give details)*	
Phone *(day)*	Mobile
Email	Fax
I have read and understand the above conditions.	
Signed Agreed.	Date 15/9/16.

Notes for the applicant

Incomplete applications will be returned. The Council may also request further information to better understand the potential effects of the proposal.

Once this application is lodged with the Council, it becomes public information. If there is sensitive information in the proposal, please let us know. The Council may require a registered surveyor to certify contours, natural ground level, building site(s) or structure(s), location of boundaries or any other feature which may affect this proposal.

Privacy information

The information you have provided on this form is required so that your application can be processed under the HASHA Act 2013, and so that statistics can be collected by Wellington City Council. The information will be stored on a public register and held by Wellington City Council. Under the Privacy Act 1993, you have the right to see and correct personal information.

Signature of applicant(s) or agent

Declaration for the applicant or authorised agent or other

I/we confirm that I/we have read and understood the notes above. If a private or family trust is the applicant, at least two New Zealand-based trustees are required to provide contact details and sign this form.

Applicant's name The Property Group Limited / Attn: Angela Jones	
Applicant's signature A Jones	Date 15/9/16.
Applicant's name	
Applicant's signature	Date
Applicant's name	
Applicant's signature	Date

Declaration for the agent authorised to sign on behalf of the applicant

As authorised agent for the applicant, I confirm that I have read and understood the above notes and confirm that I have fully informed the applicant of their/its liability under this document, including for fees and other charges, and that I have the applicant's authority to sign this application on their/its behalf.

Agent's full name Angela Jones - The Property Group Limited	
Agent's signature A Jones	Date 15/9/16.

How do you wish to be served with any correspondence

☑ via email (*please ensure you have provided your email address on page 1*)	☐ via post, ie hardcopy

15 September 2016

The Property Group Limited
Level 10, Technology One House
86 - 96 Victoria Street
Wellington
PO Box 2874
Wellington 6140, New Zealand
Phone: 64-4-470 6105
Facsimile: 64-4-470 6101

Resource Consents Team
Wellington City Council
PO Box 2199
Wellington

Attention: Anna Hanson

Dear Anna,

RESOURCE CONSENT APPLICATION UNDER THE HOUSING ACCORDS AND SPECIAL HOUSING AREAS ACT 2013 AND THE RESOURCE MANAGEMENT (NATIONAL ENVIRONMENTAL STANDARD FOR ASSESSING AND MANAGEING CONTAMINANTS IN SOIL TO PROTECT HUMAN HEALTH) REGULATIONS 2011

Please find enclosed an application for resource consent for the redevelopment of the site, including multi-unit residential, mixed use and non-residential buildings and activities, with associated earthworks and subdivision at 232, 264, 270 and 276 Shelly Bay Road, Shelly Bay. This application is sought under the Housing Accords and Special Housing Areas Act 2013 ('HASHAA').

Consent is also sought for the use and development of a potentially contaminated site under Regulation 11 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 for the soil disturbance, subdivision and change of use of potentially contaminated land.

This application follows pre-application meetings with Anna Hanson and Chad McMan.

This application includes a completed application form, a detailed description of the proposal along with an assessment of environmental effects, including all necessary supporting documentation.

The deposit fee will be paid electronically as soon as an invoice is received following lodgement of the application.

The Property Group Limited is the agent for this application and should be the contact for any correspondence or telephone discussions.

Please feel free to contact myself should you have any questions with regard to the application. I would also appreciate the opportunity to review any draft conditions prior to the issue of consent.

Yours sincerely

ANGELA JONES
Senior Planner
M 021 976373
Email ajones@propertygroup.co.nz

Application for resource consent
Section 25, Housing Accord and Special Housing Areas Act 2013

To:	Wellington City Council
Applicant:	The Wellington Company Limited
Agent:	Angela Jones – Senior Planner, The Property Group Limited Tel: 04 4706142 or 021 976373 Email: ajones@propertygroup.co.nz
Address for Service:	The Property Group Limited PO Box 2874 Wellington 6140 Attention: Angela Jones
Site Address:	232, 264, 270 and 276 Shelly Bay Road, Shelly Bay
Legal Descriptions:	Section 4-6, 10 SO Plan 339948 (9827m^2) Section 3 SO Plan 339948 (7002m^2) Section 1 SO Plan 37849 (2.9427ha) Section 8-9 SO Plan 339948 (8049m^2) Part Lot 3 DP 3020 and Section 2 SO Plan 339948 (1.29ha) Part Section 20 Watts Peninsula District (2.86ha)
Owners of Site:	Wellington City Council Shelly Bay Limited
Consent For:	Land use and Subdivision Resource Consent No other resource consents are required for this proposal from Wellington City Council
Description:	Resource consent application to Wellington City Council (made under the Housing Accords and Special Housing Areas Act 2013) for the redevelopment of the site, including multi-unit residential, mixed use and non-residential buildings and activities, with associated earthworks and subdivision at 232, 264, 270 and 276 Shelly Bay Road, Shelly Bay. Resource consent is also sought for the use and development of a potentially contaminated site under Regulation 11 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 for the soil disturbance, subdivision and change of use of potentially contaminated land.
Enclosed:	Application and AEE Appendix 1-14

Signed: 

ANGELA JONES
Senior Planner

Date: 15 September 2016

APPLICATION FOR RESOURCE CONSENT

232, 264, 270 AND 276 SHELLY BAY ROAD

THE WELLINGTON COMPANY LIMITED

the propertygroup

Quality Control

Title	Resource consent application to Wellington City Council (made under Housing Accords and Special Housing Areas Act 2013) for the redevelopment of the site, including multi-unit residential, mixed use and non-residential buildings and activities, with associated earthworks and subdivision at 232, 264, 270 and 276 Shelly Bay Road, Shelly Bay. Resource consent is also sought for the use and development of a potentially contaminated site under Regulation 11 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 for the soil disturbance, subdivision and change of use of potentially contaminated land.
Client	The Wellington Company Limited
Job No.	713392
Prepared by	Angela Jones – Senior Planner
Signature	
Reviewed by	Matthew Paetz – Auckland Planning Manager
Signature	

TABLE OF CONTENTS

1.0 Introduction

The Wellington Company Limited ("The Wellington Company") hereby applies for resource consent from Wellington City Council ('WCC') for the redevelopment of the site, including multi-unit residential, mixed use and non-residential buildings and activities, with associated earthworks and subdivision at 232, 264, 270 and 276 Shelly Bay Road, Shelly Bay. This application is made under section 25 of the Housing Accords and Special Housing Areas Act 2013 ("HASHAA").

The computer freehold registers for the sites are attached in Appendix 1.

Resource consent is also sought for the use and development of a potentially contaminated site under Regulation 11 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 for the soil disturbance, subdivision and change of use of potentially contaminated land.

The site is located in the Business 1 and Open Space B zones of the Wellington City District Plan ("District Plan") and requires resource consent for the reasons outlined in Section 7 of this report.

2.0 Masterplan and Application Framework Overview

Resource consent is sought on the basis of a comprehensive Masterplan that sets out the framework for the future detailed design for the overall site redevelopment. The Masterplan sets out the buildings location, footprint, maximum building envelope and activity use as a basis for the future detailed design that will get approved through meeting the requirements of a condition of consent. Any detailed design must be within the parameters set by the Masterplan.

The aspects of the public realm, including the roads and public spaces, have been designed to a more detailed concept stage. The full detailed design of these spaces will also require approval through meeting detailed design conditions of consent.

The application outlines the proposed Masterplan and offers conditions of consent to enable to detailed design to occur prior to construction. The details of the Masterplan are outlined further in section 5. The Masterplan is attached in Appendix 2.

The proposed Shelly Bay Design Guide will ensure that the vision for Shelly Bay is realised. The detailed design must be able to demonstrate that proposal meets this Design Guide. The proposed Shelly Bay Design Guide is attached in Appendix 3.

3.0 Greater Wellington Regional Council Matters

This application seeks consent for WCC matters only. The Wellington Company acknowledge that the proposal will require resource consents from Greater Wellington Regional Council ("GWRC") that include, but not limited to, discharge of stormwater, construction of and works to existing sea walls, the ramp down to the South Bay beach and refurbishment/strengthening works to the existing wharfs. These works fall outside of the scope of this application. Consent will be sought separately from GWRC. The Wellington Company has provided an overview of the project to GWRC who have also been in attendance at a pre-application meeting held with WCC.

4.0 Site Description and Background

4.1 Site Description

Shelly Bay is located on the western side of Watts (Miramar) Peninsula. The natural character is defined by two bays with steep vegetated coastal escarpments set back from the water's edge. These coastal escarpments form the dominant landform of the area.

A relatively narrow flat area lies between the coast and the escarpment that accommodates buildings and structures associated with the former Royal New Zealand Air Force (RNZAF) Shelly Bay Base.

Between the two bays is the Shelly Bay wharf. On the landward side of the wharf are the RNZAF former workshop buildings and slipway structures. A formed carriageway runs through the site that generally follows the coastal edge. The formed road carriageway and the legal road are not 100% aligned through the application site.

The character of the wider environment is dominated by the coastal escarpments noted earlier and the vegetated peninsula landform. The surrounding land to the application site is owned by the New Zealand Defence Force and is unoccupied with no legal public access. There is a private access off Shelly Bay Road to this adjoining land. This Defence Force land is generally void of built structures with the exception of the occasional bunker type structures.

Approximately 500m above the site to the east (on the top of the peninsula) is the former Mount Crawford Prison site. The prison is now disused and unoccupied although the buildings and structures remain.

A more detailed description of the site and its context with the wider Watts Peninsula is outlined in section 2 of the Master Plan.

Access to the site is primarily from the south via Shelly Bay Road which connects to the wider roading network via Miramar Avenue and Cobham Drive. Access to the north is via Massey Road which continues around the head of the peninsula.

A Preliminary Site Investigation (PSI), undertaken by AECOM, notes that due to the industrial nature of some of the site's current and former operations, the site has been identified as being on the Hazardous Activities or Industries List (HAIL) as defined by the Ministry for the Environment (MfE). This PSI is attached in Appendix 4.

4.2 Site History

As a brief history to the site, an earthquake in 1855 raised several beach terraces above sea level on the Watts Peninsula resulting in beaches that were considered suitable for the Submarine Mining Depot during the "Russian Scare" of 1885. Following the abandoning of the minefield concept in 1907 the Shelly Bay depot was used as a general military store and barracks until its closure in the 1920's.

Despite the earlier use of the site for military purposes it wasn't until 1914 that the construction of store buildings and a tramway connecting the wharf started.

In 1942 the site underwent major redevelopment that included the reclamation of 2.7ha of land and the later construction of many of the RNZAF buildings after the site was transferred to them in 1946. The RNZAF occupied the land until 1995 however during this time the breastwork and slipway have been leased to a number of private companies. A number of facilities have been decommissioned or removed including fuel storage tanks, the coal fired boiler house and parts of the steam reticulation system. The main wharf is also closed due to structural instability.

Currently both the Wellington City Council and Shelly Bay Limited own different land parcels within the application site. For the most part the site is unoccupied with the exception of a number of artisans, film properties hire stores and the Chocolate Fish Café.

5.0 Proposal

Land use and subdivision resource consent is sought for the comprehensive redevelopment of the site including residential accommodation (apartments, townhouses and stand-alone dwellings), boutique hotel, ancillary commercial/community activities, the adaptive re-use of some existing buildings on the site and the development of integrated public open spaces. The proposal also includes the option for aged care accommodation. Consent is sought on the basis of a Masterplan that allows flexibility to cater for changes in apartment size, demand and building design as the development progresses over the duration of the consent sought. The proposal can be generally described as comprising:

- The construction of up to 12 multi-level residential apartment buildings containing approximately 280 apartments.
- The construction of approximately 58 townhouses.
- Construction of up to 14 individual dwellings
- The adaptive re-use and relocation of the Submarine Mining Depot Barracks.
- A boutique hotel incorporating the adaptive re-use of the existing Officer's Mess.
- The adaptive re-use of Shed 8 and the Shipwrights building to accommodate commercial/community activities.
- Construction of new buildings to accommodate commercial/community activities.
- Development of a village green pubic open space.
- The development of the point parks to accommodate public parking and facilitate recreational opportunities.

- Contamination investigation and possible remediation.
- Ancillary earthworks
- Fee simple subdivision.

The proposal includes a proposed Shelly Bay Design Guide that details the design intent for individual buildings and public/private spaces. The detailed design will require an approval to meet a condition of consent and in doing so will need to demonstrate compliance with the proposed Shelly Bay Design Guide.

The Masterplan and proposed Shelly Bay Design Guide should be read on conjunction with the proposal description as outlined below:

5.1 Land Use

5.1.1 Multi-Level Apartments

The primary focus of this application is to provide housing in accordance with the Special Housing Area ("SHA") status of the site. A key component to meet this objective is the construction of up to 12 residential apartment buildings. These are located toward the rear of the site adjacent to the coastal escarpment. The apartments have been orientated to address the bay in which they are located (i.e. North Bay or South Bay). The apartments will be a maximum of 6 storeys/27m in height with the ground level accommodating car parking. Car parking will also occur in the mews immediately in front of the apartments. The number of units and their typologies within each apartment will be determined in the future detailed design. Each apartment will however provide at least one car park per household unit so the number of units will be limited to the number of car parks that can be accommodated. Given the limited servicing demand these apartments will not provide a dedicated on-site loading area. The limited servicing requirements for the apartments is likely to occur in the mews. The car parking and servicing requirements are outlined further in the Traffic Assessment Report by TDG attached in Appendix 5.

The raised first floor level of each apartment building will allow access to quality daylight/sunlight and an outlook either over or between the lower height townhouses in front.

5.1.2 Townhouses

To the front of the majority of the above mentioned apartments, and with frontage to the public road carriageway are a series of townhouses. The townhouses will have a maximum height of 12 metres and be orientated toward the foreshore. Each townhouse will provide at least one on-site car park that will be located on the mews at their rear. The mews will be accessed via a shared right of way.

The number of townhouses and their typologies will be determined in the future detailed design.

5.1.3 Individual Dwellings

The Masterplan provides opportunities for the construction of single residential dwellings. The majority of these are located on the landwards side of the carriageway at the southern end of South

Bay. The majority of this area is currently zoned Open Space B. These dwellings will be located alongside the road carriageway and below the adjoining coastal escarpment. The one exception to this is a single dwelling site located higher on the coastal escarpment. These dwellings will be a maximum of four storeys in height and provide one covered on-site car park.

An additional two stand-alone residential dwellings will be located on the escarpment to the rear and alongside apartment SB A1. These dwellings are identified on the Masterplan as SBW H1 and SBW H2. These dwellings will be a maximum of 4 storeys in height with at least one car park that will be accommodated in the car stacker (SBW.B5). Pedestrian access to these dwellings will likely being via cable car and steps.

5.1.4 Boutique Hotel

A boutique hotel will be located toward the southern end of North Bay identified as SWB B1 and SWB B2 on the Masterplan. The boutique hotel will comprise the relocated Officer's Mess that will accommodate the hotel reception, restaurant/bar along with some hotel rooms. To accommodate the additional rooms required to make the boutique hotel commercially viable an addition will be constructed to the southeast corner to the existing building. This addition will be a maximum of 6 storeys in height and will be visually distinctive to the existing Officer's Mess. The hotel is expected to accommodate approximately 50 hotel rooms although the future feasibility investigations will determine the exact number.

Car parking for the boutique hotel will be provided on the southern side of the hotel. Additional parking can be provided in a two storey car stacker identified as SBW B3 on the Masterplan.

5.1.5 Adaptive Re-Use of Existing Buildings/Structures

In addition to the boutique hotel noted above, the proposal includes the adaptive re-use of other existing building. A description of these buildings is outlined in proposed Shelly Bay Design Guide. These comprise:

The Shipwright's Building

The Shipwright's building is identified as building SBW B8 on the Masterplan. This building will stay in its current location and accommodate a micro-brewery. The brewery will incorporate either a café or restaurant. Minor alterations to the exterior of this building will be required for its adaptive re-use. Details of these alterations will be provided through meeting the condition of consent with respect to detailed design.

Shed 8

Shed 8 is identified as building SBW B7 on the Masterplan. Shed 8 will remain in its current location and accommodate commercial/community activities or residential and short term accommodation. Minor alterations may be required for the adaptive re-use of this building. Details of these alterations will be provided through meeting the condition of consent with respect to detailed design. The final use of this building will be determined with the future detailed design.

The Submarine Mining building

The Submarine Mining building is identified by SWB B10 or SB B1 on the Masterplan. This building currently accommodates the Chocolate Fish café. The proposal is to relocate this building (and the Chocolate Fish café activity) to either the north or south end of the Village Green in the South Bay.

Slipway

The existing slipway alongside the Shipwrights building will be retained. Any modifications to the existing slipway will form part of the detailed design that will approved through a condition of consent.

Wharf

It is intended to retain the existing wharf structures and future investigations will determine to what extent of refurbishment works are required on these structures to ensure their structural stability. The wharfs fall outside of the scope of this application and will part of the future application to GWRC.

5.1.6 Demolition of Buildings

With the exception of the buildings and structures noted above, all other buildings and structures on the application site will likely either be demolished or relocated off site. Given none of these buildings/structures are heritage listed this demolition or relocation can occur as a permitted activity and does not require resource consent.

5.1.7 Construction of other Mixed Use and Non-Residential Buildings

In addition to the above mentioned residential buildings and the adaptive re-use of existing heritage buildings the Masterplan includes the construction of additional mixed use, commercial/community buildings and two car stackers.

The kiosks are located on the northern side of Shed 8 and identified as SBW B6 on the Masterplan. The kiosks will be single storey and it is envisaged that they will accommodate cafes/restaurant to take advantage of their outlook toward the harbour.

Three mixed use buildings are proposed. One being on the landward side of the road opposite the slipway. This building is identified as SBW B4 on the Masterplan. This building will be a maximum of 3 storeys in height and can accommodate a mix of residential and non-residential activities. The likely configuration of this building is commercial activities on the ground floor with residential accommodation above. Another mixed use building is adjacent to both the slipway and the retained Shipwrights building. This building is identified as SBW B9 on the Masterplan. This building will have a maximum height of 4 storeys and can accommodate a mix of residential and non-residential activities. The third mixed use building is on the landward side of the road carriage in North Bay and identified as NBTH4alt (aged care option) on the Masterplan. This building will have a maximum height of 12m and can accommodate a mix of residential and non-residential activities. It is envisaged that non-residential activities will be on the ground floor with the upper levels being residential accommodation. The exact configuration of this building will be confirmed with the detailed design.

Two car stackers are proposed and identified as SBW B5 and SBW B3 on the Masterplan. The car stackers have a maximum height of 14m and are likely to be able to accommodate up to 30 cars in each stacker. These stackers are discussed further in the traffic assessment by Traffic Design Group.

5.1.8 Aged Care Accommodation Option

The Masterplan provides the option for an aged care facility as identified in sections 4.2 and 4.3 of the Masterplan. This activity has not been confirmed hence the Masterplan provides for an either/or option to provide either the aged care facility or residential accommodation in this part of the development. The aged care facility will provide a mix of independent living units, serviced apartments and care suits for occupation by residents of 65 years of age or greater. Residents occupying the independent living units require few services and are generally highly mobile and participate in the surrounding community. Residents in the serviced apartments and care suites will likely be less mobile and generally require some form of living assistance. The aged care facility will offer a range of services including cleaning, laundry, meals, living assistance, medical and health care. The facility may run a café and health and wellness centre with the intention that these will be open to the public.

The aged care facility will generally comprise:

- Approximately 140 residents accommodated across 120 living units comprising approximately 68 independent apartments, 20 serviced apartments and 32 care suites. Operate 24 hours, 7 days a week
- Staffing numbers are expected to be approximately 23 day staff and 7 night staff. Day staff will cover management, administration, reception, sales, cooking, cleaning, laundry, maintenance and care functions. Night staff will predominately be care-givers.
- It is expected a number of day-staff and residents will utilise public transport. Shift change times will likely be 7am and 3pm – because of this and the fact the residents are retired peak traffic will be minimally impacted by the facility.

The details of the aged care option will be outlined as part of the detailed design approval through a condition of consent.

Please refer to the traffic assessment by Traffic Design Group for an outline of the expected car parking demand for this aged care option.

5.1.9 Non-residential Activities

Given consent is sought on the basis of a Masterplan the tenancies and uses of the non-residential activities have not yet been confirmed. In addition, it is important to allow flexibility in these activities to ensure the development remains commercially attractive as trends and demand changes. The potential non-residential activities could comprise any of those noted below:

- Boutique Hotel
- Microbrewery
- Café
- Community Centre
- Restaurant
- Artist Studio/Shop
- Retail/service activities
- Office
- Recreation related activities
- Toilets/changing rooms
- Gym
- Childcare
- Medical Centre

5.1.10 Noise Insulation and Ventilation

The Masterplan provides for a comprehensive development at Shelly Bay. Whilst the development is overwhelmingly predominately residential it does include buildings that will include mixed use and commercial/community activities. The residential units/apartments/townhouses/dwellings that adjoin non-residential activities will be constructed to meet the District Plan noise insulation and ventilation standards. Given the comprehensive nature of the development and that the Masterplan provides some assurance to future landuse activities over the entire Shelly Bay development is not considered necessary that other residential buildings are constructed to meet the noise insulation and ventilation standard despite the fact the majority of the site has a Business 1 zoning. A plan illustrating the buildings that will be constructed to mee the noise insulation and ventilation standards is attached in Appendix 8.

5.1.11 Roading, Car parking and Servicing

In addition to the car parking that will be provided for the residential apartments, townhouses and dwellings as noted above, the development will require car parking for visitors and the commercial activities. Car parking for these activities will be provided as street parking along Shelly Bay Road, at the point parks at the north and south entrances to the development and within the two car stackers. The car parking at the point parks will be formalised with wheel stops although retain their natural informal qualities while restoring the rocky coastal ecology.

Vehicle circulation around the development will provided with re-aligned public road carriageway and a series of laneways and parking mews.

The Traffic Assessment Report by TDG provides a more detailed description of the car parking, service provisions for the development as well as the vehicle circulation throughout the site.

A ferry connection to and from the city is also planned for the future. This ferry connection however falls outside of the scope of this application and will be a matter for discussions with GWRC with respect to any consent requirements. This proposal does not rely on this ferry connection with respect to traffic related matters.

5.1.12 Earthworks

Given the scale of the development earthworks are required to create building platforms, roading and the public realm. However, given the built development will respect the existing landform and topography the earthworks are kept to a minimum resulting in the existing generally flat topography being retained. The proposal will however result in areas of cut and fill as demonstrated in the earthworks plans prepared by Envelope attached in Appendix 6. The largest earthworks cuts are at the toe of the escarpment to enable the construction of the apartments. Following construction all cuts will be either covered by buildings, suitably retained, covered by roads/paths or suitably landscaped. Given the development is staged over a number of years the exposed areas of earthworks will be significantly less than this at any one time.

Given that this application seeks consent for a Masterplan the detail of earthworks required for construction will vary depending on the detailed design of the individual buildings. For this reason a condition of consent has been offered that requires an earthworks plan to be submitted and approved by the Council prior to construction commencing. This earthworks plan will be accompanied by an earthworks methodology and the sediment and runoff control plan.

A geotechnical report prepared by Engeo has been attached as Appendix 15.

5.1.13 Public Realm and Public Open Space

Although the prime focus of the development is to provide housing to fulfil its SHA status the Masterplan has been designed to enhance public access to the foreshore and coast. This is done through the development of the point parks at the north and south entrances to the development. As noted earlier, the points parks not only provide car parking but will also retain the existing recreational opportunities including fishing. The pedestrian promenades around the bays will encourage pedestrians along the coastal edge. Public access will be retained around the buildings alongside the wharf including the existing slipway. The Village Green at the north end of the South Bay is bookended by two buildings that will accommodate the Chocolate Fish café and another commercial/community building. The large green provides both visual amenity to the wider development as well as recreational opportunities for both the residents and the public.

5.1.14 Contamination

It was noted in section 2.1 that the site is identified as being a HAIL site. For the reason outlined in the PSI undertaken by AECOM it is considered highly unlikely that there is a risk to human health from contaminates in the soil and groundwater, under the proposed current or proposed residential and commercial/community landuses in both the north bay and south bay.

AECOM were however unable to investigate the seaward side of Shelly Bay Road where records indicate the presence of partially buried fuel storage tanks and industrial activities occurred. The likelihood of impact to soil and groundwater in this area is therefore currently unknown.

This proposal therefore includes the investigation and remediation of any contaminated land to a level suitable for the proposed landuse activities in this location.

The investigation, remediation, validation and management process shall be carried out in accordance with the Ministry for the Environment's "Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (1999)" and "Contaminated Land Management Guidelines for Reporting on Contaminated Sites in New Zealand (November 2003)".

5.1.15 Signs

All signs associated with the names of apartment buildings and for all non-residential activities will be designed to comply with the District Plan sign standards for the Business 1 zone. If compliance is not achieved than resource consent will be required.

5.2 Subdivision

The application also seeks consent to subdivide some of the site into larger development sites. Calibre Consulting has outlined the proposed subdivision, including the proposed scheme plan, in their report entitled "Shelly Bay – Proposed Subdivison" dated 9 September 2016 that is attached in Appendix 12. This report outlines the purpose of the subdivision, legal access arrangements to the new allotments, the relevant matters to be considered, staging of the subdivision and the future subdivisions that will be required.

The individual dwellings sites on the southern end of the development do not form part of this subdivision as some of the underlayings sites fall outside of the SHA boundary cannot be subdivided under HASHAA. The subdivision of these sites will require subdivision at a later stage under the RMA.

5.3 Infrastructure

A report prepared by Calibre Consulting entitled '*Shelly Bay, Wellington, Servicing Feasibility*' dated 8 August 2016 confirms that sufficient and appropriate infrastructure is in place, or can reasonably be provided, to support the proposed development. A copy of the report is attached in Appendix 7.

5.4 Staging of the Development and Lapse Period

Under section 51 of HASHAA the default lapse period of a resource consent is one year. The authorised agency (being Wellington City Council) has the discretion to extend this lapse period.

Given the large scale of the development, the fact this application seeks consent for a Masterplan and the necessary and significant detailed design is yet to be done, the realistic timeframe to enable the necessary public infrastructure to be constructed, and the necessary statutory processes such as road stoppings it would not be possible to meet the default one year lapse period to give effect to a resource consent for the overall development. This application therefore requests a staged lapse period. The purpose of the staged lapse period is to ensure that the applicant can deliver housing to meet the purpose of HASHAA while also being realistic about the scale of the development and the practicalities of delivery.

In addition to the reasons outlined above, given the nature of this development and the fact it may be delivered by parties other than the applicant it is not possible to determine exactly what parts of the developed will be delivered in what stages. We therefore request a staged lapse period that refers to the number of dwellings being delivered within specified lapse timeframes.

The proposed lapse period to give effect to the residential units component to the Masterplan is outlined below:

- Construction of 50 residential units – lapse date 4 years from the date of consent being granted
- Construction of 150 residential units – lapse date 6 years from the date of consent being granted
- Construction of 200 residential units – lapse date 8 years from the date of consent being granted
- Construction of 250 residential units – lapse date 9 years from the date of consent being granted
- Construction of 300 residential units – lapse date 11 years from the date of consent being granted
- Construction of up to approximately 350 residential units – lapse date 13 years from the date of consent being granted

The proposed lapse period to give effect to the non-residential components to the Masterplan is outlined below:

- Relocation of existing buildings on the site that will be retained - lapse date 5 years from the date of consent being granted
- Construction of the boutique hotel – lapse date 5 years from the date of consent being granted
- Construction of car stackers – lapse date 7 years from the date of consent being granted
- Construction of aged care facility (should this option proceed) – lapse date 9 years from the date of consent being granted

6.0 Statutory Framework

6.1 Introduction

The statutory planning framework that applies to this application includes the Housing Accords and Special Housing Areas Act 2013 ('HASHAA') and the Resource Management (Amendment) Act 1991 ('RMA').

6.2 Housing Accords and Special Housing Areas Act 2013

The HASHAA was enacted on the 13 September 2013. This special legislation was introduced to enable the more expedient supply of land for housing in identified districts and areas.

The purpose of the HASHAA Act is to: *"enhance housing affordability by facilitating an increase in land and housing supply in certain regions or districts, listed in Schedule 1, identified as having housing supply and affordability issues."*

Section 10 of HASHAA provides for the agreement of 'housing accords' which document an agreed approach to the supply of residential housing between central government and a territorial authority. A 'Housing Accord' between Wellington City Council and Central Government was signed on 24 June 2014.

Section 14 relates to 'qualifying developments'. This is been discussed further in section 6.3 below.

Sections 16 and 17 set out the process of establishing special housing areas (SHAs). Key criteria include the availability or potential availability of adequate infrastructure to service the SHAs, the level of demand to create a SHA in certain areas and the level of demand for residential housing within the district.

Part 2 of HASHAA relates to resource consents, plan changes and variations relating to qualifying developments in special housing areas. Sections 19 and 20 enable applications for resource consents, plan changes and variations relating to qualifying developments to apply under either Section 88 of the RMA or Section 25 of the HASHAA.

Section 26 sets out the requirements for resource consent applications for qualifying developments in SHAs. Sections 27 and 28 state that Section 88(2) to (5) and 88A of the RMA apply in respect of applications for resource consent made under HASHAA and that further information can be requested. This is discussed further below.

Section 29 relates to limited notification of applications. Applications for qualifying developments must not be notified except as provided under sub-sections (3) to (5). Sub-section 3 states that an authorised agency may notify the application to the owners of adjacent land, other local authorities

within whose district the subject land is situated, affected infrastructure providers or requiring authorities if the written approval of these parties has not been provided. Sub-section (5) states that an authorised agency must not notify, or hold a hearing in relation to, an application for a resource consent made under the HASHAA if, the application made under the RMA was not required to be notified by any regulation made under that Act.

Section 34 sets out the matters for consideration when assessing qualifying developments in SHAs. The weight to be assigned to each matter is in the order listed including the purpose of the HASHAA, Part 2 of the RMA, any relevant proposed plan, others matters set out in Section 104 – 104F of the RMA, any other relevant Act and the key urban design qualities in the Ministry for the Environment's NZ Urban Design Protocol (2005). In addition, adequate infrastructure must be available, or able to be provided, to support the qualifying development. When deciding an application, Section 35 of the HASHA states that Sections 105-107 of the RMA also apply. Conditions of consent can be imposed in accordance with Sections 108-111 of the RMA.

This application is made under the HASHAA and seeks to give effect to the Wellington City District Plan that will enable the delivery of housing at Shelly Bay, Wellington. The subject site is located within the Shelly Bay SHA boundary.

6.3 Qualifying Development Under HASHAA

A proposal must be a 'qualifying development' for an application to be considered under HASHAA. The meaning of 'qualifying development' is defined by section 14 of the Act as outlined below:

"14 Meaning of qualifying development

(1) In this Act, a qualifying development in a special housing area is a development –

(a) that will be predominantly residential; and

(b) in which the dwellings and other buildings will not be higher than –

(i) 6 storeys (or any lesser number prescribed); and

(ii) a maximum calculated height of 27 metres (or lower maximum calculated height prescribed); and

(c) that will contain not fewer than the prescribed minimum number of dwellings to be built; and

(2) For the purposes of subsection (1), a development is predominantly residential if -

(a) the primary purpose of the development is to supply dwellings; and

(b) any non-residential activities provided for are ancillary to quality residential development (such as recreational, mixed use, retail or town centre land uses)."

The proposal meets the 'qualifying development' criteria set out in Section 14(1) of the Act for the following reasons:

- The proposal is for up to approximately 350 residential units. The proposal includes a boutique hotel and café along with other yet unconfirmed commercial/community activities as outlined in section 5.1. Given the number of residential units in proportion to the other non-residential activities the proposal can easily be considered 'predominately residential' and thereby meets Section 14(1)(a) of the Act.

- All of the existing and proposed buildings will be no more than six storeys in height. The proposal thereby meets Section 14(1)(b)(i) of the Act with respect to the maximum number of storeys.

- All existing and proposed buildings are below the 27m height plane. The proposal thereby meets Section 14(1)(b)(ii) of the Act with regard to maximum height.

- The Shelly Bay Special Housing Area requires no less than 10 dwellings be constructed. The proposal will accommodate approximately 350 new residential units. The proposal thereby meets Section 14(1)(c) of the Act with respect to containing no fewer than the prescribed number of dwellings.

In addition to the points made above, the primary purpose of the development is to provide new dwellings. The commercial/community activities that include a boutique hotel and café as well as other yet unconfirmed non-residential activities as outlined in section 5.1. These will all be ancillary to the quality residential development. The reason being is that they all will provide either services and/or employment opportunities for the residential occupants. In this regard the proposal is considered to be 'predominately residential' in accordance with Section 14(2) of the Act.

For the reasons outlined above, the proposal meets the 'qualifying development' criteria set out in Section 14 of the Act.

6.4 The Resource Management Act 1991

The RMA sets out the statutory framework for the management of natural and physical resources in New Zealand.

The purpose of the Act is to *"promote the sustainable management of natural and physical resources"* where sustainable management means:
"managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—

(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment."

Sections 104 and Sections 105 to 107 apply to applications for resource consent and set out the matters, subject to Part 2, which must be considered when deciding an application.

Under section 104(1) of the RMA, when considering an application for resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to:

(i) Any actual or potential effects on the environment of allowing the activity;

(ii) The relevant provisions of a national policy statement;

(iii) A New Zealand Coastal Policy Statement;

(iv) A regional policy statement;

(v) A plan or proposed plan; and

(vi) Any other matter that the consent authority considers relevant and reasonably necessary to consider the application.

For areas identified as SHAs, and where applications for resource consent have been made under the HASHAA, the **purpose of the HASHA has primacy over the RMA** to the extent that it is to be assigned the greatest statutory weight. This is a significant matter in assessing consent applications as the most weight in the overall consideration of the application will be placed upon compliance with the purpose of the HASHAA. This assessment is then followed by Part 2 of the RMA, the Wellington City District Plan, the RMA decision making sections and the key urban design qualities expressed in the Ministry for the Environment's Urban Design Protocol.

7.0 District Plan

7.1 Zoning and Notations

The site is zoned Business 1 and Open Space B under the Wellington City District Plan.

The District Plan map (map 13) identifies the site as being part of an area subject to Rule 34.3.7 (Development in Shelly Bay Business Precinct Area). The northern point of the site has a meteorological designation (ref: M3) with the requiring authority being Meteorological Service of New Zealand Limited. The site is partially within the Mataki-kai-poinga Landscape Feature Precinct.

The site is within the Shelly Bay Business Precinct Area as defined by Appendix 1 of Chapter 34 of the District Plan. A copy is attached in Appendix 9.

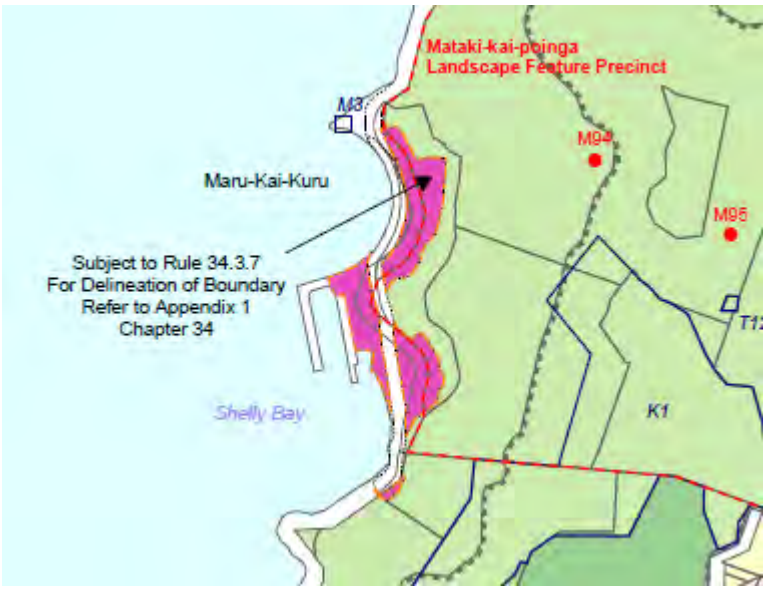

Figure 1: District Plan excerpt from Map 13

More recently the site has been made a Special Housing Area ("SHA"). The SHA covers the entire application site as illustrated below.


Figure 2: SHA boundary

The District Plan zonings and SHA boundary with the Masterplan overlay are clearly illustrated on the drawing attached in Appendix 8.

The application site is identified on the Greater Wellington Regional Council's contaminated land register (SLUR) as being potentially contaminated. Refer to PSI by AECOM for further background information on this attached in Appendix 4.

There are no heritage listings on the site with either WCC or Heritage New Zealand.

7.2 Permitted Activity Standards

The following tables outline the relevant permitted activity standards and includes comment if the proposed development complies.

Business Area Activity Standards		
Rule		Proposal
34.6.1.1 Noise	34.6.1.1.1 Noise emission levels from activities in Business 1 Areas when measured at or within the boundary of any site or at the outside wall of any building on any site other than the site from which the noise is emitted in Business 1 Areas shall not exceed the following limits: At all times 60dB $L_{Aeq\ (15\ min)}$ At all times 85dB L_{AFmaz}	Will comply
34.6.1.2.1 Fixed Plant Noise	5.6.1.2.1 Noise emissions levels in Business 1 Areas from fixed plant when measured at or within the boundary of any site, or at the outside wall of any building on any site, other than the building or site from which the noise is emitted on shall not exceed the following limits: At all times 55dB $L_{Aeq\ (15\ min)}$ Monday to Sunday 10pm to 7am 80dB L_{AFmaz}	Wil comply
34.6.1.6 Vehicle Parking	34.6.1.6.1 All parking shall be provided and maintained in accordance with sections 1, 2 and 5 of the joint Australian and New Zealand Standard 2890.1 – 2004, Parking Facilities, Part I: Off-Street Car Parking. 34.6.1.6.2 Where car parking is located within a building, a minimum height clearance of no less than 2.2m is required 34.6.1.6.3 The gradient for car parking circulation routes shall not be more than 1 in 8.	Will comply
34.6.1.6 Servicing	34.6.1.6.5 On each site in Business Areas, at least one loading area shall be provided as follows: • Where loading areas are located within a building, a minimum height clearance of 4.25m is required • For buildings with serviced by lifts, all levels shall have access to a loading area by way of a lift	**Will not comply**

	• The loading area shall be located no further than 15m from a lift and there shall be level access between them • Turning paths shall be based on the standard for a medium rigid truck as illustrated below…. 34.6.1.6.6 For loading areas located outdoors, the minimum width shall be 3 metres and the minimum length 9 metres. 34.6.1.6.7 For loading areas located within a building, the minimum width shall be 4m and the minimum length 9m.	
34.6.1.6 Site Access	34.6.1.6.9 Site access shall be provided and maintained in accordance with section 3 of the Australian and New Zealand Standard 2890.1 – 2004, Parking Facilities, Part I: Off-Street Car Parking. 34.6.1.6.10 Subject to standard 34.6.1.6.12 no vehicular access, shall be situated closer to an intersection than the following: … Other streets 10m 34.6.1.6.12 There shall be a maximum of one vehicle crossing to any site except that sites with more than one frontage may have one access across each frontage, unless one of the frontages is to a state highway…. 34.6.1.6.14 The width of any vehicle crossing to a site shall not exceed 6m. 34.6.1.6.15 Where vehicular access can be provided from a service lane or right-of-way registered in favour of the site or other private road or private right-of-way, no vehicular access shall be from the street. 34.6.1.6.16 All sites must be designed to permit a free flow of traffic so that vehicles do not queue on the street.	Will comply.
34.6.1.7 Lighting	34.6.1.7.2 Subject to standard 34.6.2.3.1 any development which includes roads and outdoor public spaces available for use during hours of darkness shall be designed and installed in accordance with AS/NZS 1158.3.1:2005 and amendments.	Will comply
34.6.1.8 Use, storage or handling of Hazardous Substances		N/A
34.6.1.9 Screening of Activities and Storage	34.6.1.9.2 Any exterior storage area, including waste storage area, must be screened so that it is not visible from any adjoining Residential Area or public space	Will comply

Business Area Building and Structure Standards		
Rule		Proposal
34.6.2.1 Maximum building height	34.6.2.1.1 No building or structure shall exceed the building height as listed in Table 1. Shelly Bay – height determine by Shelly Bay Design Guide that range from 8 to 11m.	**Does not comply**
34.6.2.2.1 Minimum building height		N/A
34.6.2.3 Height control adjoining Residential Areas		N/A
34.6.2.4 Yards	34.6.2.4.2 No structure or building shall be located closer than: 10m to the coastal marine area 34.6.2.4.3 No impervious surface associated with the use of the site shall extend closer than 5m to a water body in the coastal marine area….	**Does not comply**
34.6.2.5 Windows adjacent to Residential Areas		N/A
34.6.2.6 'Active' building edges		N/A
34.6.2.7 Verandahs	Verandahs may be constructed on any building frontage facing a public space within Business Areas provided that: … • The verandah is a minimum clearance of 2.5m directly above the footpath or formed ground surface • The verandah is no more than 4m directly above the footpath or formed ground surface. • There is a minimum horizontal setback of 450mmfrom any point along the kerbing extending back to the site boundary. • It extends no more than 3m in width from the front of the building.	Will comply
34.6.2.9 Fixed Plant noise		Will comply
34.6.2.10 Noise insulation and ventilation	…any habitable room in a building use by a noise sensitive activity within Business 1 Areas shall be protected from noise arising from outside the building by ensuring the external sound insulation level achieved by the following minimum performance standard ……..	**Does not comply**

Earthworks		
Rule		Proposal
30.1.1.1(b) Earthworks in Business 1 zone	(i) The cut height or fill depth does not exceed 2.5m measured vertically; and (ii) The cut or fill is retained by a building or structure authorised by a building consent (which must be obtained prior to any earthworks commencing); and (iii) The area of cut and/or fill does not exceed 250m^2.	**Does not comply**
30.1.2.1(b) Earthworks in Open Space B	(i) The cut height or fill depth does not exceed 1.5m measured vertically; and (ii) The cut or fill is retained by a building or structure authorised by a building consent (which must be obtained prior to any earthworks commencing); and (iii) The area of cut and/or fill does not exceed 100m^2.	**Does not comply**

Contamination		
Rule		Proposal
32.1.2 The removal of underground petroleum storage system is a Permitted Activity, provide that:	32.1.2.1 No more than 30m^3 of soil in aggregate per tank shall be removed 32.1.2.2 All removed soil shall be disposed of at a facility authorised and/or consented to receive such waste. 32.1.2.3 The tank removal investigation, remediation, validation and management process shall be carried out in accordance with the Ministry for the Environment "Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (1999) and "Contaminated Land Management Guidelines for Reporting on Contaminated Sites in New Zealand (November 2003). This shall include preparation of an environmental management plan, a copy of which shall be provided to the Council prior to work commencing. 32.1.2.4 A report detailing the results of validation sampling shall be provided to the Council within 60 days of receipt of laboratory results.	Will comply if any storage tanks are located and require removal.
32.1.3 The use, development or subdivision of potentially contaminated land that has been confirmed as not being contaminated land for its intended use following subsurface investigations and the removal of underground petroleum storage systems to facilitate the collection of subsurface soil samples is a Permitted Activity.		**Does not comply** The site has not been confirmed as not being contaminated.

7.3 Land Use Activity Status

7.3.1 Business Area Land Use Consent Triggers

Development in the Shelly Bay Business Precinct Area

The proposal requires Discretionary Activity (Restricted) consent pursuant to Rule 34.3.7 for the construction of buildings and structures, including new residential buildings, in the Shelly Bay Business Precinct Area. Under Rule 34.3.7 the matter of Council's discretion is limited to:

- Design, external appearance and siting
- Residential amenity
- Character and sense of place
- Parking and site access
- Site landscaping

Construction of Buildings

Yards and noise insulation and ventilation
The proposal requires Discretionary Activity (Restricted) consent pursuant to Rule 34.3.9 for the construction of buildings that do not meet one or more of the standards outlined in section 34.6.2. In particular the proposal fails to comply with the permitted activity standards with respect to yards and noise insulation and ventilation.

Building Height
The proposal requires Non-Complying consent pursuant to Rule 34.5 with respect to building height. In particular, the maximum height of buildings on the site is 27m and therefore exceeds the permitted building height under District Plan standard 34.6.2.1.1 (that ranges between 8-11m for this site). In addition the proposal fails to meet the conditions of the Discretionary Activity (Restricted) Rule 34.3.9.13 as the maximum building height assessed under standard 34.6.2.1.1 will be exceeded by more than 50%.

Car parking

The proposal requires Discretionary Activity consent pursuant to Rule 34.3.1 and 34.3.12 for activities and the construction of buildings and structures that provide more than 70 parking spaces. Under Rule 34.3.1 and 34.3.12 the Council's discretion is limited to:

- The movement of vehicular traffic to and from the site.
- The impact of roading network and the hierarchy of roads from trip patterns, travel demand or vehicle use.
- The provision and location of facilities for multiple modes of transport.

Servicing

The proposal requires Discretionary Activity (Restricted) consent pursuant to Rule 34.3.4 for permitted activities that do not meet one or more of the standards outlined in section 34.6.1. In particular the proposal fails to comply with the following standard:

- Standard 34.6.1.6 – servicing – the residential activities, as well as some commercial activities, will not provide an on-site loading area.

Under Rule 34.3.4 the matters of Council's discretion is limited to vehicle parking and site access.

7.3.2 Earthworks

The proposal requires Discretionary Activity (Restricted) consent pursuant to Rule 30.2.1 for earthworks that do not comply with the permitted activity conditions under Rule 30.1.1.1 and 30.1.2. In particular with proposal will result in earthworks that exceed the maximum permitted cut/fill and maximum earthworks area.

7.3.3 Contamination

The proposal requires Discretionary Activity (Restricted) consent pursuant to Rule 32.2.1 for the remediation, use, development and subdivision of any potentially contaminated land. Under Rule 32.2.1 the matters of Council discretion is limited to:

- The level, nature and extent of contamination in relation to the proposed use, development and subdivision;
- The effects of contamination on built structures, ecological and amenity effects, soil quality and the wider environment.
- The approach to the remediation and/or on-going management of the contaminated land and the mitigation measures (including monitoring) proposed to avoid adverse effects on the environment including the provision of a Remediation Plan or a Site Management Plan.

Note: reference to the matters of discretion relating to human health have not been noted as they are now superseded by the NES.

7.3.5 Open Space Land Use Consent Triggers

Indigenous Vegetation

The proposal requires Discretionary Activity (Restricted) consent pursuant to Rule 17.2.4 for the modification, damage, removal or destruction of indigenous vegetation not provided for as a permitted activity. Under Rule 17.2.4 the matters of Council discretion are restricted to:

- The area or extent of vegetation to be affected

- The species, age and condition of the vegetation to be affected
- Where the activity is within a Maori precinct, the outcome of consultation with tangata whenua and other Maori

Residential Activities and Buildings in Open Space B
The proposal requires Discretionary Activity (Unrestricted) consent pursuant to Rule 17.3.2 for residential activities and the construction of residential buildings and structures in Open Space B.

7.4 Subdivision Activity Status

7.4.1 Business Area Subdivision

The proposal requires Discretionary Activity (Unrestricted) consent pursuant to Rule 34.3.14 for a subdivision which is not a permitted or controlled activity. Under Rule 34.3.14 the matters of Council discretion are limited to:

- Roading, access, stormwater and water supply
- Esplanades

7.4.2 Open Space Subdivision

The proposal requires Discretionary Activity (Unrestricted) consent pursuant to Rule 17.3.4 for a subdivision of land within Open Space B.

7.5 NES Activity Status

The proposal requires Discretionary Activity (Unrestricted) consent pursuant to Regulation 11 of the NES for sampling the soil to determine whether or not the site is contaminated, disturbing the soil of a piece of land, subdividing the land and changing the use of the piece of land.

The proposal is not a permitted activity, controlled activity, or restricted discretionary activity because a Detailed Site Investigation (DSI) has not been undertaken.

7.6 Activity Status Summary

The overall activity status of the proposal is:

- Land Use –Non-Complying
- Subdivision - Discretionary Activity (Unrestricted)
- NES – Discretionary Activity (Unrestricted)

8.0 Section 34 Considerations

An authorised authority must have regard to a number of matters under section 34 of HASHAA when considering an application for resource consent under this Act.

In the case of the subject application, those considerations include the purpose of the HASHAA, the matters in Part 2 of the Resource Management Act 1991, and any relevant proposed plan. In addition, consideration must be given to any other matters that would arise for consideration under sections 104 to 104F of the RMA and the key urban design qualities expressed in the Ministry for the Environment's New Zealand Urban Design Protocol (2005). It is also important to note, as mentioned earlier in this report, weighting must be given the purpose of HASHAA then the RMA. These matters are addressed below.

8.1 Purpose of the Housing Accords and Special Housing Areas Act 2013

The purpose of the HASHAA is set out in Section 6.2 of this report. Essentially this legislation is seeking to expedite the supply of housing and land to the Wellington housing market to alleviate housing supply constraints and ultimately housing 'affordability'. The subject site has been identified a 'SHA' and will provide approximately 350 residential units. The development of SHAs for housing in Wellington is subject to HASHAA and the provisions of the Wellington City District Plan. The proposed development increases the supply of housing in accordance with the purpose of HASHA and therefore is considered to meet its purpose. An additional 350 (approximately) household units is significant to the Wellington housing market.

8.2 Purpose of the Resource Management Act 1991

The purpose of the RMA is set out in Section 6.4 of this report. The RMA provides the statutory framework for the sustainable management of natural and physical resources in New Zealand. With respect to the provision of housing, key considerations include those purposes within the RMA that seek to enable the social, economic and cultural wellbeing of people and communities.

In addition to contributing to the overall housing supply, the proposed development provides for housing stock with mixed housing typologies that will provide housing choice and options to the local community.

The proposed development will achieve the purpose and principles of the RMA within this local context. Matters relating to any potential adverse effects on the environment and proposed mitigation are addressed in this report. Any effects on the surrounding neighbourhood character and amenity will not be significant, are broadly anticipated under the District Plan, which has zoned the

land Business 1 which anticipates residential and commercial activities. Any adverse amenity effects have been adequately avoided, remedied or mitigated.

8.3 RMA Sections 104 – 104F

Section 104(1) states that an authorised agency must have regard to a number of matters when considering an application for resource consent. In the case of this application those considerations include the actual and potential effects of an activity on the environment, the relevant provisions of a national or regional policy statement, a regional plan, a district plan, any other relevant statutory document, and any other matter the authorised agency considers relevant and reasonably necessary to determine the application.

The following assessment addresses all relevant considerations under s104 of the RMA.

8.4 Actual and Potential Effects

The assessment of actual and potential environmental effects relating to this application is set out in the following sub-sections.

8.4.1 Visual/Streetscape Effects

Given the scale of the development it will result in a significant change to the existing visual qualities and streetscape amenity of the site. Although given the visually isolated nature of this site these effects are generally isolated to either within the development site itself or from across the harbour from Evans Bay and Hataitai.

With respect to the streetscape effects within the development the combination of the quality Masterplan design (that incorporates public realm, bulk and form of the built development) coupled with the implementation of the proposed Design Guide will ensure an enhancement to the existing streetscape amenities providing a positive experience to both the future residents and visitors to Shelly Bay.

The views toward the site from across the Harbour are obviously at considerable distance and encompass views of the entire eastern side of the Watts Peninsula. In this context the development will visually nestle into the landscape with the vegetated coastal escarpments remaining the visually dominate feature. Some of the buildings will be constructed to up to the 27m HASHAA qualifying development height limit they will still however be dwarfed by the coastal escarpments that provide their visual backdrop. For these reasons the development does not create a visually obtrusive feature in this landscape.

It is also important to note that the comprehensive design of the overall development site through the Masterplan ensures that the visual effects of the overall development in terms of general bulk and form are known and can be assessed as opposed to the development occurring in a piecemeal nature.

The visual/streetscape effects are therefore considered to be sympathetic and compatible with the surrounding established local environment. The high quality of the design, architectural form and

landscaping that the proposed Design Guide, will ensure a quality comprehensive development resulting in a positive streetscape outcome.

8.4.2 Neighbour Effects

As noted earlier the land that surrounds the application site is owned by the New Zealand Defence Force and is unoccupied. Given the nature of the adjoining Defence Force land, and the location of the development being below this land, the proposal does not affect the adjoining sites in any way that will affect their use in accordance with it's Open Space zoning.

8.4.3 Noise Effects

The purpose of the District Plan standard requiring noise insulation and mechanical ventilation is the potential for reverse sensitivity noise effects. Mechanical ventilation negates the need to open windows, thereby maintaining a quiet indoor noise environment. The proposed residential apartments and townhouses are located within the Business 1 zone as are the immediately surrounding properties. The apartments, townhouses and the residential units within the mixed use buildings, will comply with the District Plan noise insulation and ventilation standards where they adjoin commercial activities. However the other residential units will be physically separated from the commercial activities with significantly less opportunities for reserve sensitivity noise effects.

The application site as it is developed in accordance with the Masterplan will therefore not be 'typical' of a Business 1 zone in that the vast majority of the activities are residential in nature and the non-residential activities are generally confined to the central wharf area.

For the above mentioned reasons, and the proposal that some of the residential units will not be constructed to meet the noise insulation and ventilation District Plan requirements, will not result in reverse sensitivity noise effects and is therefore acceptable.

8.4.4 Internal Residential Amenity Effects

Consent is sought for a Masterplan and therefore it is difficult to assess the internal amenity effects were building layout and design has not yet taken place. The sun solar studies that are included in section 4.5 of the Masterplan however clearly illustrate that the overall Masterplan site receives good access to the sun particualry in the afternoon. Given the location of the site at the toe of the coastal escarpment early morning sun is compromised although the site layout has been designed to ensure good access to sun were possible.

The Masterplan design has also been developed with the taller buidings at the rear with town houses and lower height buildings closer the foreshore to ensure maximum access to sun, daylight, views and outlook. The open spaces along the foreshore also offer significant open space amenity providing a quality outlook as well as recreational opportunities.

The future detailed design of the site will also require assessment against the proposed Shelly Bay Design Guide with an emphasis on a quality urban design outcome for both residents and visitors to the area.

The proposal therefore provides for a quality urban design outcome with specific regard given to the amenity of it's residential occpants.

8.4.5 Heritage Effects

There are no buildings or structures on the application site that are heritage listed under either the District Plan or by Heritage New Zealand. The existing Shelly Bay Design Guide under the District Plan does however recognise the heritage values of the site. The Design Guide makes particular reference to five existing buildings that hold heritage values. These being:

- The hospital
- Warehouse and Stores (shed 8)
- Submarine Mining Depot Barracks
- Shipwrights Building
- Officer's Mess

Page 5 of the existing Design Guide states:

> *"The most important historic building within Shelly Bay is the Submarine Mining Depot Barracks, located at the northern end of the southern bay. A single storey building, constructed in 1887, the Submarine Mining Depot Barracks has a strong association with the history of the place."*

With respect to heritage, Guideline G1 of this Design Guide states with respect to heritage:

> *"The location and design of new building development should respect the character and location of any identified heritage buildings within Shelly Bay, with specific reference to the Submarine Mining Depot Barracks, including the possibility of its relocation closer to the water's edge so its original connection to the harbour is recognised."*

As noted in section 5.1, with the exception of the hospital, all other identified (but not listed) heritage buildings in the District Plan have been retained. The Submarine Mining Depot Barracks will be relocated to the Village Green which is closer to the water edge to reconnect this building to the harbour. The Officer's Mess will also be relocated and will accommodate the boutique hotel. The Warehouse and Stores (Shed 8) will remain in its current location and accommodate a yet unconfirmed commercial activity. The Shipwrights building will also remain in its current location and accommodate a microbrewery. The adaptive re-use of these heritage buildings will likely to require some minor exterior alterations however given this consent proposal is for a Masterplan the exact nature of these is yet known. A consent condition is offered for the detailed design (which includes alterations to these buildings) to be approved by the Council prior to being undertaken. This will ensure that the heritage values of these buildings will be respected.

The former hospital located toward the north end of the northern bay will be demolished. This building is in a poor condition and not suitable for adaptive re-use or relocation. As noted earlier this building could be demolished as a permitted activity without requiring a resource consent. The effects of this are therefore no greater than the District Plan anticipates.

Furthermore, the heritage values of the site have been assessed by Adam Wild of Archifact and outlined in his heritage assessment attached as Appendix 10. Mr Wild concludes his assessment that:

> *"The proposed Master Plan in hand with with proposed Design Guide together ensure an appropriate regard and response to those existing values and attributes that are particular to Shelly Bay and which lend future development and direct references to scale, materiality, and relationship to open space and the harbour.*
>
> *The Wellington Company's proposed development at Shelly Bay is well composed in the proposed Master Plan and is equally well supported by the proposed Design Guide. Together these documents recognise the existing heritage at Shelly Bay and proposes a design response which is informed and appropriate to these assests and this place."*

It is also important to note that Mr Wild has provided the heritage input to the proposed Shelly Bay Design Guide with respect to these buildings of heritage value.

For the above mentioned reasons the Masterplan respects the heritage values of the site.

8.4.6 Traffic Effects

The overall traffic effects of the proposal have been assessed by TDG in their Transportation Assessment Report dated September 2016, attached as Appendix 5 and referred to earlier in this report. This assessment addresses the potential traffic effects relating to the existing transport network connections, site access and internal layout design, car parking, servicing and trip generation.

The traffic assessment concludes that:

- *"The development access strategy has been developed in accordance with industry standards with regards to access and vehicle circulation routes;*
- *The increase in traffic won't adversely affect the capacity on the Shelly Bay Road and Miramar Avenue intersection;*
- *Possible solutions to public transport, and improved access by foot and by cycle could be investigated and would add to the accessibility of the proposed developments;*
- *Overall this assessment finds the traffic related impacts would be minor and that the level of use and activity can be properly and safely accommodated in this location.*

Based on the assessment presented in this report, it is concluded that the proposed residential and retail, hospitality and commercial activities can be accommodated with little adverse effects on the surrounding transport network, and more particularly within a substantially improved Shelly Bay environment."

The proposal is therefore acceptable with respect to traffic related effects.

8.4.7 Earthworks Effects

The potential effects with respect to earthworks are stability, erosion, dust and sediment control as well as visual effects.

A civil engineering plans prepared by Envelope (Appendix 6) and illustrates the likely general earthworks required to give effect to the development. This is however only a concept earthworks plan given the exact extent of the earthworks will be determined by the detailed design.

To ensure earthworks stability a condition of consent has been offered to require a detailed earthworks plan and earthworks methodology to be submitted and approved prior the commencement of these earthworks. This will be accompanied by an earthworks methodology. A sediment control and runoff plan will also be required to ensure any such effects are adequately mitigated and do not extend beyond the defined area of the earthworks.

Following construction all earthworks will be covered by buildings, roads, paths or suitably landscaped to ensure no exposed earthworks remain at the completion of construction.

For these reason the overall earthworks effects can be appropriately managed and mitigated on site and the offered conditions of consent will ensure these measures are to the satisfaction of the Council.

8.4.8 Contamination Effects

It is not yet known if the site is contaminated and further site investigations are required to determine this. This proposal however includes the remediation of any potentially contaminated land to ensure it suitable for the proposed land uses on the site (in accordance with Ministry for the Environment guidelines). Given the isolated nature of the site and in particular the area where further site investigations are required there will be no potential for properties outside of the application site to be affected with respect to potential contamination effects.

8.4.9 Construction Effects

With a development of this scale and nature the potential for construction effects is inevitable. However given this proposal seeks consent for a master plan the exact nature and duration of the construction effects cannot yet be accurately determined. A condition of consent is therefore offered that a Construction Management Plan is submitted to and approved by the Council prior to any construction works commencing on the site. Given the staged nature of the construction a Construction Management Plan will be submitted for approval for each stage of the development. The Construction Management Plans will outline the management of:

- Sediment and erosion control;
- Discharges to water and land;
- Construction noise; and
- Construction traffic.

In addition to the above, the staging of the development will ensure that the majority of the construction effects are limited to specific areas of the site at any one time.

Construction effects by nature are also temporary. This coupled with the isolated nature of the application site with no immediately adjoining sensitive landuse activities and occupants further mitigate the potential for construction effects to affect adjacent properties.

For these reasons the actual and potential construction effects will be appropriately managed, are temporary in nature, with no immediately adjoining sensitive landuse activities. No parties therefore are considered to be adversely affected.

8.4.10 Subdivision Effects

There are no physical works or effects associated directly with the subdivision. The proposed subdivision will simply allow the rationalisation of the current fragmented ownership of the area included in the application. It also creates the legal road framework and will allow the provision of services. The subdivision will directly link to the land use development that is being concurrently being sought and will not facilitate further development of the site beyond what the land use consent grants.

For these reasons the actual and potential effects associated with the subdivision will be acceptable with no persons being adversely affected.

8.4.11 Cultural Effects

A Cultural Impact Assessment ("CIA") has been prepared on behalf of Taranaki Whanui Ki Te Upoko o Te lka and The Port Nicolson Block Settlement Trust dated September 2016. This CIA is attached in Appendix 13.

The CIA states that Marukaikuru/Shelly Bay is an important land and marine resource and this Cultural Impact Assessment considers the past and present usage and values associated with this area. It also considers the possible impact that future development of the area may have on Taranaki Whanui. Furthermore the CIA considers and assesses the possible effects of the Taikuru development, in relation to:

- Historical Taranaki Whanui connections to Marukaikuru
- Taranaki Whanui mana whenua status in Wellington and Marukaikuru
- The kaikiaki responsibilities Taranaki Whanui have in relation to the physical environment of Marukaikuru and the protection of waahi tapu.
- The current and future management of the development

Overall the CIA has not identified any cultural impediments to the development and has recommended a number of ways in which the cultural history and significance of the area can be recognised in the development as the detailed design processes in the future. These include:

- That with respect to landscaping indigenous species re returned to the area and that the pine and Pohutukawa trees are more managed than they currently are.
- Best practice environmental methods should be used in the development.

- The design of buidings that incorporate Taranaki Whanui in meaningful ways to reflect their mana whenua and partner status.
- The advice and assistance of mana whenua is sought for planting to enhance the cultural landscape
- Parks and play areas are included in the development
- Building and street names will be based on original names from the area, in consultation with Taranki Whanui.

These recommendations can, where possible, be considered and incorporated in the designed design phase of the development that following the resource consent for the Masterplan.

Overall, the CIA does not identify any cultural matters that would be an impediment to the development. The overall cultural effects of the development of the development area therefore considered to be acceptable.

8.4.12 Open Space Effects

The Open Space B zone is generally valued for it natural character and informal open spaces. The proposal includes a number of single residential apartments and dwellings in the Open Space zone that the District Plan does not provide for nor anticipate. The recent SHA status of this area however now anticipates residential dwellings on this land. These bulk and form of these built structures is defined by the Masterplan nestle into the significantly higher coastal escarpment immediately behind. This vegetated escarpment will remain the dominant visual landscape in the surrounding environment. The single dwelling site on the coastal escarpment will not create a visually dominant feature in the overall context of the surrounding environment. Therefore, whilst the construction of these apartments and dwellings will introduce a visual change to this environment they will remain visually unobtrusive in the context of the wider surrounding landscape for which this area is valued.

The topography constraints in this area also mean it is not used for recreation purposes and unlikely to be in the future. These apartments and dwellings therefore do not limit the recreational potential of this area. In fact the Masterplan will enable future public access to the rear of the apartments should the current Defence Force land ever be developed in a public recreation area.

The vegetation removal is limited to that required for the construction of the apartments and dwellings and the allow the trees on the seaward side of the road to grow to their full potential. Some vegetation removal will also occur to the rear of the apartments for safety reasons. The majority of this vegetation removal will however be the tall pines that would pose a safety risk to future apartment occupants.

Overall, the proposal will result in a change to the Open Space zone but will not significantly affect its wider landscape values and is limited to what is required to provide housing to meet the intent of HASHAA.

8.4.13 Positive Effects

In addition to the abovementioned actual and potential effects the proposal offers significant positive effects. These can be summarised as being:

- The construction of approximately 350 new dwellings providing additional needed housing stock in accordance with the Wellington Housing Accord and meeting the purpose of HASHAA. The proposed development also offers a mix of housing typologies that will attract diverse residential occupants creating a vibrant community coupled with the commercial/community activities.
- The development includes the adaptive reuse of buildings with heritage value.
- The development enhances public access to the coastal marine area.
- A comprehensive development while protecting the wider landscape features of Watts Peninsula.

These positive effects are significant and should be given considerable weighting in the consideration of this application.

8.4.14 Effects Summary

For the reasons discussed above the overall actual and potential effects of the development are acceptable and require consideration with the significant positive effects. The main positive effects are the supply of residential housing in accordance with the Wellington Housing Accord and the efficient use and development of this brown field site a manner that respects it unique location and heritage.

8.5 District Plan Assessment Criteria

The District Plan business area rules are not subject to specific assessment criteria. The assessment below therefore provides an assessment against the relevant assessment criteria under the Open Space rules of the plan. The assessment criteria is in italics with the comments immediately below.

8.5.1 The modification, damage, removal or destruction of indigenous vegetation

17.2.4.4 The significance of the affected vegetation in terms of ecological and amenity values.

17.2.4.5 The relationship of the affected vegetation with other areas of indigenous vegetation.

17.2.4.6 Whether it is necessary to remove the vegetation to maintain or enhance the Open Space B or Open Space C Area.

Comment

The vegetation removal within the Open Space B zone is restricted to the proposed house sites, some tree removal on the seaward side of the road opposite these house sites and the clearance of some vegetation behind the apartment sites (the comprises mainly pines) for safety reasons. The vegetation removal in the vincinity of the individual dwellings sites does not extend to the area above these house

sites, being the escarpment that forms, and remains, the dominant landform in the immediately surrounding area.

Some pohutukawas on the seaward side of the road in the South Bay will be removed with the sole purpose of allowing space between the remaining trees to enable their fuller growth and establishment.

The removal of this vegetation and these trees will not have an adverse effect on the wider ecological or amenity values of the wider surrounding environment and have been limited to only what is necessary to give effect to the Special Housing Area and to allow the existing trees on the seaward side of the road to reach their full growth potential.

8.5.2 Residential Activities, Buildings and Structures in Open Space B

17.3.2.1 Whether the structure is designed and located so as to be visually unobtrusive

The built structures in this area will comprise residential apartments, dwellings and ancillary buildings. The maximum footprint and built form (including height) of these dwellings is defined in the Masterplan. The development will nestle into the significantly higher coastal escarpment immediately behind. This vegetated escarpment will remain the dominant visual landscape in the surrounding environment. Therefore, whilst the development in this area will introduce a visual change to this environment it will remain visually unobtrusive in the context of the wider surrounding landscape.

17.3.2.2 N/A as the site is not located within identified ridgelines and hilltops

17.3.2.3 Whether the structure is needed for the public enjoyment of the site's recreational potential.

As noted earlier, the location of the development within the Open Space B area is either on flat land or at the toe of the coastal escarpment. This area is not currently used for recreation purposes and given the site constraints and would be unlikely to be a recreational space in the future. The proposed development in this Open Space area will therefore not adversely affect any future potential recreational opportunities on this site.

17.3.2.4 Whether the site's open space character is maintained.

As noted earlier, the dwellings will introduce residential dwellings into the Open Space B zone that is currently undeveloped by any substantial built features. Given the scale and height of the dwellings in the context of the wider landscape, the Open Space character of the surrounding environment will be maintained.

17.3.2.5 Any relevant provisions of:

- *Reserves Act 1977 and any amendments to that Act*
- *Queen Elizabeth II National Trust Act 1977 and any amendments to that Act*
- *Any management plan prepared for the site.*
- *The Town Belt Deed 1873*

The site is not subject to the Reserves Act 1977 (or any amendments), Queen Elizabeth II National Trust Act 1977 or the Town Belt Deed 1873. To the best of our knowledge there is no current management plans prepared for the site.

17.3.2.6 Whether established public access or the possibility of such access is maintained.

Given the existing Open Space B land is currently vacant there is no current formalised public access. Notwithstanding this, the site is located immediately adjacent to the road carriageway so public access is easily obtained. The Masterplan allows for future access behind the apartments should the current Defence Force Land be developed into a public park in the future.

17.3.2.7 Where the activity is within a Maori precinct, the outcome of consultation with tangata whenua and other Maori

As noted above, the area of Open Space B land affected by this proposal is not within the adjoining Maori precinct. Notwithstanding this, a CIA has been prepared for the wider development. The Cultural Impact Assessment has not identified any cultural matters that would be an impediment to development.

17.3.2.8 The extent to which any adverse effects of any new accessway or carparking, or change in use of any existing accessway or carparking, can be avoided, remedied or mitigated.

The proposed dwellings on this Open Space B land will all have a new formed access with on-site parking. A Traffic Assessment Report prepared by TDG has not identified any adverse effects with respect to this new access and parking arrangement.

8.5.3 Subdivision within Open Space B

17.3.4.1 Whether the proposed allotments are capable of accommodating Permitted, Controlled or other Discretionary Activities in compliance with the Open Space rules.

The purpose of the subdivision is to rationalise the current fragmented ownership of the area, to create the legal road framework and to allow the provision of services. Consent for the development of this area of Open Space is being concurrently sought.

17.3.4.2 The extent of compliance with the Council's Code of Practice for Land Development.

As noted in the Calibre subdivision report, lot 901 Road to Vest is relatively narrow and does not comply with the WCC Code of Practice for Land Development. The applicant therefore requests that this is given favourable consideration in the assessment of this application.

17.3.4.3 Where the activity is within a Maori precinct, the outcome of consultation with tangata whenua and other Maori.

As noted above a Cultural Impact Assessment has been prepared for the wider development. Overall, the CIA does not identify any cultural matters that would be an impediment to the development.

8.5.4 Contamination

With regard to contamination assessment criteria 32.2.1.5 – 32.2.1.9 are relevant to this proposal. For the reasons outlined earlier in this report the proposal meets these assessment criteria.

There are no other relevant assessment criteria.

8.6 District Plan Objectives and Policies

The following District Plan objectives and policies are relevant to the proposal.

8.6.1 Business Area Objective and Policies

ACTIVITIES

Objective 33.2.2 *To enable an appropriate range of activities to occur in Business Areas, provided they do not undermine the City's Centres, and that adverse effects are avoided, remedied or mitigated.*

Policy 33.2.2.1 *Maintain a mixed use character in Business 1 Areas by allowing a range of activities to establish provided that character and amenity standards are maintained and any potential adverse effects are able to be satisfactorily avoided, remedied or mitigated.*

Policy 33.2.2.9 *Control the adverse effects of noise within all Business Areas.*

Policy 33.2.2.10 *Allow residential development in Business 1 Areas so long as it does not constrain established or permitted activities from reverse sensitivity through noise.*

Policy 33.2.2.11 *Ensure that appropriate on-site measures are taken to attenuate intrusive noise effects in Business 1 Areas to protect noise sensitive activities.*

Policy 33.2.2.13 *Ensure that activities creating effects of lighting, dust and the discharge of any contaminants are managed to avoid, remedy or mitigate adverse effects on other activities within Business Areas or in nearby Residential Areas.*

Comment

The Masterplan provides for a mix of activities including residential and commercial/community. Although it is noted that the development is predominately residential and all non-residential activities are ancillary to the residential development to meet the qualifying development criteria under HASHAA. With respect to the non-residential activities these have not been identified but a range of activities that could occur has been outlined. This provides a flexible approach and enables the developer to respond to market demand and other economic or technological changes. The nature and scale of the non-residential activities are also such that they will not undermine the role and function of Centres – the nearest being located in Miramar and Kilbirnie.

Although there are no Residential Areas in close proximity to the development the Masterplan provides a predominately residential development. To ensure residential amenity is maintained with respect to noise effects all non-residential activities are required to comply with the District Plan noise standards. In addition, all residential buildings that immediately adjoin non-residential activities will

be required to demonstrate that they comply with District Plan noise insulation and ventilation standards designed mitigate reverse sensitivity effects with respect to noise.

All lighting will be designed to comply with District Plan lighting standards.

BUSINESS PRECINCTS

Objective 33.2.3 *To recognise where unique development opportunity areas exist within Business Areas and encourage redevelopment of those areas in a manner that is compatible with, and enhances amenity values and contribute to the City's distinctive physical character, sense of place and contained urban form.*

Policy 33.2.3.1 *Ensure that any new development at Shelly Bay generally reflects the heritage and landscape character of the area and has regard to the site's special coastal location.*

Policy 33.2.3.2 *Provide for the comprehensive development and redevelopment of those Business Areas which display unique development opportunities through a concept, master or structure plan process.*

Comment

The District Plan commentary under Policy 33.2.3.1 states that Shelly Bay is a highly visible area and that it is Council's intention that any redevelopment of Shelly Bay should reflect the character of the area and provide a pedestrian promenade along the water's edge. It also notes that the Council will work with future landowners to ensure that any redevelopment recognises the heritage values of the site and will seek to ensure that harbour views are not compromised and respects its coastal location.

In this regard the proposal has been assessed against the Shelly Bay Design Guide by McIndoe Urban this assessment is attached in Appendix 11. Furthermore the development recognises the heritage values of the site as assessed by Adam Wild of Archifact with this Heritage Assessment. These assessments conclude that overall the development respects the coastal character of Shelly Bay, recognises the heritage values of the area with the adaptive re-use of heritage buildings identified in the Design Guide (where it is reasonably feasible to do so) and with the pedestrian promenade along the water's edge. Overall the development respects the characteristics of the site and maintains visually subservient to the landscape qualities of the wider Watts Peninsula. It is acknowledged that the building intensity and heights are greater than those anticipated by the Shelly Bay Design Guide however these can be achieved without compromising the wider environmental qualities. In addition, the greater residential intensity of development serves to give effect to the purpose of HASHAA by increasing Wellington's housing stock with a variety of housing typologies.

Consent is sought for a Masterplan that allows flexibility to cater for changes in apartment size demand and building design as the development progresses over the duration of this consent while at the same time providing certainty with an integrated development design.

BUILT DEVELOPMENT, URBAN DESIGN AND PUBLIC SPACE

Objective 33.2.4 *To ensure that activities and developments at least maintain the amenity values and public safety within Business Areas and those of any nearby Residential Areas.*

Policy 33.2.4.1 *Ensure that buildings, structures and spaces in Business 1 Areas are designed to:*

- *Acknowledge and respect the form and scale of the surrounding environment in which they are located; and*
- *Respect the context, setting and streetscape values of adjacent listed heritage items, and Heritage Areas; and*
- *Establish positive visual effects; and*
- *Provide good quality living and working environments; and*
- *Provide conditions of safety and accessibility, including for people with restricted mobility.*

Policy 33.2.4.3 *Encourage developments in Business 1 Areas to create an attractive, comfortable and clear street environment through:*

- *Managing the location and design of land dedicated to outdoor storage and car parking; and*
- *Controlling the siting and design of structures on or over roads; and*
- *Appropriate siting of buildings and building design.*

Policy 33.2.4.4 *Allow residential development in Business 1 Areas where it utilises upper floors of buildings and provides a secure and pleasant environment for the occupiers.*

Policy 33.2.4.5 *Enhance the quality and amenity of residential buildings in Business 1 Areas by guiding their design to ensure current and future occupants have an adequate standard of amenity and appropriate access to daylight and awareness of the outside environment.*

Policy 33.2.4.7 *Manage the height, bulk and location of buildings and developments in Business Areas so they avoid, remedy or mitigate the adverse effects of shading, loss of daylight, privacy, scale and dominance and any other adverse effects on amenity values within Business Areas and on adjoining Residential Areas.*

Policy 33.2.4.8 *Ensure that all spaces are accesses by the public area safe and are designed to minimise the opportunities for crime.*

Comment

As has been discussed earlier, the development is a comprehensive intensive development that concentrates development in the two bays and allows the wider landscape qualities of the peninsula to remain the dominant landform respecting the form and scale of the surrounding environment.

The detailed design of the development to meet the proposed Design Guide will ensure good quality living and working environments.

A comprehensive landscape design concept has been developed that will ensure an attractive, comfortable and clear street environment will be developed creating a sense of place with a quality public environment.

The residential apartments toward the rear of the site have been designed with large floor to floor ground floor heights that will accommodate parking and storage. This allows the first living floor level to be elevated to a height to ensure good access to daylight and awareness of the outside environment. The majority of units within these apartments will have panoramic views over the townhouses in front providing significant amenity for its occupants. In addition, the requirement for the detailed design of the apartments to meet the proposed Design Guide will further ensure quality residential environments.

The Village Green as well as the other elements of the public realm are in open lit spaces inviting passive surveillance designed to minimise opportunities for crime.

BUILDING EFFICIENCY AND SUSTAINABILITY

Objective 33.2.5 To promote energy efficiency and environmental sustainability in new building design.

Policy 33.2.5.2 Ensure all new buildings provide appropriate levels of natural light to occupied spaces within the building.

Comment

As discussed above, the building bulk and form placement, as well as the detailed design required to meet the proposed Design Guide, will ensure that all new buildings will provide appropriate levels of light to occupied spaces.

ACCESS AND TRANSPORT

Objective 33.2.6 To maintain an efficient and sustainable transport network that enables the provision of convenient and safe access for people and goods to and within Business Areas.

Policy 33.2.6.1 Ensure that activities and developments are designed to be accessible by multiple transport nodes.

Policy 33.2.6.2 Ensure that the location and design of activities and developments that generate significant levels of traffic or increase demand for parking are accessible by multiple transport modes and do not result in:

- *A significant increase in traffic that would be incompatible with the capacity of adjoining roads and their function in the road hierarchy, or would lead to unacceptable parking arrangements; or*
- *An on-street parking demand that extends into Residential Areas and/or leads to unsatisfactory parking arrangements; or*
- *The creation of an unacceptable road safety risk.*

Policy 33.2.6.4 Maintain or enhance safe, convenient and easily legible pedestrian access to buildings.

Policy 33.2.6.5 Encourage buildings and spaces to have a high level of accessibility, particularly for people with restricted mobility.

Policy 33.2.6.6 Require the provision of appropriate servicing and site access for activities in Business Areas.

Comment

As noted earlier, the proposal has been assessed by TDG who support the proposal on traffic related grounds. For the reasons outlined in their Transportation Assessment Report the proposal can be accommodated with little adverse effects on the surrounding transport network

SUBDIVISION

Objective 33.2.8 To ensure that the adverse effects of new subdivisions are avoided, remedied or mitigated.

Policy 33.2.8.1 Ensure the sound design, development and appropriate servicing of all subdivisions.

Comment

The subdivision simply subdivides the existing land parcels to enable development to occur to give effect to the Masterplan. The subdivision will be serviced to meet WCC Code of Practice requirements.

COASTAL ENVIRONMENT

Objective 33.2.10 To maintain and enhance access to, and the quality of the coastal environment within and adjoining Business Areas.

Policy 33.2.10.1 Maintain the public's ability to use and enjoy the coastal environment by requiring that, except in the Operational Port Areas, public access to and along the coastal marine areas is maintained, and enhanced where appropriate and practicable.

Policy 33.2.10.2 Ensure that any developments near the coastal marine area are designed to maintain and enhance the character of the coastal environment and waterbodies.

Comment

One of the primary focuses of the development (other than to deliver housing to meet the intention of HASHAA) is to enhance access to the coastal environment. This is evident by the development of the pedestrian promenades and the Village Green on the seaward side of the new road alignment. The land around the coastal edge will be in Council ownership to ensure continued public access.

TANGATA WHENUA

Objective 33.2.13 To facilitate and enable the exercise of tino rangatiratanga and kaitiakitanga by Wellington's tangata whenua and other Maori.

Policy 32.2.13.1 Identify, define and protect sites and precincts of significance to tangata whenua and other Maori using methods acceptable to tangata whenua and other Maori.

Policy 32.2.13.2 Enable a wide range of activities that fulfil the needs and wishes of tangata whenua and other Maori, provided that the physical and environmental conditions specified in the Plan are met.

Policy 32.2.13.3 *In considering resource consents, Council will take into account the principles of Te Tiriti o Waitangi/the Treaty of Waitangi*

Comment

As noted earlier, a CIA has been prepared on behalf of Taranaki Whanui Ki Te Upoko o Te lka and The Port Nicolson Block Settlement Trust dated September 2016. This CIA is attached in Appendix 13.

Overall, the CIA does not identify any cultural matters that would be an impediment to the development. There are no areas of the development that are not consistent with the principles of the Treaty of Waitangi.

8.6.2 Open Space Objectives and Policies

Objective 16.5.1 *To maintain, protect and enhance the open spaces of Wellington City.*

Policy 16.5.1.1 *Identify a range of open spaces and maintain their character, purpose and function, while enhancing their accessibility and usability.*

Comment

The character of the site will undoubtedly change, although the wider Open Space qualities will be maintained. The change in character is required to realise the SHA status of the site. This area of Open Space is currently not actively used so the proposal will generally see no change in this regard.

Objective 16.5.2 *To maintain and enhance natural features (including, landscapes and ecosystems) that contribute to Wellington's natural environment.*

Policy 16.5.2.1 *Identify and protect from development and visual obstruction landforms and landscape elements that are significant in the context of the Wellington landscape, and in particular significant escarpments and coastal cliffs.*

Policy 16.5.2.3 *Encourage retention of existing native vegetation and where appropriate re-introduce native cover.*

Comment

The residential development within Open Space is limited to the land adjacent to the road carriageway below the coastal escarpment. The natural coastal escarpment will remain the visually dominant landscape feature protecting the wider Open Space values. The residential dwellings will not result in a visual obstruction to these wider landscape values.

The proposal does include some vegetation removal in the Open Space B area. This vegetation removal is limited to that required to construct the dwellings and the thinning out of the Pohutukawa on the seaward side of the road to allow the remaining trees to grow to their full potential. This limited tree removal in the Open Space area will not detract from the wide landscape values of the local environment.

8.6.3 Earthworks Objectives and Policies

Objective 29.2.1 To provide for the use, development and protection of land and physical resources while avoiding, remedying or mitigating any adverse effects or earthworks and associated structures on the environment.

Policy 29.2.1.1 Ensure that the design and assessment of earthworks and associated structures is coordinated with future land development and subdivision.

Policy 29.2.1.3 Ensure that earthworks are designed to minimise the risk of instability.

Policy 29.2.1.4 Require earthworks to be designed and managed to minimise erosion, and the movement of dust and sediment beyond the area of the work, particularly to streams, rivers, wetlands and the coastal marine area.

Policy 29.2.1.7 Ensure that earthworks and associated structures are designed and landscaped (where appropriate) to reflect natural landforms and to reduce and soften their visual impact having regard to the character and visual amenity of the local area.

Policy 29.2.1.9 Control earthworks in the Urban Coastal Edge, areas within the Ridgelines and Hilltops Overlay, Open Space B Areas, Conservation Sites, Heritage Areas and on sites containing listed Heritage Items to protect the character, visual amenity or heritage values these areas provide to their surrounds and the City.

Comment

Earthworks are required to provide building platforms and access. All earthworks have and will continue to be engineer designed to minimise risk of instability. A condition of consent has been offered requiring the submission of an Earthworks and Construction Management Plan for approval prior to the commencement of construction that outlines the mitigation measures with respect to erosion, dust and sediment with regard given to the coastal environment.

Following construction all earth worked areas will be covered by buildings roads, paths or suitably landscaped.

The site does not contain listed heritage buildings nor is it located within a listed heritage area. Notwithstanding this the heritage values of the site have been recognised in the heritage assessment prepared by Adam Wild. The proposed earthworks are only that which is necessary to undertaken the development and the recognition of these heritage values has been one of the primary considerations to the overall design.

8.6.4 Contamination Objectives and Policies

Objective 32.2.1 To manage the remediation, use, development and subdivision of contaminated and potentially contaminated land so as to avoid or mitigate the risk of adverse effects on human health and the environment.

Policy 31.2.1.2 Minimise and control the adverse effects that may arise from the use, development and subdivision of any contaminated or potentially contaminated land.

Policy 31.2.1.3 Encourage the remediation and/or ongoing management of contaminated or potentially contaminated land as it appropriate for any likely future use of the land.

Policy 32.2.1.4 *Ensure that the exposure from the ongoing use of land affected by soil contaminants is managed in a manner that avoids or mitigates the risk of adverse effects on human health and the environment.*

Comment

The proposal is to remediate any possible contamination on the site (that may exist following further site investigations) to a level suitable for the proposed landuse activities thereby avoiding any risks of adverse effects on human health and the environment.

8.6.5 Objectives and Policies Conclusion

For the reasons outlined above the proposal is considered to be consistent with the relevant objectives and policies of the District Plan.

8.7 New Zealand Coastal Policy Statement

The Shelly Bay application site is within the coastal environment and therefore the New Zealand Coastal Policy Statement (NZCPS) is relevant to this assessment. The following objectives of the NZCPS are relevant:

Objective 2

To preserve the natural character of the coastal environment and protect natural features and landscape values through:

- *Recognising the characteristics and qualities that contribute to natural character, natural features and landscape values and their location and distribution;*
- *Identify those areas where various forms of subdivision, use, and development would be inappropriate and protecting them from such activities, and*
- *Encouraging restoration of the coastal environment.*

Objective 3

To take account of the principles of the Treaty of Waitangi, recognise the role of tangata whenua as kaitiaki and provide for tangata whenua involvement in management of the coastal environment by:

- *Recognising the ongoing and enduring relationship of tangata whenua over their lands, rohe and resources;*
- *Promoting meaningful relationships and interactions between tangata whenua and persons exercising functions and powers under the Act;*
- *Incorporating matauranga Maori into sustainable management practices; and*
- *Recognising and protecting characteristics of the coastal environment that are of special value to tanga whenua.*

Objective 4

To maintain and enhance the public open space qualities and recreation opportunities of the coastal environment by:

- *Recognising the coastal marine area is an extensive area of public open space for the public use and enjoy;*
- *Maintaining and enhancing public walking access to and along the coastal marine area; and*
- *Recognising the potential for coastal processes, including those likely to be affected by climate change, to restrict access to the coastal environment and the need to ensure that public access is maintained even when the coastal marine area advances inland.*

Objective 5

To ensure that coastal hazard risks taking account of climate change, are managed by:

- *Locating new developments away from areas prone to such risks;*
- *Considering response, including managed retreat, for existing development in this situation; and*
- *Protecting or restoring natural defences to coastal hazards.*

Objective 6

To enable people and communities to protect for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development, recognising that:

- *The protection of the values of the coastal environment does not preclude use and development of inappropriate places and forms, and within appropriate limits;*
- *Some uses and developments which depend upon the use of natural physical resources in the coastal environment are important to the social, economic and cultural wellbeing of people and communities;*
- *Functionally some uses and development can only be located on the coast or in the coastal marine area;*
- *The coastal environment contains renewable energy resources of significant value;*
- *The protection of habitats of living marine resources contribute to the social, economic and cultural wellbeing of people and communities;*
- *The potential to protect, use, and develop natural and physical resources in the coastal marine area should not be compromised by activities on land;*
- *The proportion of the coastal marine area under formal protection is small and therefore management under this Act is an important means by which the natural resources of the coastal marine area can be protected; and*
- *Historic heritage in the coastal environment is extensive but not fully known, and vulnerable to loss or damage from inappropriate subdivision, use and development.*

The following policies are also relevant to this development:

Policy 1 Extent and characteristics of the coastal environment

Policy 2 The Treaty of Waitangi, tanagata whenua and Maori heritage

Policy 3 Precautionary approach

Policy 4 Integration

Policy 6 Activities in the coastal environment

Policy 11 Indigenous biological diversity (biodiversity)

Policy 13 Preservation of natural character

Policy 15 Natural features and natural landscapes

Policy 17 Historic heritage identification and protection

Policy 18 Public open space

Policy 19 Walking access

Policy 24 Identification of coastal hazards

Comment

The proposal meets the objectives and policies of the NZCPS for the following reasons:

- The development is confined to an area of the coastal environment that is already modified by built development
- A Cultural Impact Assessment has been prepared on behalf of Taranaki Whanui Ki Te Upoko o Te lka and The Port Nicolson Block Settlement Trust dated September 2016. This CIA is attached in Appendix 13. Overall, the CIA does not identify any cultural matters that would be an impediment to the development.
- The effects of the development can be defined and will unlikely result in yet unknown effects on the coastal environment or that will not be assessed through a future resource consent application to GWRC.
- The proposal is for a high quality consolidated development in an area of historic occupation and built form. This consolidation ensures the rest of the immediate coastal environment remains free of development (other than the roading network).
- The wider character of the coastal environment is protected with development confined to below the existing coastal escarpments.
- Vegetation removal is limited to that required to construct the development and its safe occupation or to enhance the visual qualities of the environment.
- Public accessibility of the coastal environment will be enhanced.
- The design of the development has been designed to enable the future pedestrian access behind the development to the possible future public reserve on the wider peninsula.
- The proposal has been designed to enhance walking access both along the coast as well as through the integrated development.
- The habitable levels of the apartments are above ground level. This coupled with future seawall upgrades (as part of a future GWRC application) will ensure, as far as reasonably practicable the potential for coastal hazards has been taken into consideration.

8.8 Regional Policy

The following objectives and policies of the operative Regional Policy Statement are relevant to this proposal.

Policy 31: Identifying and promoting higher density and mixed use development – district plans

District Plans shall:

(a) Identify key centres for higher density and/or mixed use development;
(b) Identify locations, with good access to strategic public transport network, suitable for higher density and/or mixed use development; and
(c) Include policies, rules and/or methods that encourage higher density and/or mixed use development in and around these centres and locations.

So as to maintain and enhance a compact, well-designed and sustainable regional form.

Comment

The majority of the development is zoned Business 1 that anticipates residential development. The Council's recognition of its development potential has been further recognised (including within the Open Space B zone) with its more recent SHA status.

Policy 35: Preserving the natural character of the coastal environment – consideration

When considering an application for a resource consent, notice of requirement, or a change, variation or review of a district plan, particular regard shall be given to preserving the natural character of the coastal environment by:

(a) Minimising any adverse effects from point source and non-point source discharges so that aquatic ecosystem health is safeguarded;
(b) Protecting the values associated with estuaries and bays, beaches and dune systems, including the unique physical processes that occur within and between them from inappropriate subdivision, use and development, so that healthy ecosystems are maintained;
(c) Maintaining or enhancing amenity – such as, open space and scenic values – and opportunities for recreation and the enjoyment of the coast by the public;
(d) Minimising any significant adverse effects from use and enjoyment of the coast by the public;
(e) Safeguarding the life supporting capacity of coastal and marine ecosystems;
(f) Maintaining or enhancing biodiversity and functioning of ecosystems; and]
(g) Protecting scientific and geological features from inappropriate subdivision, use and development

Comment

The coastal environment subject to this application is largely a modified environment. The exception is the beach in the south bay and the landform of the two point parks at either end to the development. The proposal respects the unmodified areas of the existing coastal environment with limited disruption other than that required to enhance public access. These aspects to the overall proposal are however subject to a future consent from GWRC so will be further assessed at that time. Overall the development enhances the open space amenity and creates additional opportunities for recreation and enjoyment of the coast by the public.

Policy 36: Managing effects on natural character in the coastal environment – consideration

When considering an application for a resource consent, notice of requirement or a change, variation or review of a district plan or regional plan, a determination shall be made as to whether an activity may affect natural character in the coastal environment, and in determining whether an activity is inappropriate particular regard shall be given to:

- *(a) The nature and intensity of the proposed activity including:*
  - *(i) the functional need or operational requirement to locate within the coastal environment*
  - *(ii) the opportunity to mitigate anticipated adverse effects of the activity*
- *(b) The degree to which the natural character will be modified, damaged or destroyed including:*
  - *(i) the duration and frequency of any effect, and/or*
  - *(ii) the magnitude or scale of any effect;*
  - *(iii) the irreversibility of adverse effects on the natural character values;*
  - *(iv) whether the activity will lead to cumulative adverse effects on the natural character of the site/area.*
- *(c) The resilience of the site or area to change;*
- *(d) The opportunities to remedy or mitigate previous damage to the natural character;*
- *(e) The existing land uses on the site.*

Comment

As noted earlier, the majority of the coastal environment that forms part of this application is already a modified landform and the areas that are not modified will largely remain unmodified. The proposed new built development to the most extent falls outside the defined coastal environment with the exception of existing buildings within this area and some new buildings/structures for public benefit and enjoyment. The proposal respects the existing coastal environment and encourages enhanced public access.

Policy 46: Managing effects on historic heritage values – consideration

When considering an application for a resource consent, notice of requirement or a change, variation or review of a district plan or regional plan, a determination shall be made as to whether an activity may affect a place, site or area with historic heritage value, and in determining whether an activity is inappropriate particular regard shall be given to:

- *(a) The degree to which historic heritage values will be lost, damaged or destroyed:*
- *(b) The irreversibility of adverse effects on heritage values;*
- *(c) The opportunities to remedy or mitigate any previous damage to heritage values;*
- *(d) The degree to which previous changes that have heritage value in their own right are respected and retained;*
- *(e) The probability of damage to immediate or adjacent heritage values;*
- *(f) The magnitude or scale of any effect on heritage values;*
- *(g) The degree to which unique or special material and/or craftsmanship are retained;*
- *(h) Whether the activity will lead to cumulative adverse effects on historic heritage; and*
- *(i) Whether the relationship between distinct elements of an historic place, site or area will be maintained.*

Comment

As noted earlier there are no historically listed buildings/structures or items within the development site under the District or Regional Plans or by Heritage New Zealand. Notwithstanding this the Shelly Bay Design Guide and the objectives and policies of the District Plan recognise the historic values associated with the site. A heritage assessment has been undertaken by Adam Wild of Archifact supports the Masterplan from a heritage perspective.

Policy 54: Achieving the region's urban design principles – consideration

When considering an application for a notice of requirement, or a change, variation or review or a District Plan or regional plan, for development, particular regard shall be given to achieving the region's urban design principles in Appendix 2.

Comment

The proposal represents a high quality development with positive urban design outcomes that will further be ensured by the proposed Shelly Bay Design Guide

Policy 53: Public access to and along the coastal marine area, lakes and rivers – consideration

When considering an application for a subdivision consent, or a coastal or land use consent on public land, or a change, variation or review of a district plan to address subdivision or rezoning, particular regard shall be given to enhancing public access to, and along:

(a) Areas of the coastal marine area, lakes and rivers with:…..
(b) Wellington Harbour and Porirua (Onepoto Arm and Pauatahanui Inlet) Harbour;…

Comment

One of the key design focus of the Masterplan is to enhance access to the coastal marine area and shoreline for the wider public enjoyment. The land around the foreshore will be vested in the Council to ensure continued public access.

8.9 National Environmental Standard

The only relevant National Environmental Standard that is relevant to this proposal is the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. Consent is required under Regulation 11 of this NES. The assessment in relation to contamination outlined earlier in this report concludes that the proposal will adequately remedy any potential soil contamination to ensure it is suitable for the proposed landuse activities.

8.10 Section 104D Gateway Test

As outlined above, resource consent is required for the proposal as a Non-Complying Activity. Section 104D specifies considerations for Non Complying Activities:

104D

a) Despite any decision made for the purpose of section 95A(2)(a) in relation to adverse effects, a consent authority may grant a resource consent for a non-complying activity only if it is satisfied that either—

a. *the adverse effects of the activity on the environment (other than any effect to which section 104(3)(a)(ii)applies) will be minor; or*

b. *the application is for an activity that will not be contrary to the objectives and policies of—*

i. the relevant plan, if there is a plan but no proposed plan in respect of the activity; or

ii. the relevant proposed plan, if there is a proposed plan but no relevant plan in respect of the activity; or

iii. both the relevant plan and the relevant proposed plan, if there is both a plan and a proposed plan in respect of the activity.

For the reasons discussed earlier in this report the overall effects of the proposal can be considered to be no more than minor in the context of the District Plan and the SHA status. In addition an assessment of the objectives and policies, outlined in Section 8.6 concludes that the proposal is consistent with the objective and policies District Plan. Both arms of the section 104D gateway test are therefore met. The Council is therefore able to determine the application by granting the consent.

8.11 Section 106

The appears to the no section 106 matters that would prevent WCC from granting a subdivision consent. In particular there is no evidence of material damage by erosion, falling debris, subsidence, slippage or inundation . All proposed freehold allotments will have physical and legal access onto legal road.

8.12 Ministry for the Environment New Zealand Urban Design Protocol (2005)

The Ministry for the Environment (MfE) Urban Design Protocol (2005) identifies seven essential design qualities that together create quality urban design (the seven "C's"). These design qualities provide a framework for urban planning processes and outcomes sought for NZ towns and cities.

The proposed development has been designed in the context of the design principles in the protocol and is considered an exemplary design outcome. The future detailed development of the proposal in the context of the proposed Design Guide will further ensure a quality urban design outcome.

8.13 Infrastructure considerations under section 34

Section 34(2) of HASHAA states:

> *"An authorised agency must not grant consent that relates to a qualifying development unless it is satisfied that sufficient and appropriate infrastructure will be provided to support the qualifying development."*

Section 34(3) further states:

> *"For the purposes of subsection (2), in order to be satisfied that sufficient and appropriate infrastructure will be provided to support the qualifying development, the matters the authorised agency must take into account, without limitation, are –*
>
> *(a) compatibility of infrastructure proposed as part of the qualifying development with existing infrastructure; and*
> *(b) compliance of the proposed infrastructure with relevant standards for infrastructure published by relevant local authorities and infrastructure companies; and*
> *(c) the capacity for the infrastructure proposed as part of the qualifying development and any existing infrastructure to support the development.*

The servicing feasibility prepared by Calibre Consulting outlines that sufficient and appropriate infrastructure will be provided to support the development and that fanciful, untested or cost prohibitive solutions are not required to appropriately service the development.

In addition, section 5 of the Calibre report states:

> *"The proposed infrastructure will be designed and constructed to be fully compatible with the existing infrastructure – s34(3)(a). As part of the detailed design process the Council's satisfaction as to the proposal's compliance with the applicable Codes and Standards will be obtained s34(3)(b). Downstream investigations have been undertaken to ensure that the capacity of the proposed and existing infrastructure is sufficient to support the development proposal – 34(3)(c)."*

It can therefore be concluded that 34 of HASHAA is satisfied and should pose no impediment to the Council from granting resource consent.

9.0 RMA Part 2 Matters

Section 104 is expressly subject to Part 2 of the RMA. Part 2 Section 5 sets out the purpose and principles of the Act, with a focus on promoting sustainable management of natural and physical resources.

The purpose of the Resource Management Act (RMA) is to promote the sustainable management of natural and physical resources. As stated in section 5 of the Act, this means:

5(2) In this Act, sustainable management means managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while –

(a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

(b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

9.1 Section 6 Matters of National Importance

Section 6 sets out the matters of national importance that must be considered in achieving the purpose of the Act. These matters of national importance are:

"(a) The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development.
(b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.
(c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna;
(d) The maintenance and enhancement of public access to and along the coastal marine area, lakes rivers;
(e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga;
(f) The protection of historic heritage from inappropriate subdivision, use, and development;
(g) The protection of customary rights."

Comment

The coastal environment within the development site is already partially modified with the wharf, reclamation, slipway and seawalls. The proposal respects all parts of the existing site in particular the south bay (the largely unmodified beach) and the north and south points where the proposal is provide car parking while keeping a natural landform to encourage the coastal ecology in these areas.

The application site is not identified as being an outstanding natural feature or landscape. Notwithstanding this, the proposal remains visually insignificant to the wider landscape qualities of Watts Peninsula.

While the proposal does include some indigenous vegetation removal this is limited to that required to create building platforms in the area currently zoned Open Space B and along the coastal edge to allow the other trees to reach their full growth potential. This vegetation removal is very limited and

does not disrupt the vegetation on the coastal escarpments. The some of the vegetation on the slopes immediately behind the apartments will also require removal to ensure they do not pose a health and safety risk to apartment occupants. This will however be limited (to the extent possible) to the tall pines that are not indigenous.

As noted earlier, the proposal has been designed to ensure public access along the coastal marine is enhanced compared to the existing situation where the public is excluded from some of this area.

The Cultural Impact Assessment prepared on behalf of Taranaki Whanui Ki Te Upoko o Te lka and The Port Nicolson Block Settlement Trust has raised no concerns with respect to section 6(d) matters.

As noted earlier, there are no listed heritage buildings or items on the site. Notwithstanding this the heritage values on the site are protected with the adaptive re-use of these buildings (with the exception of the hospital). These are further discussed in the heritage assessment by Archifact.

There are no customary rights applicable to the application site.

9.2 Section 7 (Other Matters)

Section 7 sets out the other matters that shall be given particular regard to in achieving the purpose of this Act in relation to managing the use, development, and protection of the natural and physical resources. These are:

(a) Kaitiakitanga

(aa) the ethic of stewardship

(b) the efficient use and development of natural and physical resources

(ba) the efficiency of the end use of energy

(c) the maintenance and enhancement of amenity values

(d) intrinsic values of the ecosystems

(f) maintenance and enhancement of the quality of the environment

(g) any finite characteristics of natural and physical resources

(h) the protection of the habitat of trout and salmon

(i) the effects of climate change

(j) the benefits to be derived from the use and development of renewable energy.

Comment

A Cultural Impact Assessment has been prepared on behalf of Taranaki Whanui Ki Te Upoko o Te lka and The Port Nicolson Block Settlement Trust dated September 2016 and has raised no issues with respect to kaitiakitanga and the ethic of stewardship.

The development represents an efficient use and development of an existing brownfield site while being able to adequately mitigate any potential adverse effects.

The quality design of the Masterplan (along with the application of the proposed Design Guide in the detailed design) ensures the maintenance and enhancement of the existing amenity values of Shelly Bay. In particular the proposal enhances public access to the coastal marine area providing a significant amenity resource for both residents and the wider public.

The proposal has no adverse effect of the intrinsic values of the ecosystem.

The site is not a habitat for trout or salmon.

The potential effects of climate change are difficult to accurately determine. The development has however been designed to ensure the living levels of the apartments are elevated. In addition the setback of all residential units/dwellings (with the exception the building identified as SBW B9 on the Masterplan) are located on the landward side of the road and set back from the coastal edge.

9.3 Treaty of Waitangi

Section 8 of the Act states:

> *"In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi)."*

As noted earlier, a Cultural Impact Assessment has been undertaken on behalf of Taranaki Whanui Ki Te Upoko o Te lka and The Port Nicolson Block Settlement Trust dated September 2016. No aspects of the proposal were identified as being inconsistent with the principles of the Treaty of Waitangi.

9.4 Part 2 Conclusion

Overall, the proposed activity will result in a high quality development located in an appropriate location for residential development. Substantial expert analysis has been provided in support of the application. The proposed development will provide much needed housing stock in Wellington while managing external and internal effects. The outcome will be a high quality urban design outcome.

Therefore, it is considered that the proposal is consistent to the purposes and principles of the RMA as defined by Part 2.

10.0 Section 29 Notification Assessment

Section 29 of HASHA establishes the basis for determining limited notification of applications for qualifying developments in SHA's. Section 29(1) states that:

"An authorised agency must not notify, or hold a hearing in relation to, an application for a resource consent made under section 25, except as provided in sub-sections (3) to (5)"

Subsection (3) states that:

"the authorised agency may notify the application to the following persons if, in each case, the person has not given prior written approval to the activity:

(a) The owners of the land adjacent to the land subject to the application; and

(b) The local authorities in whose district or region the land subject to the application falls; and

(c) Any infrastructure providers who have assets on, under, or over the land subject to the application or the land adjacent to that land; and

(d) If the land subject to the application or land adjacent to that land is subject to a designation, the requiring authority that required the designation."

Subsection (5) states:

"Despite subsection 3, an authorized agency must not notify, or hold a hearing in relation to, an application for a resource consent made under this Act if, were that application to be made under the Resource Management Act 1991, that Act, or regulations made under that Act, would direct that the activity that is the subject of the application not be notified."

With respect to section 29(3) The Wellington Company believe the authorised agency need not notify any parties the application for the following reasons with particular reference to (a) – (d) noted below:

(a) The authorised agency will determine whom they deem to be adjacent land owners. We however believe this should be limited to landowner directly adjoining the application site (i.e. share a common boundary). In this case the only adjacent land owner is the New Zealand Defence Force. For the reasons outlined in section 8.4 this adjacent land owner should not be considered to be affected.

(b) The authorised agency that the land subject to this application falls is the Wellington City Council. Pre-application meetings and engagement has been undertaken with Wellington City Council prior to the lodgement of this application. Therefore notice need not be served on Wellington City Council. It is acknowledged that GWRC consents will be required with respect to discharge and structures in the coastal marine area. These are however outside of the scope of this application and will be applied for separately. GWRC have been involved in pre-application meeting discussions so are informed of this application. The GWRC therefore need not be notified of the application.

(c) The Servicing Feasibility report prepared by Calibre outlines all of the infrastructure providers that have been consulted as part of this proposal. These include Wellington Water,

Wellington Electricity, Chorus and Powerco. It is therefore not considered necessary to notify any infrastructure providers of this application.

(d) The northern point of the site has a meteorological designation (ref: M3) with the requiring authority being Meteorological Service of New Zealand Limited. Given the requiring authority's approval will be required prior to works within this designation area there is no need to serve notice on them.

The overall activity status of the application is Non-Complying under the District Plan. As a Non-Complying Activity the District Plan does not direct that the activity that is the subject of this application need not be notified. Therefore section 29(5) of HASHAA as noted above is not applicable to this application.

It is noted that the Council has discretion under this section and that limited notification is not mandatory. The proposal has been carefully and sensitively designed to warrant the Council's discretion not to notify this application.

11.0 Consultation

Consultation is not required to be undertaken prior to the lodgement of the application. Given the nature of the proposal, it's location in the context of adjoining landowners, The Wellington Company has not undertaken any consultation other than outlined earlier in this report.

12.0 Offered Conditions of Consent

The applicant offers conditions of consent with respect to the following matters:

<u>In Accordance with Approved Plans</u>

(a) That the development is undertaken in general accordance with the information submitted with Service Request XXXX and the Masterplan entitled "Shelly Bay Masterplan".

<u>Detailed Design Approval</u>

(b) Prior to the commencement of construction of any buildings, structures, open spaces, car parking or the relocation and alterations to existing buildings to be retained approved under condition (a) above the consent holder must submit a detailed design proposal to the Council for its approval.

(c) Prior to submitting the detailed design of the proposal, as required under condition (b) above, the consent holder must first submit the detailed design to the Shelly Bay Design Panel for its recommendation. This recommendation must then be included with the detailed design proposal submitted to the Council to satisfy condition (b) above. In seeking a

recommendation from the Shelly Bay Design Panel the consent holder must demonstrate (through an assessement) that the proposal meets the intent of Shelly Bay Design Guide.

Note: The Shelly Bay Design Panel is a panel that will be made up of three architecture/urban design experts to provide advice to the Council officers if the proposal meets the Shelly Bay Design Guide.

Earthworks

(d) Prior to the commencement of any earthworks the consent holder must submit for approval detailed earthworks plans. These plans must include the area of the earthworks, cross sections and details of any retaining structures. An *Earthworks Methodology* must accompany these earthworks details that ensures temporary and permanent excavations remain stable and do not damage or cause harmful influence to the neighbouring buildings. The proposed excavations must not undermine neighbouring property.

Note: The detailed earthworks plans may relate to individual building sites or cumulate building sites.

(e) Prior to works commencing on site a detailed Construction Management Plan (CMP) must be submitted to, and approved by, the Compliance Monitoring Officer.

The CMP must establish acceptable performance standards regarding public safety and amenity protection during the construction phase of the development. Given construction of the approved Masterplan will be undertaken in stages a separate CMP can be approved for each stage of the development. The CMP must include, but is not limited to, the following:

- A contact (mobile) telephone number(s) for the on-site manager where contact can be made 24 hours a day/7 days a week;
- Details of appropriate local signage/information on the proposed work including the location of a large (greater than $1m^2$) noticeboard on the site that clearly identifies the name, telephone number and address for service of the site manager, including mobile number and after hours contact details;
- A communication and complaints procedure for adjoining property owners/occupiers, passers-by and the like;
- Safety fencing and associated signage for the construction site;
- Dust mitigation measures to be implemented to prevent dust effects beyond the construction site boundary;
- Noise control measures; and
- Measures to ensure dirt, mud or debris is not left on the road.

(f) Prior to the commencement of any earthworks a Sediment Control and Runoff Plan must be submitted for approval. The approved sediment control and runoff measures must remain in place for the duration of the earthworks.

(g) The consent holder's nominated Chartered Professional Engineer (CPEng) must supervise all engineering aspects of construction of retaining walls (requiring building consent) and on

completion of construction provide the Compliance Monitoring Officer with a completion statement/certification (PS4).

(h) All contractors must keep the adjacent streets and footpaths safe, clear and clean and without damage and fit for normal use at all times from trucks/vehicles tracking mud and rubble from the site. The contractor must protect the Council's stormwater system, sumps and other stormwater inlets from silt, rubble and debris.

(i) The consent holder must ensure that trucks are cleaned of mud and site deposits before exiting the site and onto the public road. Any debris/mud/spillage must be removed from access and/or public road to ensure integrity of the Council's stormwater system. Spillage of any kind onto the street or footpath must be cleared away immediately. This process may include washing down the roadway, stormwater inlet protection and draining nearby sumps, or repairing damage, as appropriate, to the Council's satisfaction.

(j) The consent holder must ensure that the discharge of dust created by earthworks, transportation and construction activities is suitably controlled to minimise dust hazard or nuisance for the duration of the site works and until the site has been re-stabilised to the Compliance Monitoring Officer.

Noise

(k) All non-residential activities and fixed plant must comply with the District Plan standards under 34.6.1.1, 34.6.1.2 and 34.6.2.9. If these standards are cannot be met than a resource consent will be required for these aspects to the development.

Noise insulation and ventilation

(l) An acoustic report, prepared by a suitably qualified person, must be submitted to and approved by the Council's Compliance Monitoring Officer prior to the commencement of construction to demonstrate that the residential apartment blocks, townhouses and dwellings that immediately adjoin the commercial precinct (as identified on plan submitted with the application) will comply with the District Plan noise insulation and ventilation standard 34.6.2.10.

Lighting

(m) All outdoor lighting to roads and outdoor public spaces available for use during the hours of darkness shall be designed and installed in accordance with AS/NZS 1158.3.1:2005 and any amendments in accordance with District Plan standard 34.6.1.7.2.

Requiring Authority Approval

(n) The approval of the Meteorological Service of New Zealand Limited must be obtained under section 176 of the RMA prior to the commencement of any works within the location of designation ref: M3.

We appreciate that additional consents will likely be imposed in addition to those offered above. We would therefore appreciate being able to review of wording of draft conditions prior to the issue of consent.

13.0 Conclusion

This resource consent application is being made by The Wellington Company Limited for the redevelopment of the site including multi-unit residential, mixed use and non-residential buildings and activities, with associated earthworks and subdivision at 232, 264, 270 and 276 Shelly Bay Road, Shelly Bay. This application is sought under the Housing Accords and Special Housing Areas Act 2013 ('HASHAA').

Consent is also sought for the use and development of a potentially contaminated site under Regulation 11 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 for the soil disturbance, subdivision and change of use of potentially contaminated land.

This application provides a comprehensive outline of the proposal along with the statutory framework for assessment under HASHAA and the NES. In addition this application is supported by expert assessments. Overall these assessments conclude that the proposal is appropriate for the site with no parties being adversely affected.

Overall it has been demonstrated that the development is consistent with the relevant assessment criteria, objectives and policies of the District Plan. In additional the proposal is consistent with the New Zealand Coastal Policy Statement and the Regional Policy Statement. Furthermore the development meets the purpose of HASHAA in that it delivers additional housing stock in Wellington.

On this basis granting this application on a non-notified basis in accordance with HASHAA is requested and regarded as appropriate by the applicant.

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UNDER LAND TRANSFER ACT 1952

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R.W. Muir
Registrar-General
of Land

Part-Cancelled

Identifier	**WN46B/925**
Land Registration District	**Wellington**
Date Issued	27 October 1995

Prior References
GN B457384.1

Estate	Fee Simple
Area	2.8624 hectares more or less
Legal Description	Part Section 20 Watts Peninsula District
Proprietors	
Shelly Bay Limited	

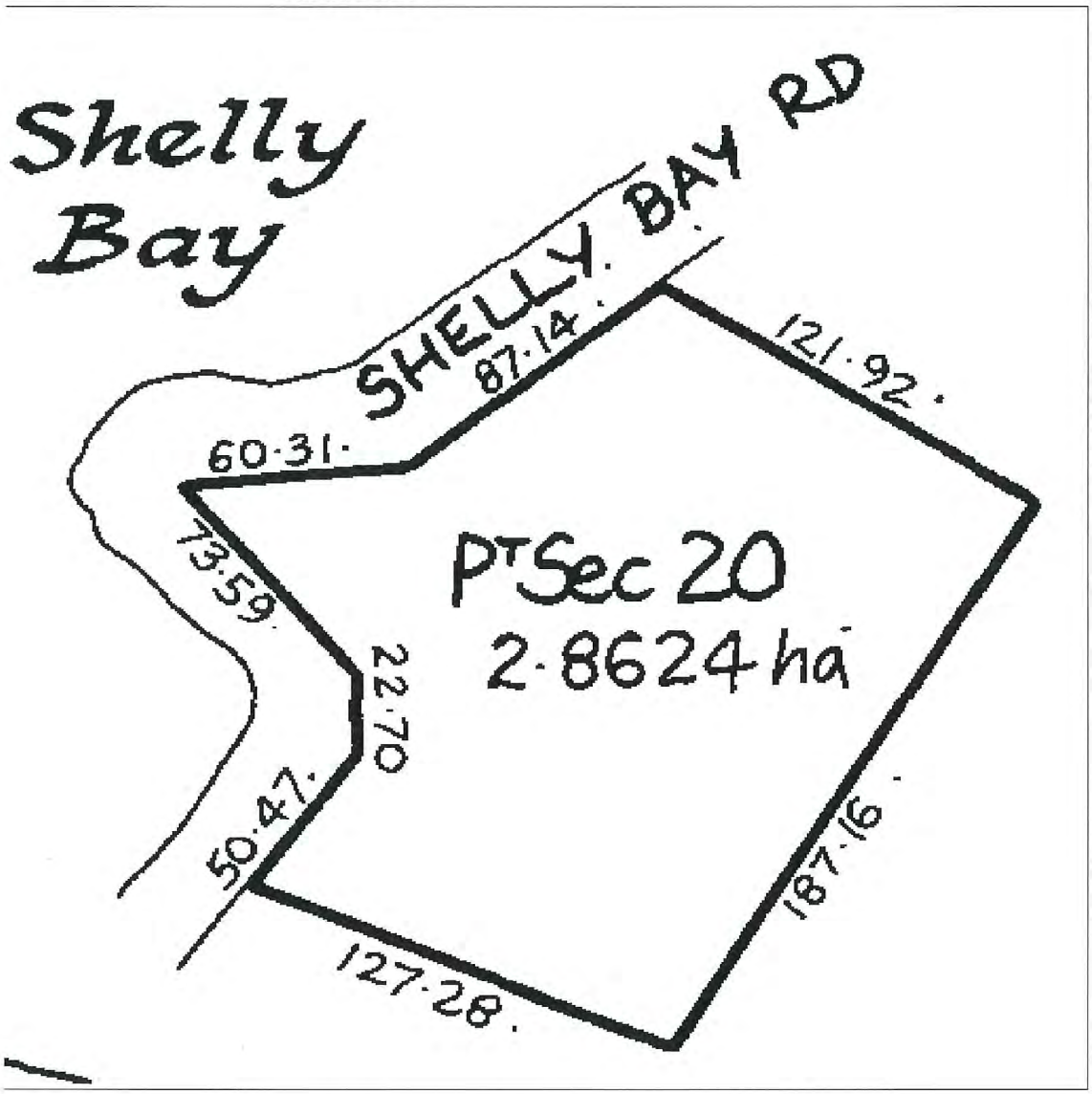
Interests

Subject to Part IVA Conservation Act 1987

Subject to Section 11 Crown Minerals Act 1991 excluding the non-statute minerals contained in CFR WN382/239

8078165.1 Mortgage to (now) Neville McClutchie Baker, Holden Brent Hohaia, Peter Samuel Jackson, Samuel Wallis Kahui, Morris Te Whiti Love, Kura Te Rangi Moeahu, Toarangatira Woodbine Pomare, Te Rira Puketapu, Hokipera Jean Ruakere, Howard Kevin Tamati and Mark Te One - 21.5.2009 at 3:46 pm

8543747.1 Gazette Notice (NZ Gazette 22.7.2010, No.88, p.2387) declaring Section 1 on SO 419545 (734m2) to be acquired for roading purposes and vesting the same in the Wellington City Council - CT 531187 issued - 6.8.2010 at 9:19 am


Shelly Bay
SHELLY BAY RD
87.14
121.92
60.31
13.59
PT Sec 20
2.8624 ha
22.70
50.47
187.16
127.28

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

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R.W. Muir
Registrar-General
of Land

Identifier	**223338**
Land Registration District	**Wellington**
Date Issued	31 May 2005

Prior References
6339930.1 WN227/189

Estate	Fee Simple
Area	1.2969 hectares more or less
Legal Description	Part Lot 3 Deposited Plan 3020 and Section 2 Survey Office Plan 339948

Proprietors
Shelly Bay Limited

Interests

Fencing Agreement in Transfer 95232 - 30.6.1914 (affects the part formerly in CT 227/189)

Appurtenant hereto is a right to convey water created by Easement Instrument 8070638.1 - 12.2.2009 at 9:00 am

Subject to a right to drain sewage and water and a right to convey electricity, telecommunications and water over all of the within land created by Easement Instrument 8070638.2 - 12.2.2009 at 9:00 am

Appurtenant hereto is a right to drain sewage and water and a right to convey electricity, telecommunications and water created by Easement Instrument 8070638.2 - 12.2.2009 at 9:00 am

Appurtenant hereto is a right of way created by Easement Instrument 8070638.3 - 12.2.2009 at 9:00 am

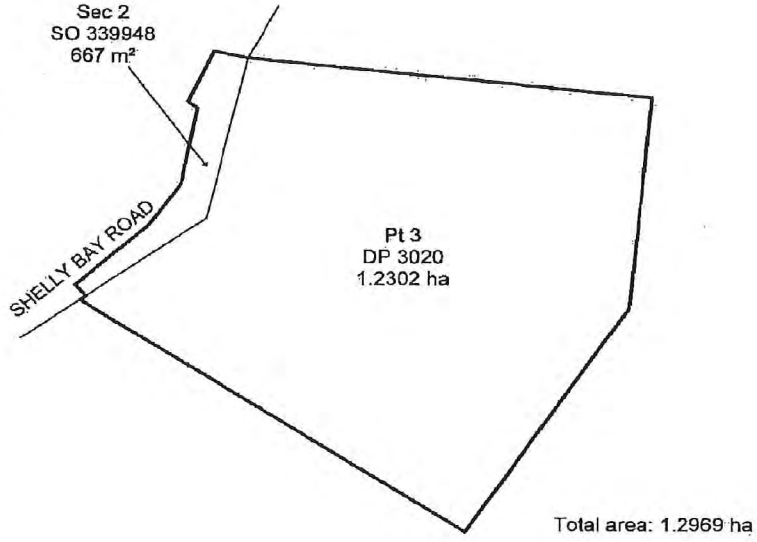
Subject to Part IVA Conservation Act 1987

Subject to Section 11 Crown Minerals Act 1991

8078165.1 Mortgage to (now) Neville McClutchie Baker, Holden Brent Hohaia, Peter Samuel Jackson, Samuel Wallis Kahui, Morris Te Whiti Love, Kura Te Rangi Moeahu, Toarangatira Woodbine Pomare, Te Rira Puketapu, Hokipera Jean Ruakere, Howard Kevin Tamati and Mark Te One - 21.5.2009 at 3:46 pm

Identifier **223338**

Title Diagram 223338
Cpy – 01/01, Pgs – 001, 10/06/05, 14:31
DocID: 411326987



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R.W. Muir
Registrar-General
of Land

Identifier	**205722**
Land Registration District	**Wellington**
Date Issued	09 March 2005

Prior References
58560 GN 6339930.1

Estate	Fee Simple
Area	8049 square metres more or less
Legal Description	Section 8-9 Survey Office Plan 339948

Proprietors
Shelly Bay Limited

Interests

Appurtenant hereto is a right to convey water created by Easement Instrument 8070638.1 - 12.2.2009 at 9:00 am

Subject to a right to drain sewage and water and a right to convey electricity, telecommunications and convey water over all of the within land created by Easement Instrument 8070638.2 - 12.2.2009 at 9:00 am

Appurtenant hereto is a right to drain sewage and water and a right to convey electricity, telecommunications and water created by Easement Instrument 8070638.2 - 12.2.2009 at 9:00 am

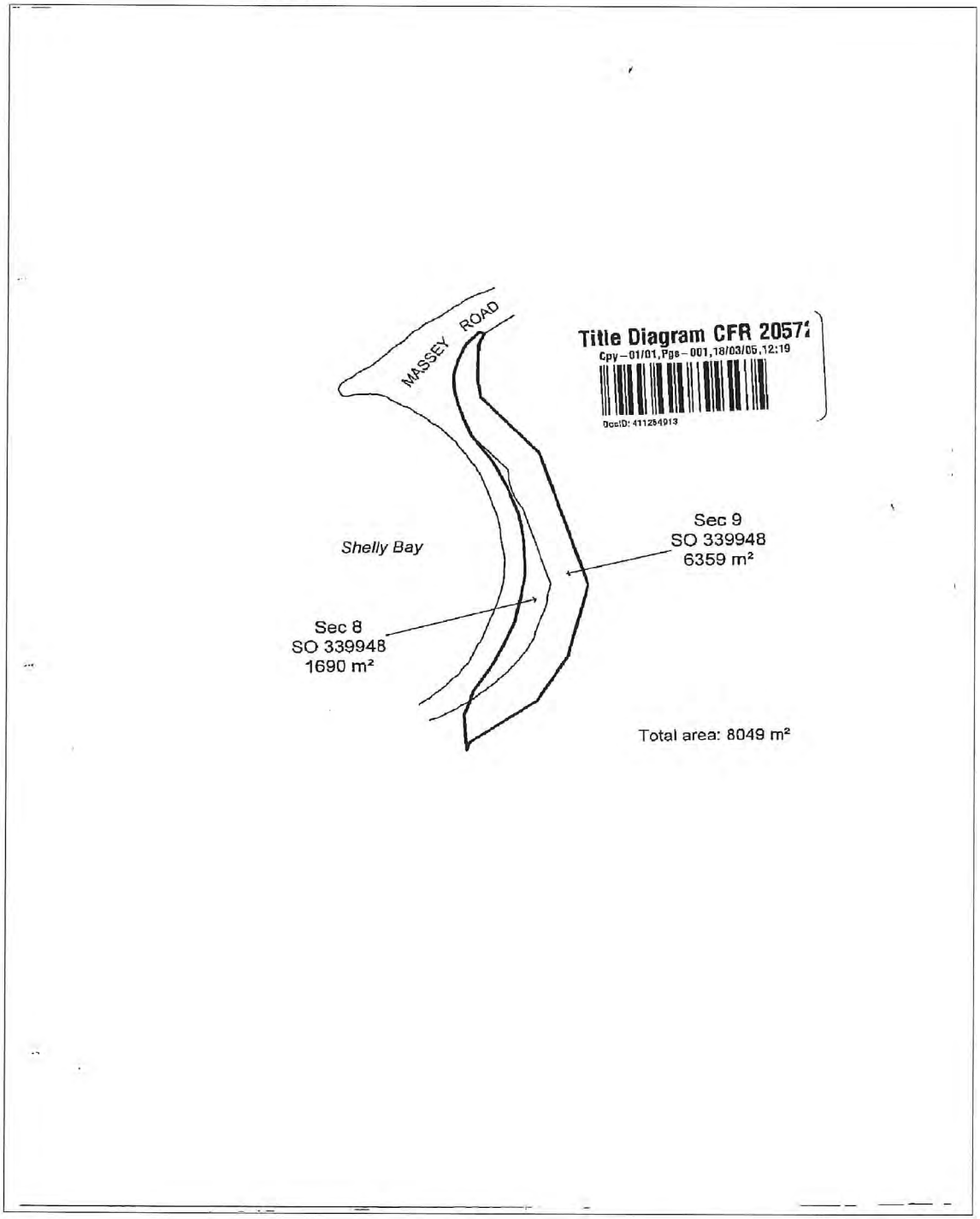
Appurtenant hereto is a right of way created by Easement Instrument 8070638.3 - 12.2.2009 at 9:00 am

Subject to Part IVA Conservation Act 1987

Subject to Section 11 Crown Minerals Act 1991

8078165.1 Mortgage to (now) Neville McClutchie Baker, Holden Brent Hohaia, Peter Samuel Jackson, Samuel Wallis Kahui, Morris Te Whiti Love, Kura Te Rangi Moeahu, Toarangatira Woodbine Pomare, Te Rira Puketapu, Hokipera Jean Ruakere, Howard Kevin Tamati and Mark Te One - 21.5.2009 at 3:46 pm

Identifier **205722**



COMPUTER FREEHOLD REGISTER
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R.W. Muir
Registrar-General
of Land

Identifier	**435658**
Land Registration District	**Wellington**
Date Issued	25 July 2008

Prior References
GN B654821.1

Estate	Fee Simple
Area	2.9427 hectares more or less
Legal Description	Section 1 Survey Office Plan 37849

Proprietors
Shelly Bay Limited

Interests

Appurtenant hereto is a right to convey water created by Easement Instrument 8070638.1 - 12.2.2009 at 9:00 am

Subject to a right to drain sewage and water and a right to convey electricity, telecommunications and water over all of the within land created by Easement Instrument 8070638.2 - 12.2.2009 at 9:00 am

Appurtenant hereto is a right to drain sewage and water and a right to convey electricity, telecommunications and water created by Easement Instrument 8070638.2 - 12.2.2009 at 9:00 am

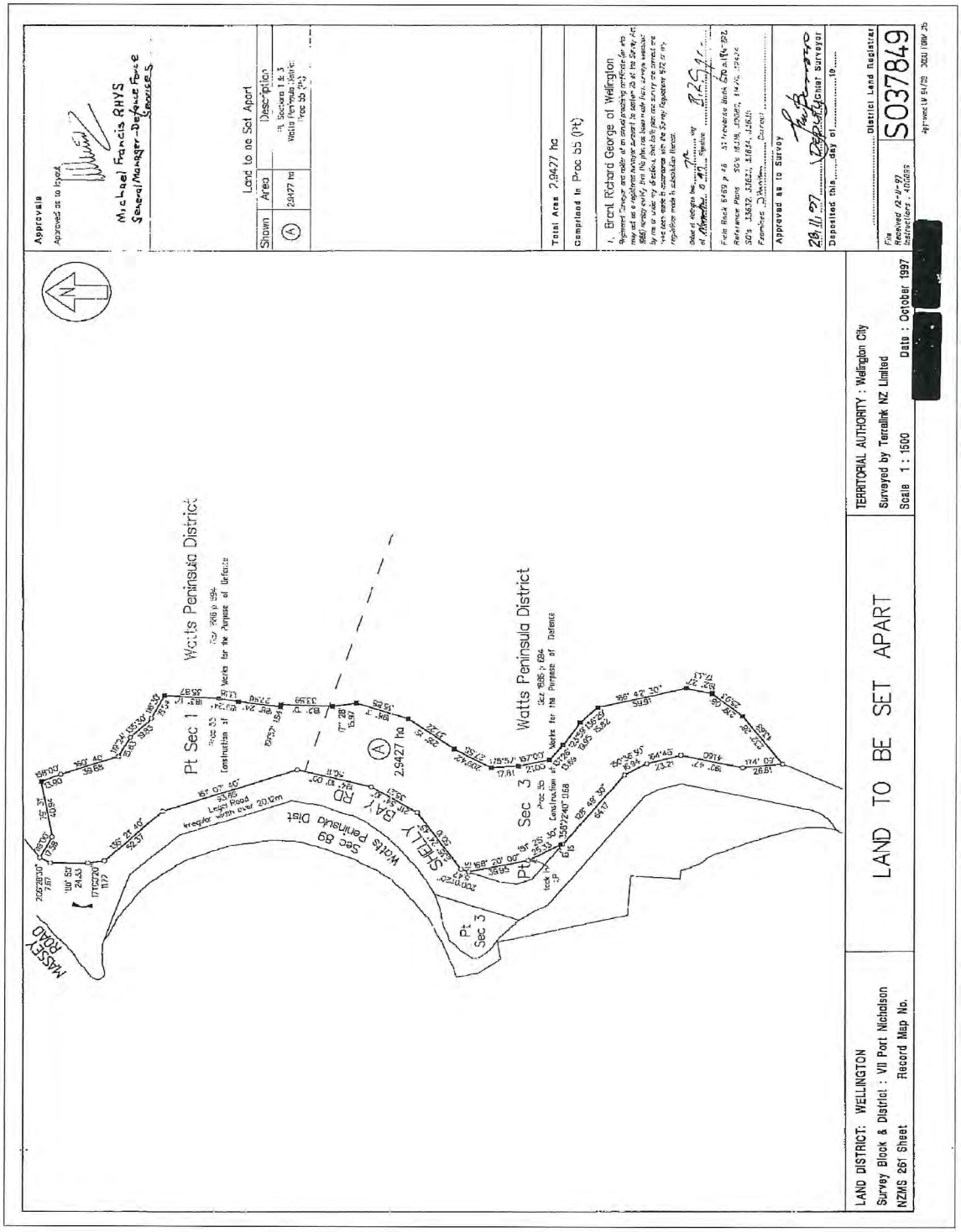
Appurtenant hereto is a right of way created by Easement Instrument 8070638.3 - 12.2.2009 at 9:00 am

Subject to Part IVA Conservation Act 1987

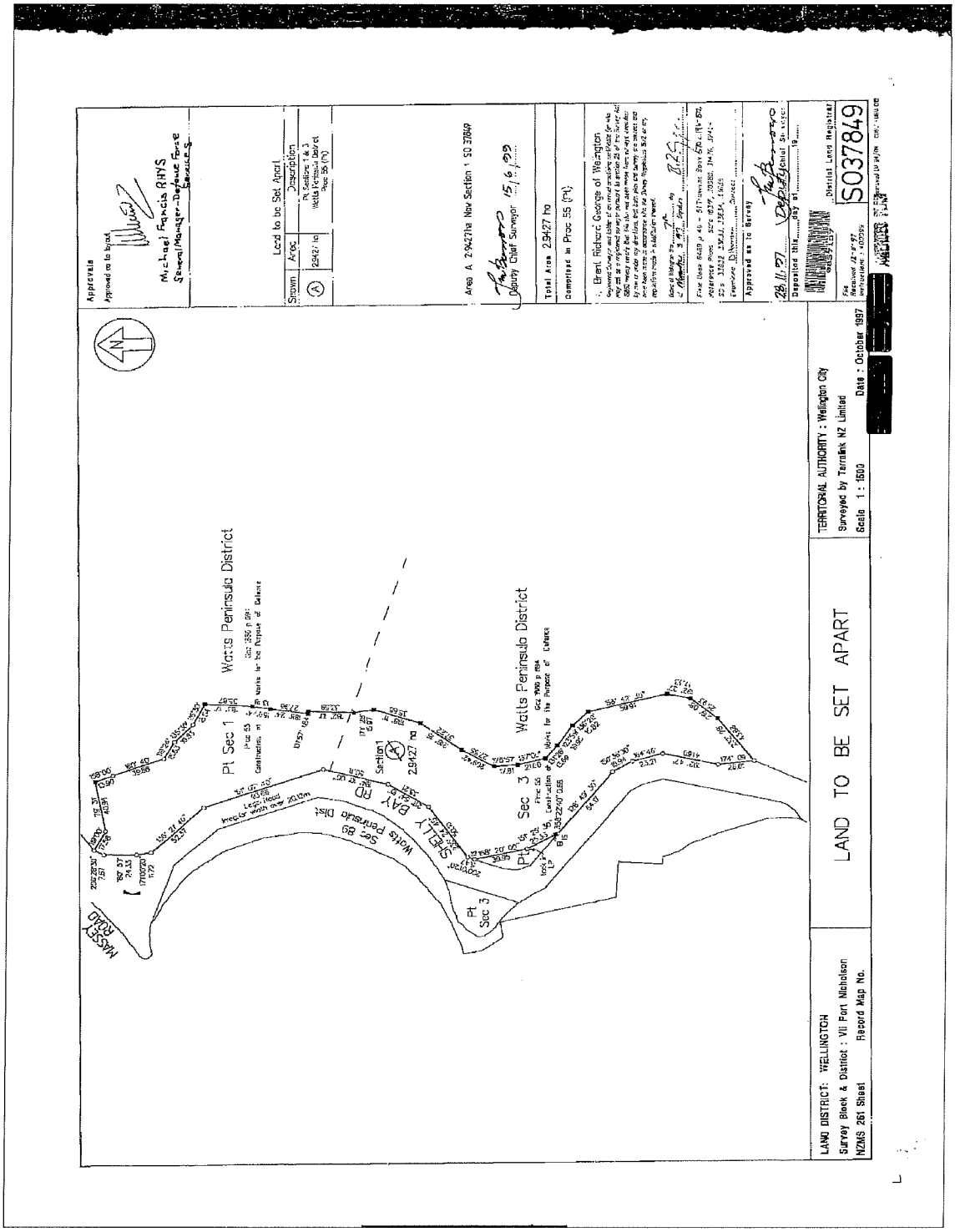
Subject to Section 11 Crown Minerals Act 1991

8078165.1 Mortgage to (now) Neville McClutchie Baker, Holden Brent Hohaia, Peter Samuel Jackson, Samuel Wallis Kahui, Morris Te Whiti Love, Kura Te Rangi Moeahu, Toarangatira Woodbine Pomare, Te Rira Puketapu, Hokipera Jean Ruakere, Howard Kevin Tamati and Mark Te One - 21.5.2009 at 3:46 pm

Identifier **435658**



Identifier **435658**



COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**418653**
Land Registration District	**Wellington**
Date Issued	23 April 2008

Prior References
207476

Estate	Fee Simple
Area	7002 square metres more or less
Legal Description	Section 3 Survey Office Plan 339948

Proprietors
Wellington City Council

Interests

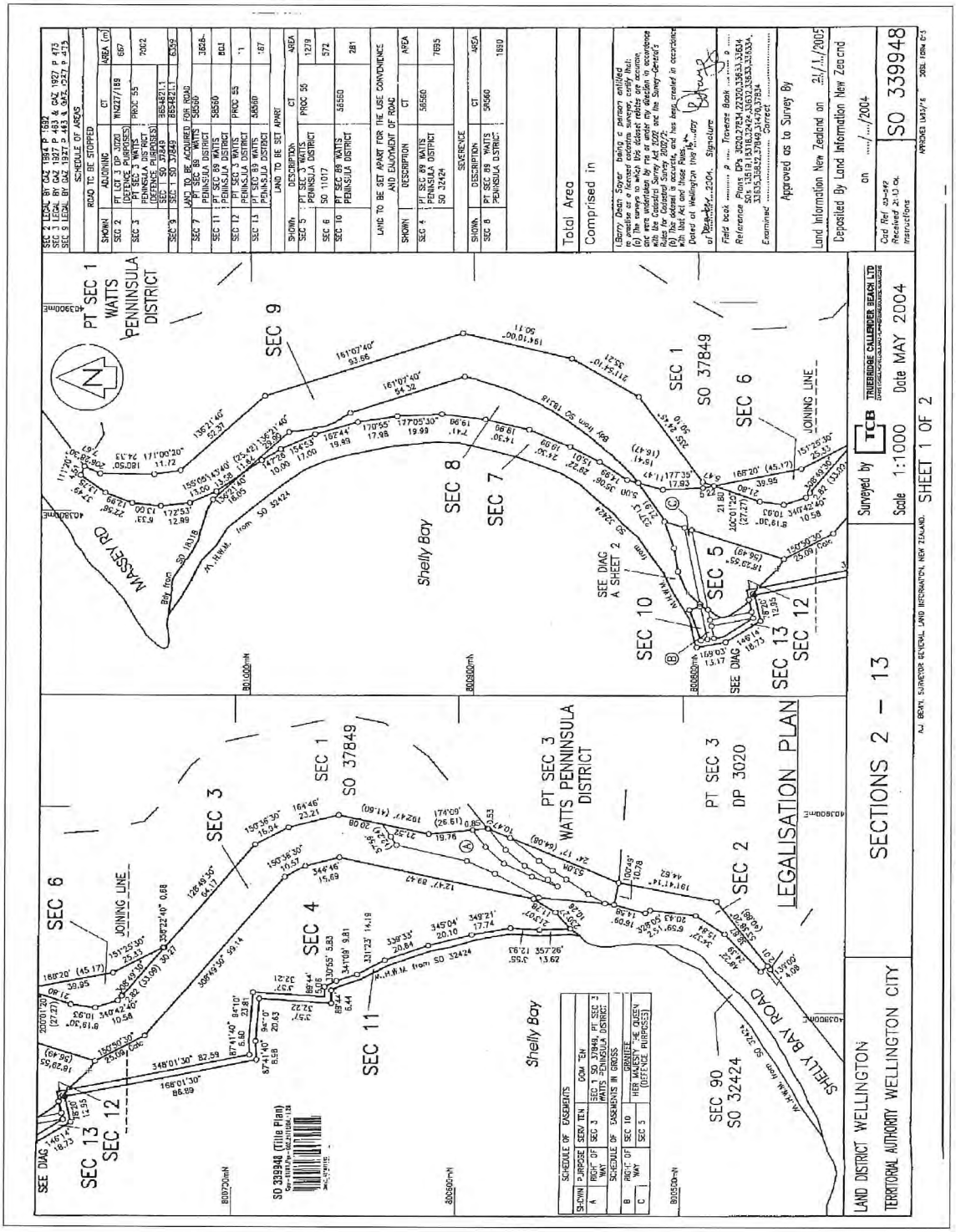
Appurtenant hereto is a right to convey water created by Easement Instrument 8070638.1 - 12.2.2009 at 9:00 am

Subject to a right to drain sewage and water and a right to convey electricity, telecommunications and water over all of the within land created by Easement Instrument 8070638.2 - 12.2.2009 at 9:00 am

Appurtenant hereto is a right to drain sewage and water and a right to convey electricity, telecommunications and water created by Easement Instrument 8070638.2 - 12.2.2009 at 9:00 am

Subject to a right of way over part marked A on DP 408359 created by Easement Instrument 8070638.3 - 12.2.2009 at 9:00 am

Identifier **418653**



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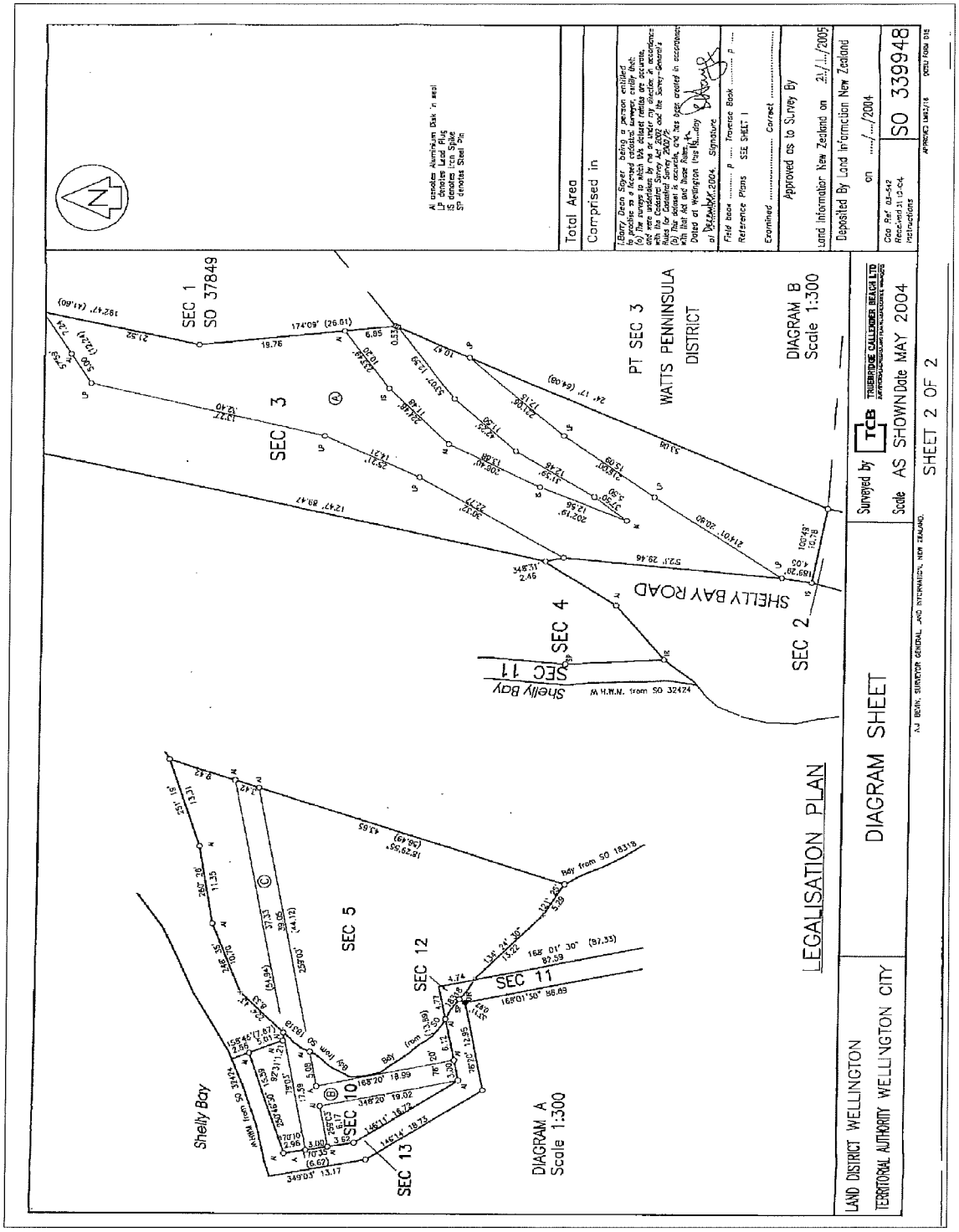

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UNDER LAND TRANSFER ACT 1952

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R.W. Muir
Registrar-General
of Land

Identifier	**418654**
Land Registration District	**Wellington**
Date Issued	23 April 2008

Prior References
207478

Estate	Fee Simple
Area	9827 square metres more or less
Legal Description	Section 4-6, 10 Survey Office Plan 339948
Purpose	For the use, convenience and enjoyment of a road

Proprietors
Wellington City Council

Interests

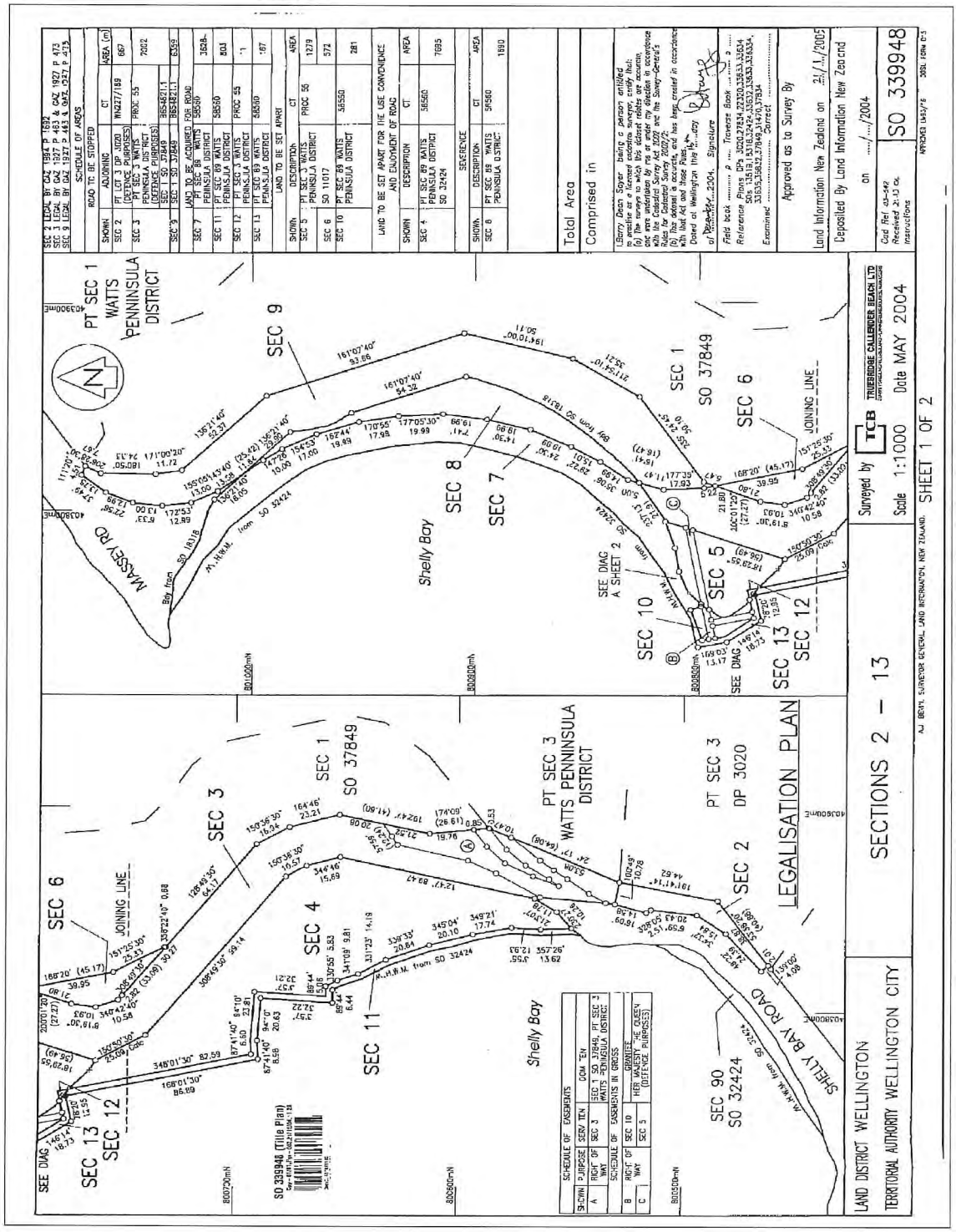
Appurtenant hereto is a right to convey water created by Easement Instrument 8070638.1 - 12.2.2009 at 9:00 am

Subject to a right to drain sewage and water and a right to convey electricity, telecommunications and convey water over all of the within land created by Easement Instrument 8070638.2 - 12.2.2009 at 9:00 am

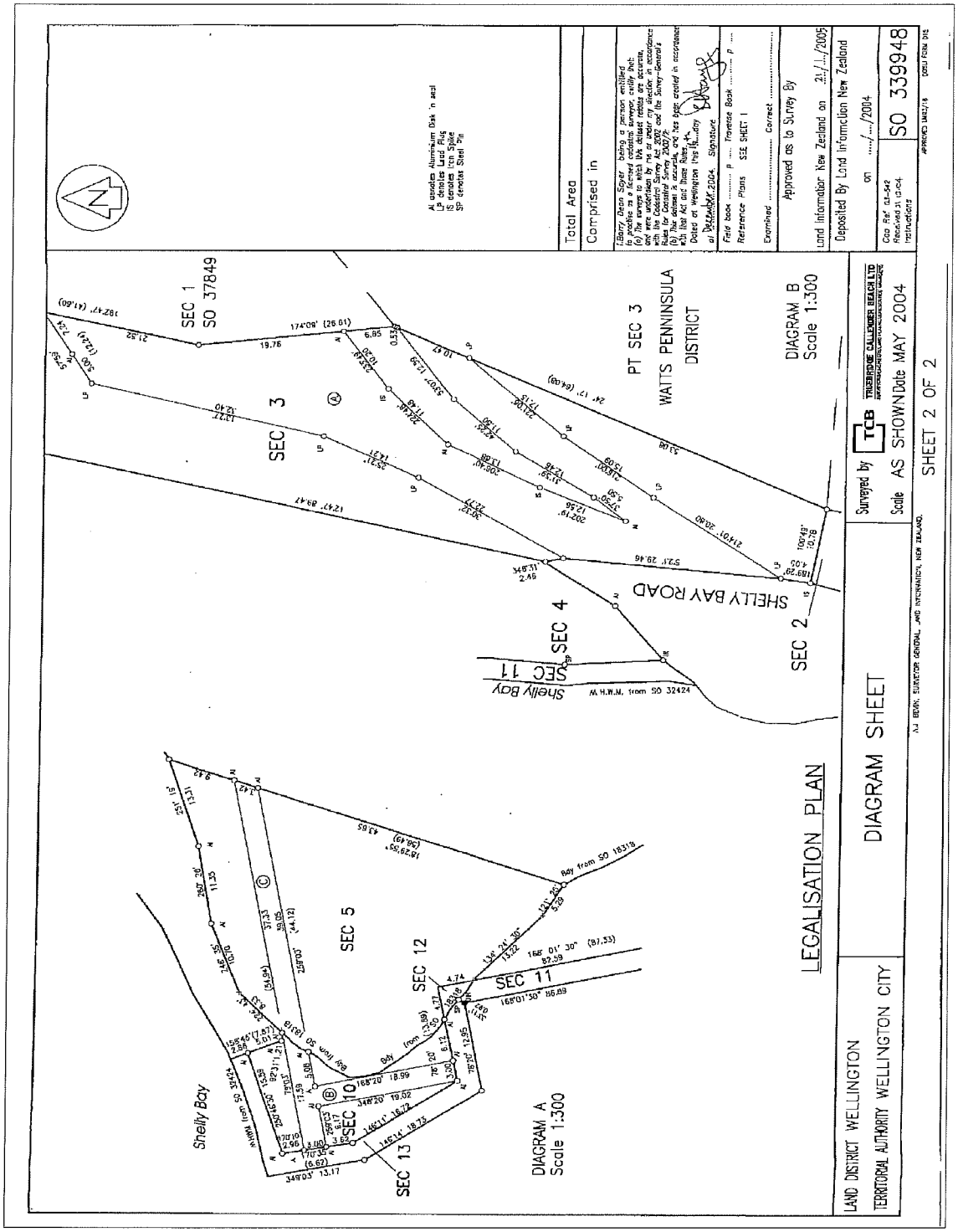
Appurtenant hereto is a right to drain sewage and water and a right to convey electricity, telecommunications and water created by Easement Instrument 8070638.2 - 12.2.2009 at 9:00 am

Subject to a right of way over part Section 5 herein marked C and over part Section 10 herein marked B on SO Plan 339948 created by Easement Instrument 8070638.3 - 12.2.2009 at 9:00 am

Identifier **418654**



Identifier **418654**



Shelly Bay Design Guide

The Wellington Company architecture+ McIndoeURBAN Wraight + Associates

PREPARED FOR
The Wellington Company Limited

CONSULTANT TEAM
architecture+_McIndoe Urban_Wraight + Associates
The Property Group_Envelope_TDG_Archifact_Calibre

DOCUMENT COMPILED BY
McIndoe Urban_architecture+_Wraight + Associates

ILLUSTRATIONS
All illustrations have been prepared by the consultant team unless otherwise stated.

DISCLAIMER
All images are provided as illustrative only to supplement the information set out by the guidelines.

The Shelly Bay Design Guide forms part of the global Resource Consent for Shelly Bay and should be read with the Shelly Bay Masterplan.

Revision	Date	Author	Checked By
20	14.09.2016	architecture + McIndoe Urban Wraight + Associates	TWC to confirm

Contents

INTRODUCTION

Intention

The overall intent of the Design Guide is to:

- Capture and give effect to the Masterplan vision as it is built out over time;
- Ensure consistency across the development as a 'whole place';
- Ensure a high quality of design for each project that contributes to the uniqueness and design intention for Shelly Bay; and,
- Manage variations and departures from the guide due to changed conditions over time.

Structure and Content

This document provides a hierarchy of generic (Shelly Bay-wide) and targeted guidelines that articulate the optimal form of development across the project area.

All guidelines are to be read in conjunction with the Shelly Bay Masterplan which illustrates the overall design intention and describes the spatial arrangements, open space and street network and nature of individual project initiatives.

All images are provided as illustrative only to supplement the information set out by the guidelines. These do not represent the precise and final design solutions but describe landscape and open space concept, indicative bulk and form however illustrate only one architectural approach to development here.

Guidelines and Departures

The overall context for the guidelines is to ensure quality delivery of the Shelly Bay Masterplan. It is anticipated that there will be varied individual design solutions not anticipated at this stage that will emerge and therefore an approach is required that sets out matters that are critical and matters where flexibility may be appropriate. Advisory matters comprise guidelines whereas critical matters are addressed as technical specifications and are a requirement of the Masterplan. Both are set out in this document.

Varied design solutions that may be acceptable will be assessed in relation to the guidelines to show the extent to which they satisfy the requirements.

For example the precise final location of building footprints may be subject to adjustment due to geotechnical, organisational or similar constraints. In these and other instances minor alterations in the location of buildings, lanes and mews is anticipated as long as the general arrangement is retained.

Departures from the guidelines are possible as long as those departures demonstrate exemplary resolution of both architecture and the public realm at conceptual and detailed design levels. In assessing

any such departures and in addition to the guidelines, the following will be considered:

- Consistency with the overarching character areas;
- Other benefits that justify loss of recognised qualities;
- Overall architectural and landscape design quality; and
- Relevance of the activities proposed to support a vibrant and unique Shelly Bay environment.

Application of Guidelines

The Design Guide will be used by Council Officers, developers and their consultants as well as the wider community to confirm how the Masterplan is to be implemented and the aspirations for the area realised.

The guide, in conjunction with the Masterplan, constitutes the primary frame of reference for the design of all projects within Shelly Bay.
The Design Guide has no statutory status in relation to the District Plan but forms part of the Resource Consent requirements for the project.

An independent design panel will be established to review and confirm individual projects as they come forward in relation to the Masterplan and Design Guide.
The design panel may, at its discretion, allow alternative solutions and non-compliance with the guidelines if they consider that their inclusion achieves the design outcomes intended for Shelly Bay.

The Design Guide distinguishes between overarching (Shelly Bay-wide) principles, guidelines, and technical specification matters, as follows.

P Principles that are overarching and apply to the development as a whole.

G Guidance (generic and location-specific) that assist the development to contribute positively to a cohesive, unique Shelly Bay urban form.

T Technical specifications that define critical quantitative requirements.

Any development should refer to all relevant principles, guidelines and technical specifications including those in Appendices.

1 MASTERPLAN PRINCIPLES

1.1 The Masterplan

The Design Guide provides the direction for development that is in accordance with the Masterplan and Principles for Shelly Bay. It describes how these are to be applied and used to control development on the ground.

An extract from the Masterplan is shown in the adjacent image and its key outcomes are summarised below.

Masterplan Key Outcomes

The Shelly Bay Masterplan sets out to create a unique waterfront destination for Wellington. Drawing on the site's military history, the special relationship Mana Whenua have to the site and embracing the water's edge and hills, Shelly Bay will become a place of special recreation, a place to live and work and to interact with the natural environment.

Key outcomes of the plan include:

- A high quality publicly accessible waterfront of promenade, wharf and beach;
- Strong expression of two bays and promontories;
- Heritage integrated and authentically displayed;
- Retained robustness and informality of the former air force base;
- A vibrant mixed use 'heart' at Shelly Bay Wharf;
- A unique living environment with a mix of housing ancillary short term accommodation and boutique hotel;
- Enhanced landscape and vegetation with visual and physical connections to the bush-clad hills;
- Upgraded Shelly Bay Road and Massey Road street system;
- Minimised intervention and earthworks to the escarpment; and
- Development largely contained within the lower flat platforms of the two bays.


PARKING
MEWS
VILLAGE GREEN
SOUTH BAY
PROMENADE
SLIPWAY ADAPTIVE
RE-USE
SOUTH BAY
BEACH
SHELLY BAY
WHARF
SHELTER / ARTWORK
SOUTH POINT
PARK

1

1.2 Overall Design Strategy

The Masterplan has evolved to respond to the unique characteristics and features of the Shelly Bay area, including the relationship to the wider peninsular, hills and harbour. The aspiration is for an integrated development with a connected and shared environment where character is developed in response to topography, cultural heritage and landscape patterns.

Figures DG 1.2.1 and DG 1.2.2 opposite describe the key drivers and features of the plan and include:

- Landscape links and views to the bush-clad backdrop;
- Emphasising the promontory arrival points into Shelly Bay as natural landscape spaces;
- Creating a publicly accessible, continuous waterfront;
- Creating a heart to the area that optimises the existing heritage buildings; and,
- Stepping relationship of built form to foreshore. Lower scale finer grain to Shelly Bay Road, larger scale forms set up and back.

G **DESIGN GUIDANCE**

Objectives

O1 To develop an authentic and cohesive local character that draws on history, activity, heritage buildings and the spectacular foreshore and harbour edge setting.

O2 To ensure each development integrates all relevant design requirements in the best possible way.

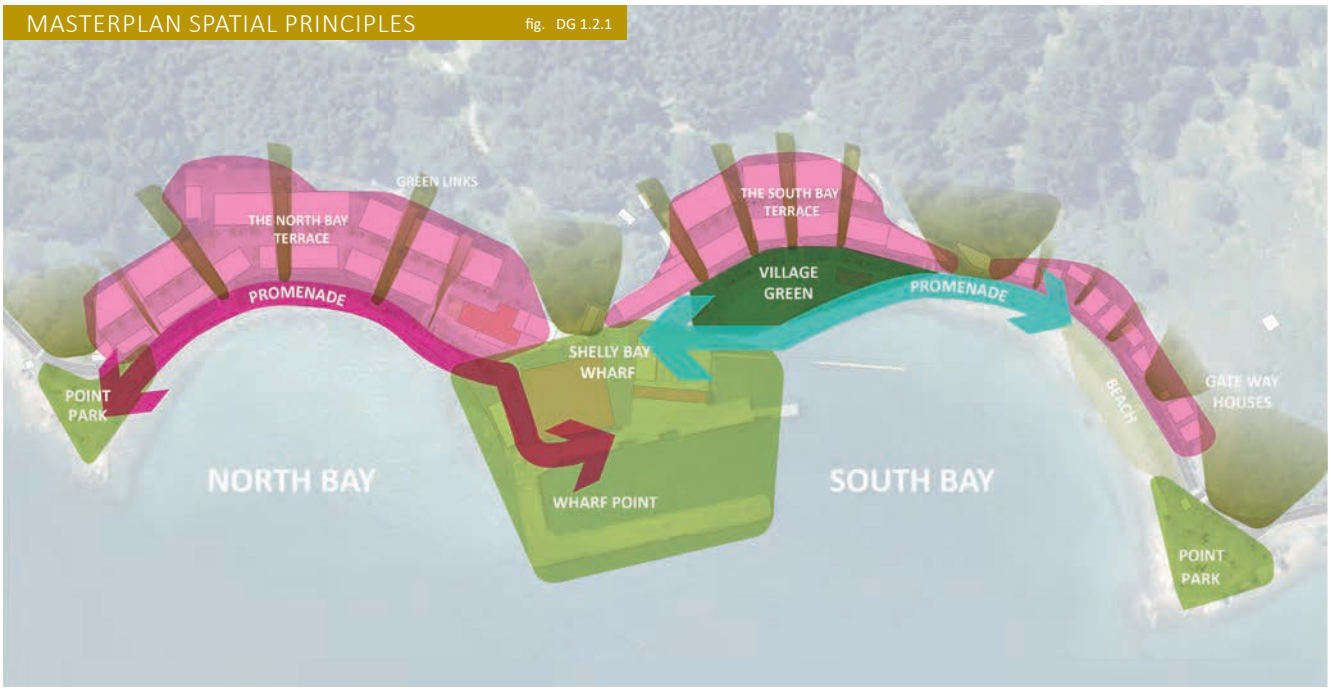
Guidelines

G1 Demonstrate an overall coherence with any design proposition at both the level of the building and at the wider 'whole place' of Shelly Bay.

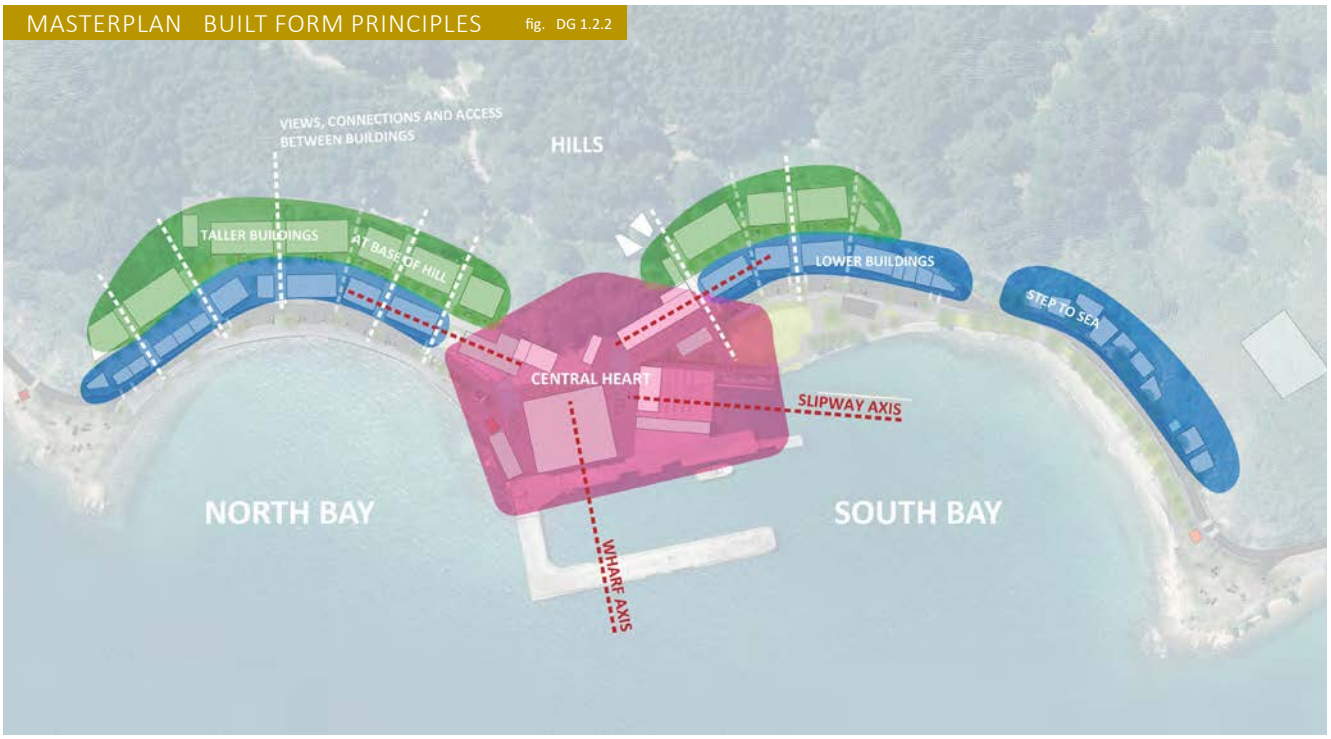
G2 Reuse identified heritage buildings for publicly relevant activities, relocating and adapting buildings where this is feasible to do so in order to acheive an optimal character and public realm outcome.

G3 Foster intricacy and variation with multiple development sites, integrated by a comprehensively designed and coherent public realm.
Small development plots allow for staged development, and will contribute the richness and intricacy of an established village that is built up over time. The quality of the foundations of the public realm – surfaces and furniture - should be consistent across Shelly Bay, while integrating special features.

MASTERPLAN SPATIAL PRINCIPLES fig. DG 1.2.1



MASTERPLAN BUILT FORM PRINCIPLES fig. DG 1.2.2



1

1.2

This image illustrates the intended overall urban form, including the scale and relationship between buildings and open spaces within this complex landscape.

This assists an understanding of the wider development context. While the image shows architectural treatment these indicate approaches to form and scale as well as potential for variation and character, rather than representing final architectural solutions.

SHELLY BAY ILLUSTRATIVE OVERVIEW fig. DG 1.2.3

1.3 Shelly Bay Urban Character

Shelly Bay's unique character is the result of many factors including its separation and containment, its harbour edge location and engagement with nature, and the history of its occupation.

Existing built form and landscape elements have an aesthetic that is worthy of retention. New development should respect and develop that existing aesthetic rather than replace it. It is intended that Shelly Bay will continue to have a unique character that does not exist elsewhere.

Existing aesthetic characteristics to be retained and/or referred to in the future plan include:

- Relatively few building materials and colours;
- Simple and unadorned structures, rather than those with complex detailing;
- No-nonsense - pragmatic, functional and robust buildings and structures;
- Calm and informal rather than hectic and overly planned design;
- Engagement with both maritime and bush landscape;
- Historic structures and evidence of weathering;
- Existing built fabric with simple vernacular forms, predominantly with linear gables and saw-tooth roofs;
- Visual presence of vegetated spurs and promontories;
- Rocky points, constructed bays and industrial wharf; and
- Visual and physical relationship to the vegetated escarpment

Variety and diversity of individual buildings and open space is to be achieved through:

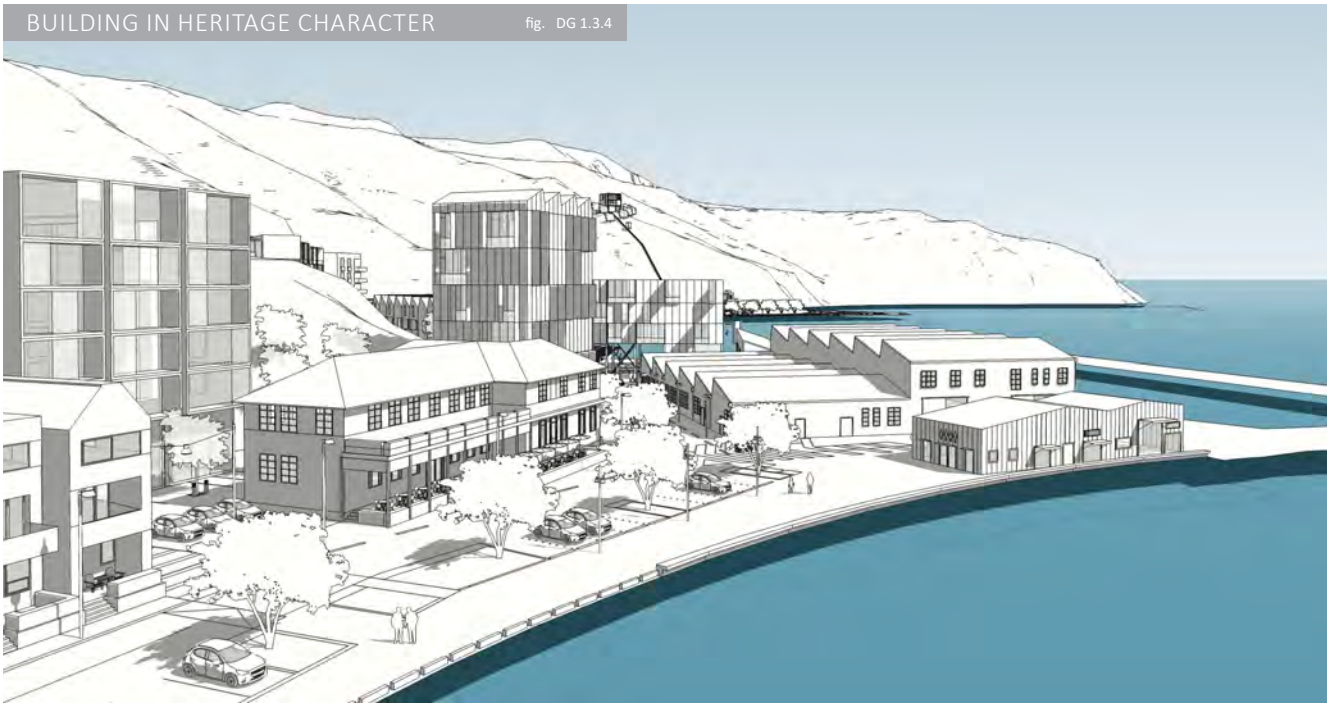
- The idiosyncrasies of individual sites;
- Their programme and individual accommodation requirements;
- The application of a restricted material and colour palette by a variety of architects and designers, articulated in different ways; and
- Individual houses and townhouses each having a unique design and identity.

INDIVIDUAL EXPRESSION AND VARIETY fig. DG 1.3.1

CREATING INTIMACY AND DISCOVERY fig. DG 1.3.2

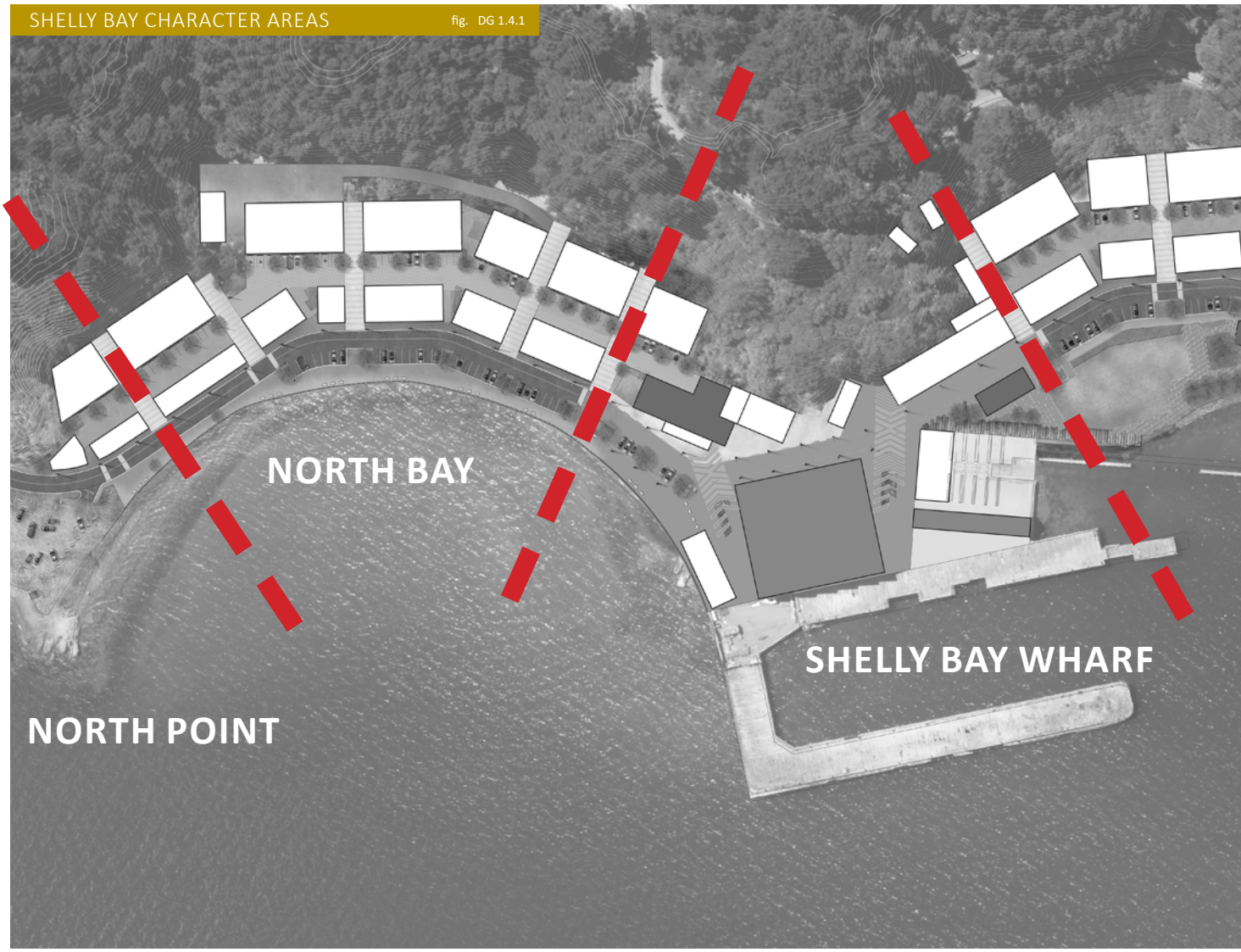
VISUAL AND PHYSICAL CONNECTIONS fig. DG 1.3.3

BUILDING IN HERITAGE CHARACTER fig. DG 1.3.4



STEPPING DOWN TO THE BAY fig. DG 1.3.5

1.4 Proposed Character Areas



The Masterplan establishes the concept of character 'points and bays', each with a related but distinctive waterfront identity and a central Shelly Bay Wharf mixed use heart.

Quality architecture and open space design of this scale requires an equal measure of cohesiveness and variety while maintaining a strong relationship to their surroundings.

Areas 1a, 1b: North and South Points
Two arrival and departure points for Shelly Bay are located to the northern and southern extremities of the area. These have a natural, open space character and provide waterfront access, parking and amenity.

Area 2: North Bay
North Bay is defined by a waterfront promenade that is addressed by residential townhouses and apartments that step up the hill creating a low scale fine grained street edge.

Area 3: Shelly Bay Wharf
The centre of the area on and around the wharf includes a concentrated grouping of heritage

buildings and landscape elements, new buildings and amenities that form a village centre for Shelly Bay.

Area 4: South Bay
South Bay has a less formal water edge than North Bay and includes a village green that allows greater open space and recreational activity between development and the foreshore.

G DESIGN GUIDANCE

Objectives
O1 To develop an authentic local character which draws on history, activity, heritage buildings and the spectacular foreshore and harbour edge setting.

O2 To provide for five distinct but related character areas across Shelly Bay.

Guidelines
G1 Ensure the design of individual developments support the 'parent' Character Area within which they are located and reinforce the important characteristics of each area.

G2 Reuse heritage buildings where this is feasible to do so as described at section 2.3.

G3 Achieve diversity of a street scene or character area through individual design building expression, in conjunction with consistency achieved by respecting the primary urban form characteristics, namely;
- Plot width/depth;
- Height;
- Building line and setback; and
- Building type.

G4 Ensure consistency and coherence of landscape elements, furniture, details, planting and surface treatments across the different Character Areas.

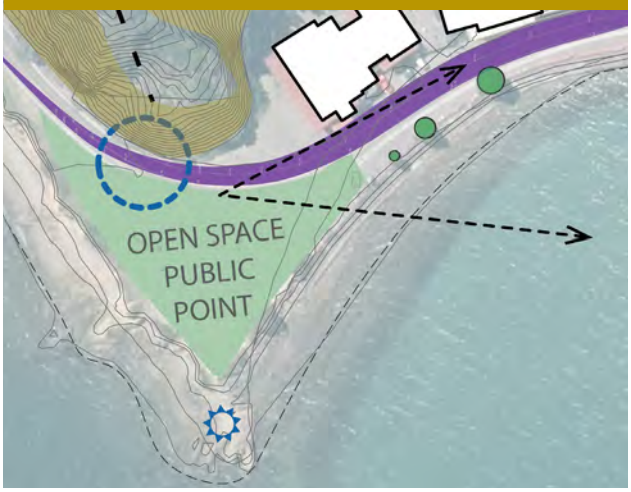
1

1.4

Areas 1a, 1b: North and South Points

NORTH POINT fig. DG 1.4.2

fig. DG 1.4.3



SOUTH POINT fig. DG 1.4.4

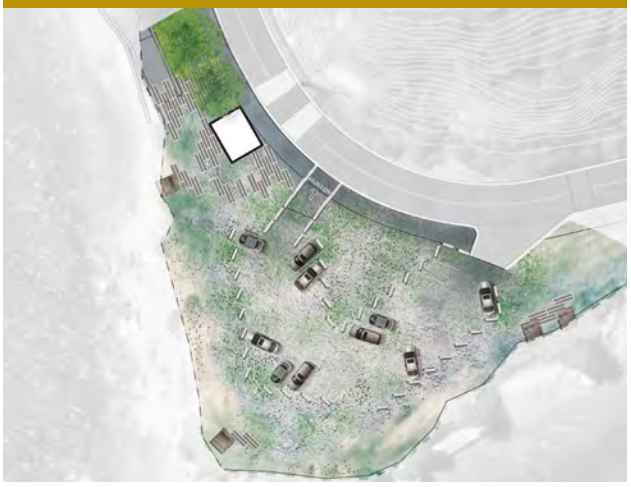
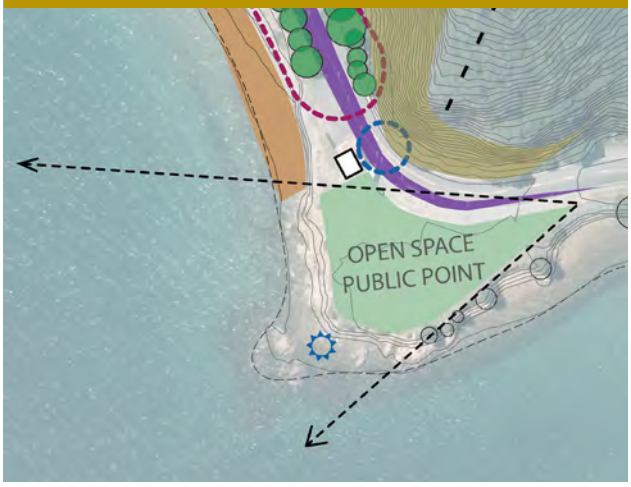


fig. DG 1.4.5



Visual Context

Visually exposed and prominent points define the northern and southern ends to Shelly Bay.

The points establish a strong visual and physical relationship to the hills behind and allow views along the wider peninsula and visual connections to the bays.

Key Features and Landmarks

- Natural, rocky outcrops;
- 'Door step' spaces at the base of the promontories that connect to the foreshore;
- Viewing places with public access, parking, seating and sculpture opportunities;
- Landscape features with low scale coastal planting; and
- Kiosk structures for shelter and interpretative functions.

fig. DG 1.4.6

fig. DG 1.4.7

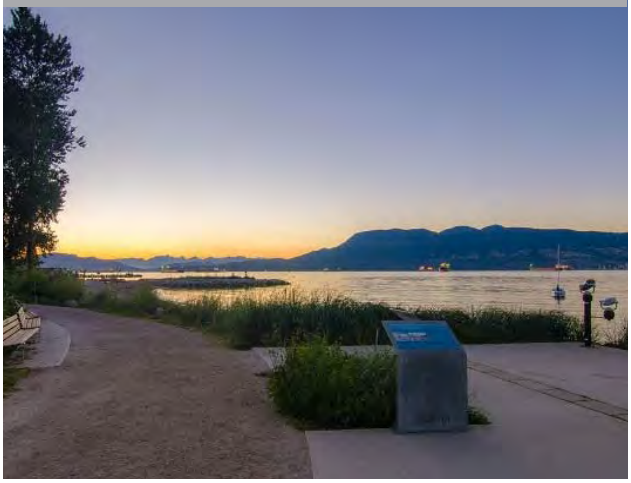


fig. DG 1.4.8

G DESIGN GUIDANCE

Objective

O1 To create memorable and distinct arrival and departure points on the promontories at the northern and southern ends of Shelly Bay.

Guidelines

G1 Retain the promontories as primarily open space with a natural look and feel.

G2 Provide for small kiosk or shelter structures for the purpose of interpretation and wayfinding.

G3 Ensure car parking is integrated into a comprehensive landscape design for each point with an informal, natural approach to surfaces.

G4 Provide for costal ecology restoration with consideration of minimizing impervious surfacing and reintroduction of indigenous native species to support coastal ecological function and biodiversity.

G5 Ensure access for fishing, small water craft and general water recreation including diving.

1

1.4

Area 2: North Bay

Visual Context

North Bay is a visually contained and well defined and 'constructed' setting with a close relationship of development to the water.

The open space of the bay is defined by its regular curvature offset by development that introduces an informal, relaxed edge reflecting the low-key nature of other settlements around the peninsula.

Views through and over the built edge onto the bush clad hills beyond are a strong visual condition.

Key Features and Landmarks

- A high level of public amenity and foreshore access;
- An attractive and inviting continuous promenade;
- Public access, seating, planting, recreational features;
- Local access and through movement;
- Residential character with a foreground of visually distinctive lower scale houses;
- Taller apartment development beyond that presents a visually discrete background to the bay; and
- Visual breaks between buildings and strong presence of the escarpment and ridge beyond.

fig. DG 1.4.10

fig. DG 1.4.11

fig. DG 1.4.12

G DESIGN GUIDANCE

Objective

O1 To create a distinctive North Bay character area as part of, and related to, the wider Shelly Bay identity.

Guidelines

G1 Ensure development establishes a lower scale, finer grain development fronting the promenade as a foreground to the larger scale and grain of development beyond.

G2 Ensure building frontage and roof designs fronting Massey Road create a diverse, attratcive and well-surveilled public realm.

G3 Ensure a continuous promenade is created that integrates with Massey Road and provides a high quality public waterfront setting

1

1.4

Area 3: Shelly Bay Wharf

SHELLY BAY WHARF fig. DG 1.4.13

Visual Context

The historic Shelly Bay Wharf area lies centrally between North and South bays and projects out into the foreshore as a built promontory.

The built nature of the centre contrasts with the natural north and south promontories and is a unique and special place for Shelly Bay.

The wharves provide a position within Shelly Bay where it is possible to look north or south along both bays and the bush-clad escarpment, reinforcing a sense of centrality.

Key Features and Landmarks

- An informal arrangement of historic structures set in open space providing authentic local character;
- An open and accessible waterfront potentially providing ferry access;
- A retained slipway complemented by unique 'special buildings';
- A pedestrian priority place with shared surfaces;
- A mixed use, local centre offering both amenity for residents and a destination for visitors; and,
- Generally low scale buildings to avoid visual dominance over heritage structures.

fig. DG 1.4.14

fig. DG 1.4.15

fig. DG 1.4.16

fig. DG 1.4.17

G DESIGN GUIDANCE

Objectives

O1 To create a distinctive Shelly Bay Wharf character area as a 'heart' and mixed use centre to Shelly Bay.

O2 To maintain and re-purpose notable heritage buildings and structures within an informal and authentic public realm setting.

Guidelines

G1 Maintain the visual and physical dominance of heritage structures as the primary drivers of local character.

G2 Re-purpose heritage structures in a way that maintains their intrinsic and important physical characteristics (see section 2.3). Appropriate uses include:

- Commercial
- Residential
- Hospitality
- Hotel or short term accommodation
- Ancillary amenities to complement the residential activities

G3 Ensure the design of the public realm reflects the area's military history and maritime activity, and is characterised by simple robust materials and elements.

G4 Esnure a pedestrian priority slow speed environment is established utilising shared surface design.

G5 Activate the water's edge with small kiosk public amenity buildings and heritage structures that engage with the spaces around.

G6 Maintain a generally low scale of development and open informal public realm.

1

1.4

Area 4: South Bay

Visual Context

South Bay has a more open geometry with stronger natural expression and less contained feel compared to North Bay. The beach area contributes to this condition. Much of the bay is closely defined by the escarpment with a larger flatter area to the north towards Shelly Bay Wharf.

Views through and over development at the base of the escarpment onto the bush clad hills beyond are important to maintain the sense of drama and connection between land and sea.

Key Features and Landmarks

- A green open space neighbourhood park that creates public invitation and generosity along the foreshore;
- A natural and informal beach with pedestrian, tree-lined access along the top of the beach and bank;
- Low key, individual houses along the bay at the base of the escarpment with views between;
- More intensive development overlooking and set back from the park;
- Community and cafe functions that activate the park and water's edge;
- A high level of public amenity and foreshore access with continuous promenade; and
- Public access, seating, planting, recreational features.

fig. DG 1.4.19

fig. DG 1.4.20

fig. DG 1.4.21

fig. DG 1.4.22

G DESIGN GUIDANCE

Objective

O1 To create a distinctive South Bay character area as part of, and related to, the wider Shelly Bay identity.

Guidelines

G1 Ensure a natural waterfront feel is achieved in contrast to North Bay through provision of a beach and green space with continuous and informal public access.

G2 Ensure the plot grain is carried through and expressed as individual developments, that is, avoid amalgamation of plots.

G3 Establish a lower scale, finer grain development fronting the village green and foreshore as a foreground to the larger scale and grain of development behind.

G4 Ensure a variety of designs between plots is achieved for detached house developments at the base of the escarpment.

G5 Ensure the village green is activated by cafe and community functions, children's play spaces and well-surveilled by any adjacent development.

1.5 General Principles

Proposals for all buildings, streets and spaces contained in the Masterplan should adhere (where relevant) to seven general principles.

fig. DG 1.5.1

fig. DG 1.5.2

fig. DG 1.5.3

P **ESTABLISH A WELCOMING PUBLIC WATERFRONT**

This will be achieved by:

- High quality public realm as an integral part of a successful urban village and an attractor for visitors;
- Waterfront promenade, wharf access and a mix of publicly relevant water edge activities in quality waterfront promenade and spaces, and re-used heritage buildings; and
- Visitor car parking provided in strategic locations, integrated in a way that does not dominate public spaces.

P **CREATE A MEMORABLE PUBLIC DESTINATION**

This will be achieved by:

- A combination of public waterfront, and adaptively re-used heritage buildings;
- Retention and adaptive reuse of the slipway and heritage buildings that give a strong local sense of place and make this place unique;
- Expression of history through the underlying structure of development, the authenticity of cultural references that inform its design; and
- Notable artwork, including potentially land art and art installations.

P **DELIVER A LIVEABLE URBAN NEIGHBOURHOOD**

This will be achieved by:

- Integrating the places, spaces and activities that provide for a sense of community to develop;
- Quality public open spaces and recreational opportunities that will attract and support families and residents of all ages;
- Concentrating residents and provision for visitors to support local services and

activities; and
- Considering CPTED principles in all design, including but not limited to ensuring informal surveillance with appropriate usability, and eliminating opportunities for concealment and entrapment.

P **PROVIDE RESIDENTIAL AMENITY AND CHOICE**

This will be achieved by:
- Providing a mix of unit sizes, types and situations to provide for a variety of residents and respond to changing market expectations;
- Providing housing for the elderly; and
- Integrating a variety of public spaces and places that are available to and support all residents, and which compensate for the smaller private open spaces provided with intensive residential development.

P **CREATE A SENSE OF PUBLIC GENEROSITY**

This will be achieved by:
- The village green in South Bay which is a large green open space for locals to occupy and visitors to enjoy, particularly those with young families and which will enhance cafe, community and commerical functions;
- The wide public promenade in North Bay which encourages people to walk the length of the bay and provides shelter and places to sit along the way; and
- Ensuring private development connects with and addresses the public realm in a positive way.

P **PROMOTE SUSTAINABLE INNOVATION FOR THE FUTURE**

This will be achieved by:
- Comprehensively planned development that optimises urban development within a landscape setting, and integrates a mix of activities and types of residential development;
- Facilitating multi-modal travel, including public transport, cycling and walking;
- Concentration and intensity that provides for compact living; and
- Integrating passive solar design and encouraging active ESD features in all development.

P **ACHIEVE CERTAINTY OF HIGH QUALITY**

This will be achieved by:
- A comprehensive public space plan;
- Masterplan, guidelines and processes to assure quality outcomes; and
- Scope for design flexibility in the plan and guidelines to optimise the type and quality of development as it is implemented over time.

1.6 Public Realm Principles

Objectives and guidelines for the public realm comprising streets and open spaces are detailed at Parts 3 and 4 of this guide. In addition, the principles set out below are to be applied to all public realm proposals.
Public realm proposals are required to be accompanied by a detailed design brief for the further design development of the Public Realm describing how each of these general principles is applied.

fig. DG 1.6.1

fig. DG 1.6.2

P **FORM AND CONCEPT**

- Ensure spaces are connected and shared, publicly accessible environments.
- Detail the Character Areas to be memorable where character is developed in response to site.

P **ENSURE WHOLE OF PUBLIC REALM DESIGN COORDINATION**

- Co-ordinate form and materiality within the Character Areas to achieve character while retaining consistency.
- Ensure consistency and coherence of landscape elements, furniture, details and surface treatments across different areas and along streets, lanes and mews.

P **PROVIDE ACCESSIBILITY AND CHOICE**

- Provide the public with multiple opportunities for how they access and use the precinct.
- Provide for multiple modes of access ensuring Universal Access is achieved wherever practicable.
- Ensure good quality access by private vehicle.
- Provide public amenities (toilets, changing, showers) in an accessible, safe and visible location.

P **PROVIDE SHELTER AND OCCUPATION**

- Provide multiple places for people to sit in various locations where shelter may be obtained in different conditions.
- Retain existing trees where practicable and plant new trees to provide shelter and shade.

P **USE APPROPRIATE MATERIALS AND PLANTING**

- Use robust and durable materials suitable for the coastal situation.

fig. DG 1.6.3

fig. DG 1.6.4

- Reflect and develop the character of the place with selection and use of materials.
- Use native coastal species tolerant of site specific conditions for planting in public space.

P **INTEGRATE ENVIRONMENTAL INFRASTRUCTURE AND SUSTAINABILITY**

- Support ecological function and biodiversity through selection of native coastal species in appropriate collections.
- Undertake ecological repair including removal of weed species and reintroduction of indigenous native species.
- Treat polluted stormwater from roads and parking, in a visible manner where feasible, prior to release into the marine environment.
- Ensure design is resilient to predicted sea level rise and storm surge impacts for life cycle of materials, elements and structures.

P **PROVIDE FOR MAINTENANCE AND SERVICEABILITY**

- Utilise robust and simple materials and structures that are capable of withstanding the marine environment and the rigours of daily use.
- Consider material robustness and life cycle properties in materials selection and design of structures and elements.

P **ENSURE A SAFE ENVIRONMENT FOR USERS AND INHABITANTS**

- Consider CPTED principles in all design, including but not limited to ensuring informal surveillance with appropriate usability, and eliminating opportunities for concealment and entrapment.

1

1.7 Cultural Overlay

Kapakapa kau ana te manu muramura ki te
tai whakarunga
Māwewe tonu ana te motu whāriki o te tai whakararo
Makuru tini e hua ki whakatupua-nuku
Matuatua rahi e hua ki whakatupua-ruheruhe
Pukahu mano e hua ki whakatupua-rangi
Inā te tai hekenga ki runga o Tai Kuru e...
Tihei mouri ora

fig. DG 1.7.1

The redevelopment of Taikuru, also known as Shelly Bay, presents a unique development opportunity for Taranaki Whanui in its endeavours to contribute to the restoration, revitalisation, strengthening and enhancement of the cultural, social and economic well-being of Taranaki Whānui ki Te Upoko o Te Ika.

A range of design and placemaking principles will be incorporated into the final development strategy that will give recognition to Taranaki Whanui as mana whenua and the partnering role it will play in the redevelopment of Shelly Bay/Taikuru.

The following confirms the design and development objectives that will be given consideration in the development of Shelly Bay/Taikuru built and urban form.

The formulation of these principles and their physical implementation has been informed by Port Nicholson Block Settlement Trust (“PNBST”) vision, mission and strategic objectives.

As a guide it is intended an iterative process will be entered into through the conceptual and detailed design process between TWC and PNBST their partners and respective designers.

In developing this guide draws on the seven key principles of Auckland Council, Auckland Design Guide, Te Aranga Principles to provide a framework for organising the key design drivers that will underpin the short to long term design and development strategies for Shelly Bay/Taikuru.

1

1.7

Ki te whakahou, whakapakari
me te whakanikoniko i te ahurea,
papori, rangatiratanga o
Taranaki Whanui ki Te Upoko o Te Ika

To restore, revitalise, strengthen
and enhance the cultural, social
and economic well-being of
Taranaki Whanui ki Te Upoko o Te Ika

The main focus for the Trust in terms of ensuring the Moemōea is upheld and followed through is the well-being of its people

1 Mana Rangatiratanga: Authority
Recognise and respect the status of Taranaki Whanui as mana whenua

- Identify the primary mana whenua group as well as wider mana whenua interests in any given development.

2 Whakapapa: Names and Naming
Celebrate the names of importance in place to Taranaki Whanui

- Mana whenua will establish the correct use of ancestral names (including macrons) and their application within the development.
- Establish interpretive signs and panels at key destinations.
- The telling of stories through interpretive forms at key destination points and locations.

3 Taiao: The Natural Environment
Protect, maintain and/or enhance the natural environment

- Establish indigenous vegetation on the view corridors to the escarpment and hillsides behind the development (aligned on the lanes).
- Re-establish local bio-diversity with indigenous coastal species within rain gardens, at the coastal edge, including on the point parks, and on the escarpment behind the development.
- Integrate indigenous planting within the parking mews, albeit that this might be in combination with some exotic species to allow for shade and light.
- Retention of existing native fauna and establishment of new areas of native species relative to the location.

fig. DG 1.7.2

4 Mauri Tu: Environmental Health
Protect, maintain and/or enhance environmental health

- Integrate technologies in built form and infrastructure that will ensure the long term sustainability of our environment through:
  - Stormwater disposal
  - Energy conservation
  - Building materials/ materiality
  - Innovative sustainable waste management
  - Rain gardens
  - Monitoring programmes

5 Mahi Toi: Creative Expression

Capture and express Taranaki Whanui narratives in a creative and appropriate way

- Utilise public art to tell the stories of those who have gone before and the stories of Taranaki Whanui and their tūpuna and the future.
  - The creation story
  - Ngake and Whataitai
  - The arrival of Taranaki Whānui and what's happened to date.
  - The future vision of Taranaki Whānui
- Consider contemporary expression of narratives.
- Reflect Taranaki Whanui identity in shared landscapes and open spaces with means including:
  - Materiality
  - Patten and form
  - Name
  - Interpretative forms
  - The Tenths concept – showing how a tenth division might be demonstrated
- Express and celebrate arrival by land, sea, and air.
- Formation of waharoa and/or Pou whenua.

6 Tohu: The Wider Cultural landscape

Acknowledge the sites cultural landmarks and locations of significance to Taranaki Whanui whom are responsible as Kaitiaki to those Iwi and hapu who have gone before.

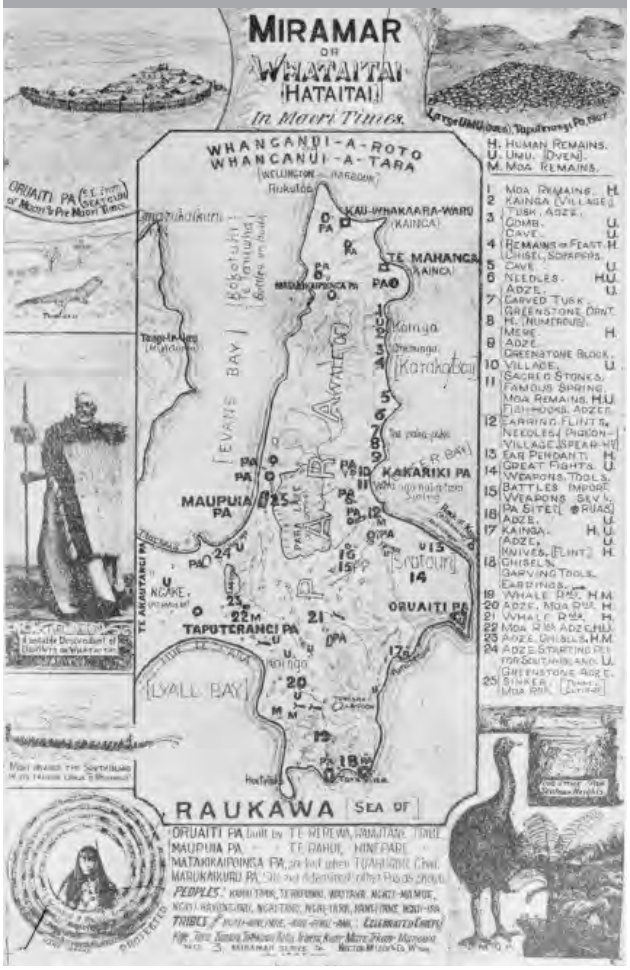
- Provide interpretative material identifying site specific and locational linkages to wāhi tapu, maunga, awa, puna, mahinga kai and ancestral kainga

7 Ahi Kā: The Living Presence

Ensure Taranaki Whanui have an enduring presence at Shelly Bay

- Celebrate inclusivity through:
  - Public places.
  - Name and place.
  - Providing opportunities for current and future generations.

fig. DG 1.7.3



2 BUILT FORM

2.1 The Regulating Plan

The Regulating Plan controls the spatial and built form outcomes for Shelly Bay. It identifies the position and alignment of streets, spaces and private development blocks and buildings as described in detail by the masterplan.

Development Blocks and Massing Plan

The development block boundary defines the limits of each private land parcel and the adjacent public spaces (street, open space or footpath).

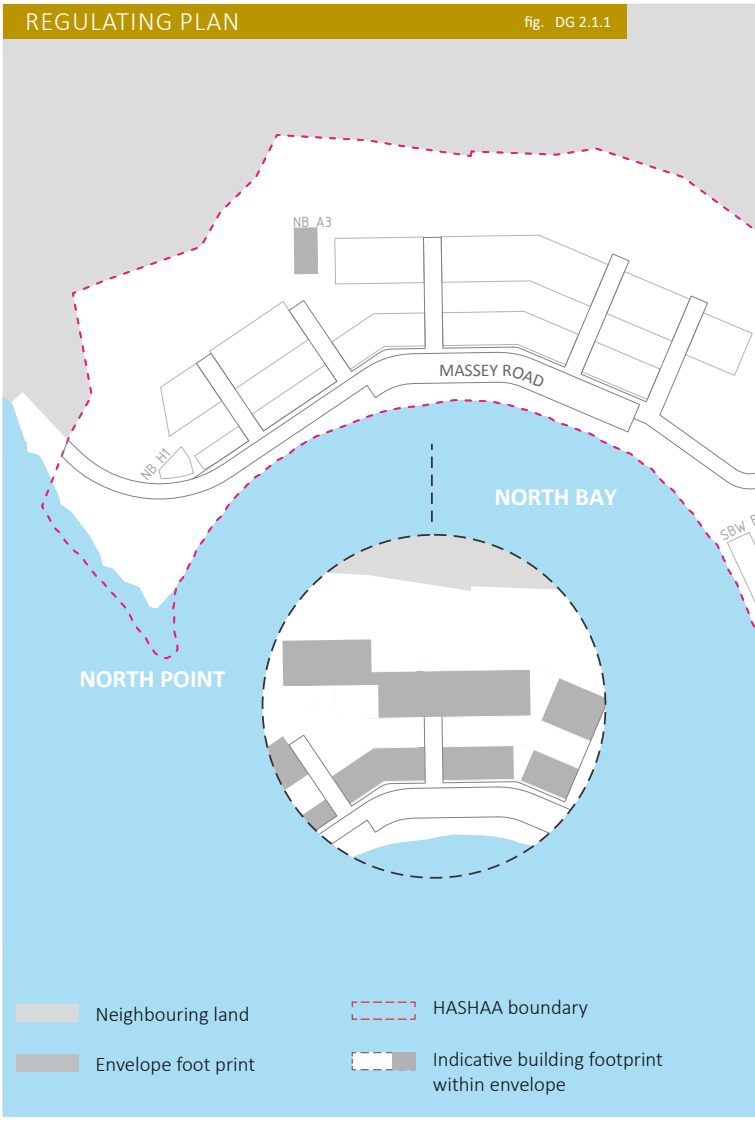
Building Lines

Each development is to have a clearly defined building line that creates a disciplined urban edge according to the vision of the Masterplan. The building line establishes a relationship between individual buildings and their street or open space setting and contributes to the overall future Shelly Bay character.

Scope for adjustment of the precise location of building lines is anticipated and provided for on page 2 of the design guide.

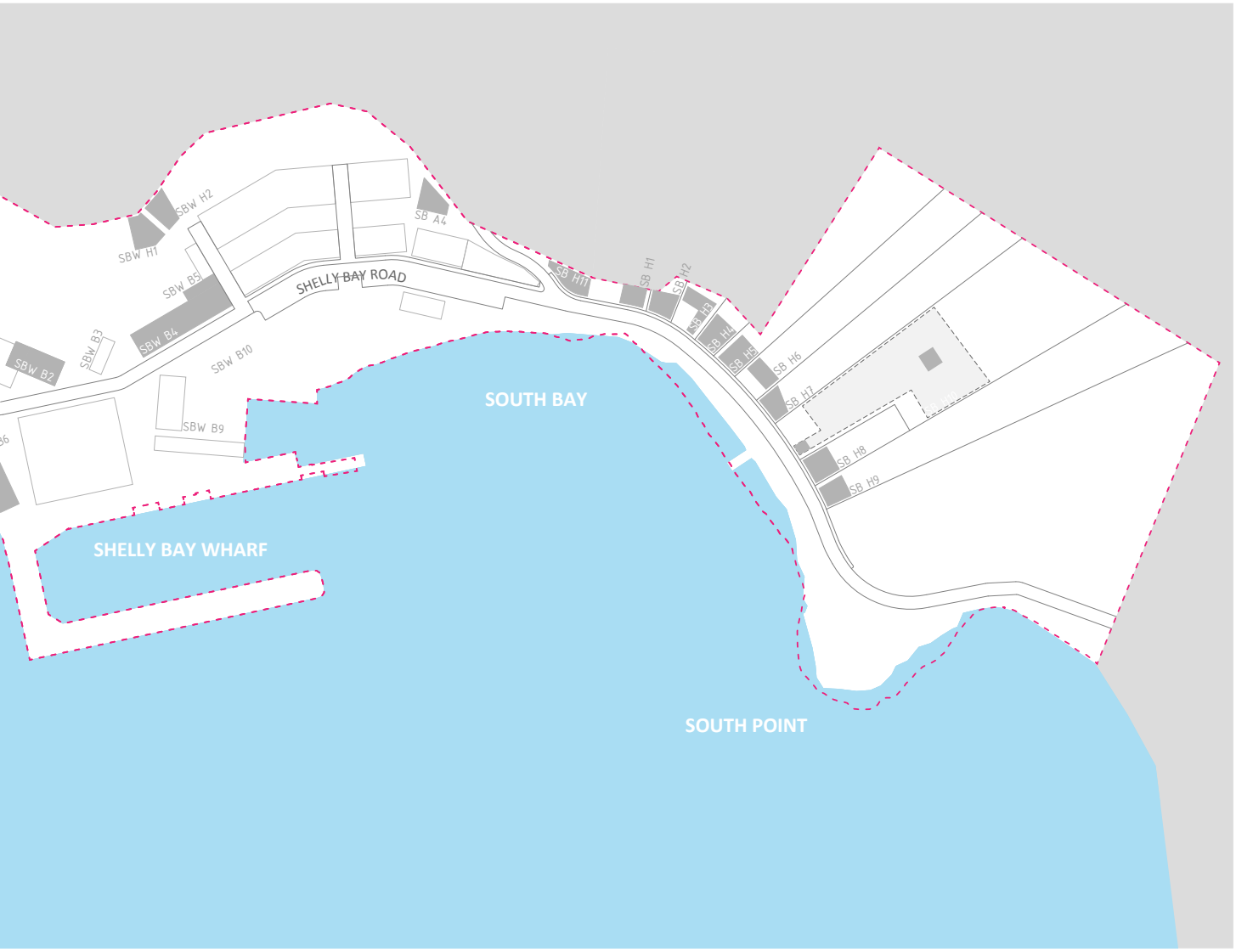
Each building is to respect the common building line. Designers are required to specify in detail the building line on a block-by-block basis. The exact alignment of this will take account of:

- Building Types (section 2.2);
- The required privacy strip for each street type (Part 3 Streets); and
- Other contextual factors (e.g. trees) to be worked around.



T **TECHNICAL SPECIFICATION**

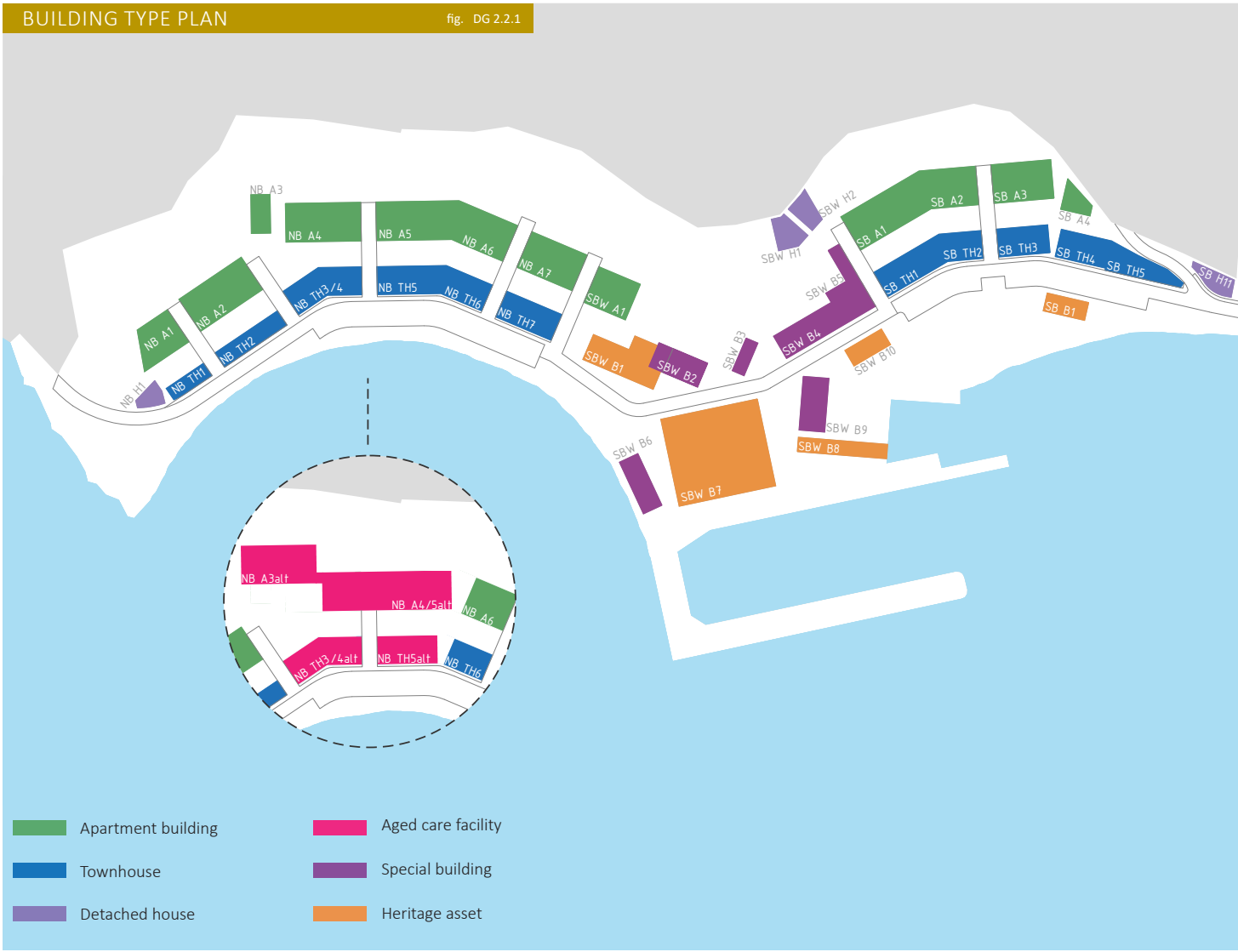
Each parcel is defined according to the specified block boundary in the plan above. Further requirements are specified according to Building Types and section 2.4 developable envelopes.


SBW H1
SBW H2
SB A4
SHELLY BAY ROAD
SBW B5
SBW B4
SBW B3
SBW B2
SBW B10
SBW B9
SB H11
SB H1
SB H2
SB H3
SB H4
SB H5
SB H6
SB H7
SB H8
SB H9
SOUTH BAY
SHELLY BAY WHARF
SOUTH POINT

2

2.2 Building Types

BUILDING TYPE PLAN fig. DG 2.2.1



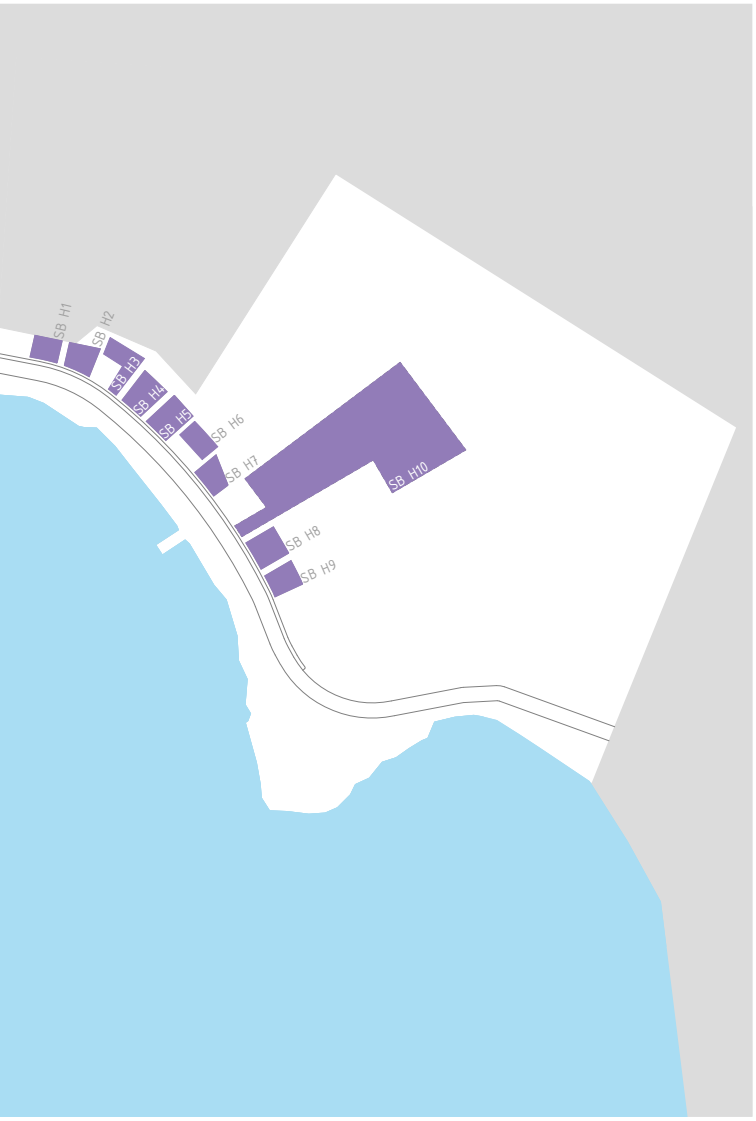
The Masterplan comprises a range of development building types. Each has distinctive characteristics and unique design parameters that are identified in this section.

Building types are located within development blocks that may include more than one building and varied building types. Each development block is bounded on each side by either public realm or adjoining private boundaries. The development block boundary equates with the limits of private ownership.

T **TECHNICAL SPECIFICATION**

Developers are required to adhere to the development block boundary as specified in the Masterplan to ensure that plans for adjacent public infrastructure and utility services can be implemented. The design of each development will be required to adhere to the principles for the corresponding building type.

The building footprint within each building type indicates the maximum extent of the building footprint. Detailed building design may lead to



adjustment of these footprints, however must remain consistent with general arrangement and intention of the guidelines.

G DESIGN GUIDANCE

Objectives

O1 To give effect to the Masterplan and its intended outcomes.

O2 To develop high quality and high amenity accommodation and open spaces.

O3 To ensure all building development contributes to a high quality public realm.

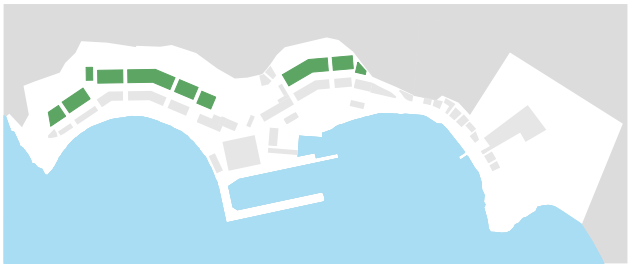
O4 To acheive an environment with buildings that are restrained, understated and not attention seeking, and spaces that are attractive and express an authentic sense of place.

O5 To achieve high quality design that is aesthetically coherent, demonstrates both visual richness and order and a sophisticated response to site and context

2

2.2

Type 1: Apartment Buildings



TYPE 1: APARTMENT BUILDINGS fig. DG 2.2.2

Multilevel apartment buildings with integrated car parking within the North Bay and South Bay precincts.

These buildings set at the base of the hill and behind lower scale townhouses and detached houses. Building footprints are dimensioned to assist and encourage most apartments to have a view towards the harbour. To avoid a monolithic scale they have restricted footprints and are to have a vertical emphasis and articulation. Their look and feel should be restrained, understated and unpretentious rather than attention seeking. A guideline for mid to dark coloured materials is intended to result in these buildings receding into the hillside behind.

PROTRUSIONS fig. DG 2.2.3

G **DESIGN GUIDANCE**

Guidelines

G1 Reduce the horizontal scale of apartment buildings by ensuring:

- These do not have a frontage width wider than 35m; and
- They are separated by at least 4m from another apartment building on the site.

G2 Allow protrusions beyond the footprint envelope above first floor level for balconies, bay windows and other building elements, these can include:

- 2m of unenclosed space beyond the envelope on the front and rear facades;
- 1m of unenclosed or enclosed space beyond the envelope, up to 30% of the surface area on the side facades.

G3 Provide a distinct vertical recess or step to create articulation of form into two unequal width elements in any apartment buildings with a frontage width of over 21m.

- The recess should be between 0.5m and 3.5m wide and at least 2m deep, or step at least 2m. The recess or step should be accompanied by a roof height variation of at least 2m.

G4 Provide a minimum 6m ground to first floor interstorey height. Elevate the first floor to improve views and outlook from lower level apartments, and to allow a contingency for sea level rise, car stackers, storage, and repurposing for alternative uses.

G5 Elevate ground floor habitable rooms about 600 to 1000mm above the footpath to improve privacy and to allow a contingency for sea level rise. Garages and other non- habitable rooms are excluded from this requirement.

FACADE ARTICULATION fig. DG 2.2.4

FACADE ARTICULATION fig. DG 2.2.5

FACADE ARTICULATION AT GROUND fig. DG 2.2.6

G6 Ensure roofs are not visible from the ground. Parapets on apartment buildings should be horizontal.

G7 Articulate side facades with windows and openings, to a maximum of 50% to avoid overglazing, with these openings located to maintain visual privacy between neighbouring dwellings.

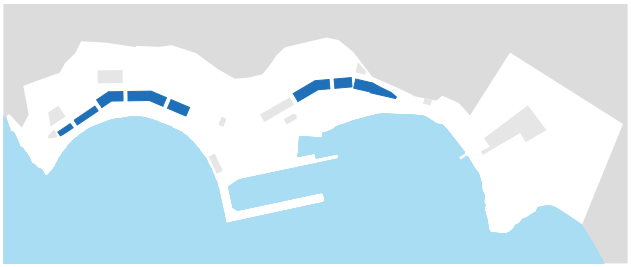
G8 Articulate ground level facades to carparking garages to contribute to the visual amenity of the Lanes and Mews. Green walls and porous screens are encouraged.

G9 Provide one carparking space for each dwelling unit.

2

2.2

Type 2: Town Houses



TYPE 2: TOWN HOUSES fig. DG 2.2.7

Multilevel townhouse buildings with integrated car parking are located within the North Bay and South Bay precincts. To create variation and diversity they are to have a vertical emphasis and articulation that requires differentiation and individual identity. Freedom is allowed to encourage and facilitate diversity and each dwelling within a townhouse building must have an individual identity and should be noticeably visually different from its immediate neighbours. Their look and feel should be restrained, understated and unpretentious rather than attention seeking. A requirement for lighter coloured materials is intended to result in these dwellings being more obvious than the apartments behind. Entrance and public realm interface requirements help to establish a casual and informal neighbourhood character that encourages social interaction.

HEIGHT VARIATION fig. DG 2.2.8

G DESIGN GUIDANCE

Guidelines

G1 Reduce the horizontal scale of townhouse buildings by ensuring:

- these do not have a frontage width of more than 28m; and
- they are separated by at least 2m from another townhouse building on the same site.

G2 Allow glimpse views to the harbour from dwellings behind by lowering a portion of the building by at least one storey in locations identified by the Masterplan (section 4.4).

G3 Provide within any townhouse building one dwelling that has a frontage width that is noticeably different from any other in the building for around one in every three townhouses. This is to create variety and express the identity of individual townhouses.

G4 Articulate rooftops to reduce bulk and assist with establishing individual townhouse identity, and give each dwelling its own individual roof.

G5 Ensure each townhouse has a distinct identity and is noticeably different from its immediate neighbours by employing variation in façade, roofscape and hard landscape composition and articulation, and materials and colour.

G6 Set back the front façade 1m from the main road in locations as identified in the Masterplan, and provide planting within this setback.

G7 Allow protrusions beyond the footprint envelope for balconies, bay windows and other building elements that are located to avoid conflict with vehicles and can include:

- enclosed space extending up to 1m beyond

PROTRUSIONS fig. DG 2.2.9

OUTDOOR LIVING fig. DG 2.2.10

CAR PARKING FROM REAR fig. DG 2.2.11

ENTRANCE PORCH fig. DG 2.2.12

the envelope on the rear/mews and lane facades, and assuming the space is one storey high, comprising not more than 15% of the surface area; and

- open balconies and canopies that protrude not more than 1m from the envelope for non-residential activities.

G8 Articulate side facades with windows and openings, to a maximum of 20% of the wall area to avoid overglazing, with these openings located to maintain visual privacy between neighbouring dwellings.

G9 Use glass balustrades with discretion to ensure these do not visually dominate building frontages and that the intended informal coastal urban character is achieved.

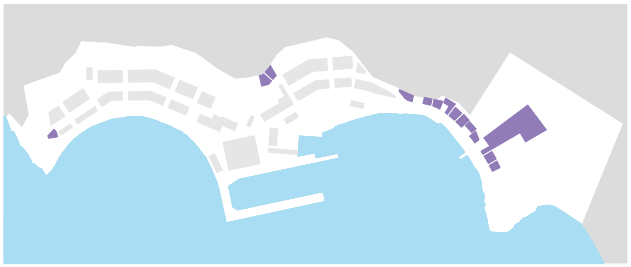
G10 Elevate ground floor habitable rooms about 600 to 1000mm above the footpath to improve privacy and to allow a contingency for sea level rise. Garages and other non-habitable rooms (including any café or service retail use) are excluded from this requirement.

G11 Orientate the front entrance of all townhouses to the main road, and locate the entrance within a recessed porch with shelter over.

G12 Provide a terrace, verandah or similar space at the ground floor frontage that may include the entrance porch and which residents can occupy and from which engage with passersby. This should have a minimum area of 9m², a minimum depth of 2m, a floor level of about 450 to 1000mm above footpath level and boundary treatment that allows good visual connection with the street edge.

G13 Provide one carparking space for each townhouse, accessing this from the rear Mews unless otherwise provided for on the Masterplan.

2



2.2

Type 3: Detached Houses

TYPE 3: DETACHED HOUSES fig. DG 2.2.13

Individual standalone houses are set along the main road. To create variation and diversity they are to have a vertical emphasis and articulation that requires differentiation and individual identity. Their look and feel should be restrained, understated and unpretentious rather than attention seeking, although more freedom is allowed to encourage and facilitate diversity. Entrance and public realm interface requirements are imposed to establish a casual and informal neighbourhood character that encourages social interaction. Garage and car parking restrictions are imposed to avoid car parking being dominant.

G **DESIGN GUIDANCE**

Guidelines

G1 Reduce the footprint of a fourth level by ensuring it has a frontage width no greater than 50% of the floor below.

G2 Ensure the total floor area of any house or single detached house that contains more than one household unit are restricted to a total of 320m² per site.

G3 Set back the front façade 1m from the main road in locations as identified in the Masterplan, and provide planting within this.

G4 Provide a facade setback of either 1m or 2m from the side boundary as required in the Masterplan, and provide planting within this.

G5 Articulate side facades with windows and openings to a maximum of 50% of the wall area, with these openings located to maintain visual privacy between neighbouring dwellings.

G6 Use glass balustrades with discretion to ensure these do not visually dominate building frontages and that the intended informal coastal urban character is achieved.

INDIVIDUALITY fig. DG 2.2.14

PROTRUSIONS fig. DG 2.2.15

ENTRANCE PORCH fig. DG 2.2.16

OUTDOOR LIVING fig. DG 2.2.17

G7 Allow protrusions beyond the footprint envelope for balconies, bay windows and other building elements that can include:

- 1m of unenclosed or enclosed space beyond the envelope into the 2m side facade setback up to 30% of the surface area

G8 Ensure each house is noticeably visually different from its immediate neighbours. Achieve this through facade and roof articulation, choice of materials and colour, and front yard landscaping.

G9 Elevate ground floor habitable rooms between 600 and 1000mm above the footpath to improve privacy and to allow a contingency for sea level rise. Garages and other non-habitable rooms are excluded from this requirement.

G10 Orientate the front entrance of all detached houses to the main road, and locate the entrance within a recessed porch with shelter over.

G11 Provide a terrace, verandah or similar space at the ground floor frontage that may include the entrance porch and which residents can occupy and engage with passersby. This should have a minimum area of 9m², a minimum depth of 2m, a floor level 450-1000mm above footpath level and boundary treatment that allows good visual connection with the street edge.

G12 Provide one carparking space for each detached house or dwelling unit within a detached house

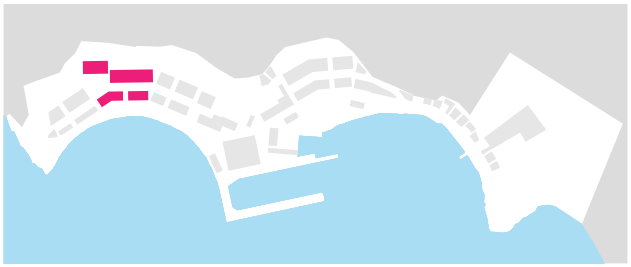
G13 Locate garage doors to prevent cars parking in front of houses, across the footpath between the kerb and garage door.

G14 Limit garage doors to not more than 4.8m at the frontage of any detached house.

2

2.2

Type 4: Aged Care Facility



TYPE 4: AGED CARE FACILITY fig. DG 2.2.18

The aged care facility includes multilevel apartment buildings with integrated communal facilities and car parking.

These buildings set adjacent to Massey Road, at the base of the hill and on the elevated site that previously accomodated the Hospital. Building footprints are dimensioned to assist and encourage most apartments to have a view towards the harbour. To avoid a monolithic scale they have restricted footprints and are to have a vertical emphasis and articulation. Their look and feel should be restrained, understated and unpretentious rather than attention seeking. A requirement for mid to dark coloured materials is intended to result in these buildings receding into the hillside behind.

G **DESIGN GUIDANCE**

Guidelines

G1 Ensure each dwelling is noticeably visually different from its immediate neighbours. Achieve this through facade and roof articulation, choice of materials and colour, and front yard landscaping.

G2 Set back the front façade 1m from the main road in locations as identified in the Masterplan, and provide planting within this setback.

G3 Allow protrusions beyond the footprint envelope for the rear buildings at first floor level and above for balconies, bay windows and other building elements that can include:

- unenclosed space up to 2m beyond the footprint envelope on the front and rear facades ;
- unenclosed or enclosed space up to 1m on the side facades, comprising not more than 30% of the surface area

G4 Allow protrusions beyond the footprint envelope for the front buildings above 4.8m from ground level for balconies, bay windows and other building elements that can include:

- 1m of unenclosed or enclosed space beyond the envelope on the side facades (lanes) up to 15% of the surface area

G5 Provide a distinct vertical recess or step to create articulation of form into two unequal width elements in any apartment buildings with a frontage width of over 21m.

- The recess should be between 0.5m and 3.5m wide and at least 2m deep, or step at least 2m. The recess or step should be accompanied by a roof height variation of at least 2m.
-

G6 Provide a minimum 6m ground to first floor interstorey height for rear buildings. Elevate the first floor to improve views and outlook from lower level apartments, and to allow a contingency for sea level rise, car stackers, storage, and repurposing.

G7 Elevate ground floor habitable rooms in front buildings about 600 to 1000mm above the footpath to improve privacy and to allow a contingency for sea level rise. Garages and other non- habitable rooms are excluded from this requirement.

G8 Ensure roofs on rear buildings are not visible from the ground. Parapets on apartment buildings should be horizontal.

AGED CARE FACILITY fig. DG 2.2.19

AGED CARE FACILITY fig. DG 2.2.20

G9 Articulate side facades with windows and openings, to a maximum of 50% for rear buildings and 20% for the front buildings to avoid overglazing. Ensure these openings are located to maintain visual privacy between neighbouring dwellings.

G10 Articulate ground level facades to carparking garages to contribute to the visual amenity of the lanes and mews. Green walls and porous screens are encouraged.

G11 Articulate rooftops on front buildings to reduce bulk and assist with establishing individual townhouse identity, and give each dwelling its own individual roof.

G12 Provide a front entrance for all apartments fronting Massey Road, and locate the entrances within a recessed porch with shelter over.

G13 Provide a terrace, verandah or similar space at the ground floor frontage, of front buildings, that may include the entrance porch and which residents can occupy and engage with passersby. This should have a minimum area of 9m², a minimum depth of 2m, a floor level 450-1000mm above footpath level and boundary treatment that allows good visual connection with the street edge.

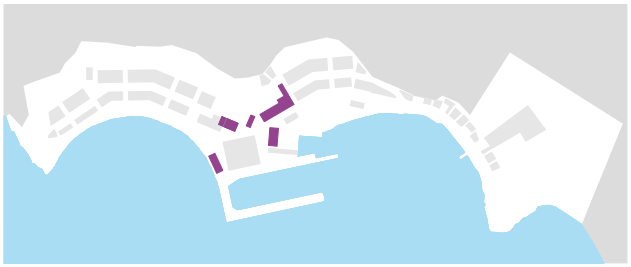
G14 Provide car parking for each apartment as follows:

- Care suites no requirement
- Studio apartments no requirement
- 1 bedroom apartments one carpark for every three apartments
- 2 bedroom apartments one carpark for every two apartments
- 3+ bedroom apartments one carpark for every apartment

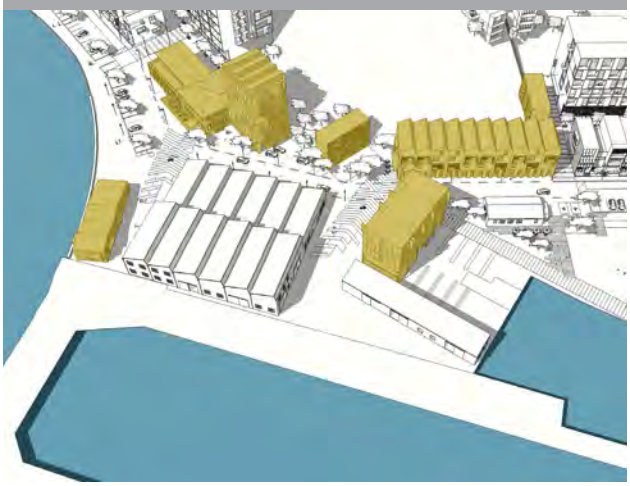
2

2.2

Type 5: Special Buildings



TYPE 5: SPECIAL BUILDINGS fig. DG 2.2.21



A small number of new special buildings are located in the Shelly Bay Wharf precinct. These are:

- Mixed Use building
- Boutique Hotel Annexe – located adjacent to the relocated Building 07 (refer Section 2.3)
- Carstacker buildings
- Wharf Pavilion
- Slipway Building – located above the northern end of the Slipway

MIXED USE BUILDING Fig: DG 2.2.22

MIXED USE BUILDING Fig: DG 2.2.23

G MIXED USE BUILDING GUIDANCE

Guidelines

G1 Articulate the facade to ensure individual dwellings are identifiable, with the overall facade appearing visually as one building.

G2 Provide a minimum 6m ground to first floor interstorey height. Elevate the first floor to improve views and outlook from lower level apartments, and to allow a contingency for sea level rise and repurposing for alternative uses.

G3 Articulate side facades with windows and openings to a maximum of 20% of the wall area, with these openings located to maintain visual privacy between neighbouring dwellings.

G4 Allow protrusions beyond the footprint envelope at 6m above ground level and above for balconies, bay windows and other building elements that can include:

- unenclosed or enclosed space extending up to 1m beyond the envelope on the lane facades, comprising not more than 15% of the surface area.

G5 Provide a recessed colonnade with a minimum clear width of 1.8m along the Shelly Bay Road frontage

G6 Provide a front entrance accessed from the colonnade for all dwellings. Locate this entrance within a recessed porch with a minimum depth of 1m and a minimum width of 1.2m.

G7 Provide one carparking space for each townhouse, accessing this from the rear Mews unless otherwise provided for on the Masterplan.

G8 Locate and design servicing, storage and rubbish facilities to be discreet and unobtrusive.

BOUTIQUE HOTEL fig. DG 2.2.24

BOUTIQUE HOTEL fig. DG 2.2.25

CAR STACKER fig. DG 2.2.26

G9 Provide for non-residential/commercial uses in the ground floor and colonnade.

G10 Provide multiple entries and windows at not more than 12m centers to the ground floor to provide visual and physical access to non-residential activity.

G BOUTIQUE HOTEL ANNEXE GUIDANCE

Guidelines

G1 Allow protrusions beyond the footprint envelope at first floor level and above for balconies, bay windows and other building elements that can include:

- enclosed space extending up to 1.5m beyond the envelope on the rear/mews and lane facades, and assuming the space is one storey high, comprising not more than 30% of the surface area;
- open balconies and canopies that protrude not more than 1m from the envelope.

G2 Articulate ground level facades to carparking garages to contribute to the visual amenity of the Lanes and Mews. Green walls and porous screens are encouraged.

G3 Locate and design servicing, storage and rubbish facilities to be discreet and unobtrusive.

G CARSTACKER BUILDING GUIDANCE

Guidelines

G1 Articulate the building's facade to be cohesive and appear visually as one building.

G2 Express structure and functional systems as a feature of the building.

G3 Employ robust facilities, materials and systems that are suitable for this exposed marine environment.

2

2.2

Type 5: Special Buildings (Continued)

WHARF PAVILION fig. DG 2.2.27

WHARF PAVILION fig. DG 2.2.28

G **WHARF PAVILION GUIDANCE**

Guidelines

G1 Aim for a simple wharf shed character with a generous single storey scale.

G2 Use for activities that support the public occupation of the spaces around, including a public toilet facility.

G3 Open building to the public realm on all sides.

G4 Provide for public access along the water's edge.

G5 Locate and design servicing, storage and rubbish facilities to be discreet and unobtrusive.

G **SLIPWAY BUILDING GUIDANCE**

Guidelines

G1 Ensure the building covers the entire allowable footprint. This is to ensure a desirable relationship to the Slipway.

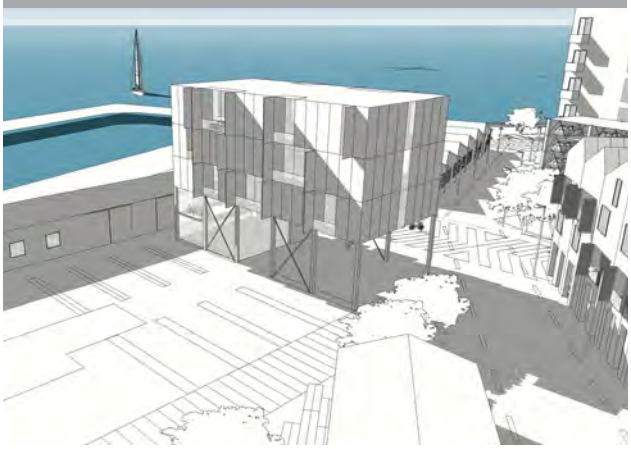
G2 Ensure roofs are not visible from the ground. Parapets on apartment buildings should be horizontal.

G3 Articulate facades with windows and openings to a maximum of 50% of the wall area, with these openings located to maintain visual privacy between neighbouring dwellings.

G4 Ensure the ground level facades are typically transparent and designed to contribute to the visual amenity of the public open space.

G5 Provide outdoor living space in accordance with Section 2.7. In addition to this, outdoor living spaces here should be recessed into the building facade.

SLIPWAY BUILDING Fig: DG 2.2.29



SLIPWAY BUILDING Fig: DG 2.2.30

G6 Configure and design ground floor to provide public access and views through to the slipway.

G7 Utilise exterior glazing to ground floor level to facilitate views through the building.

G8 Locate and design servicing, storage and rubbish facilities to be discreet and unobtrusive.

2

2.3 Heritage Assets

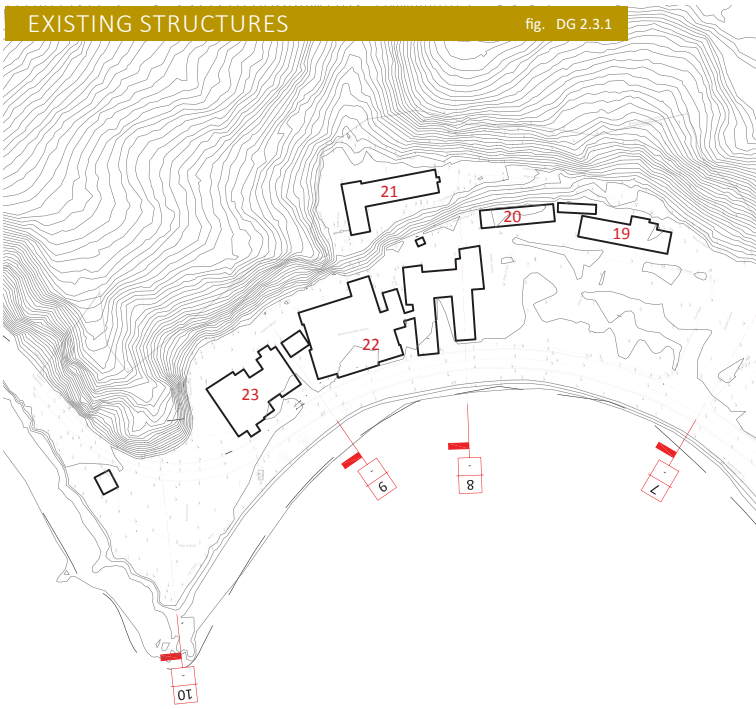
These guidelines offer a general overview and highlight matters to be considered when contemplating and implementing work on places of historic heritage value.

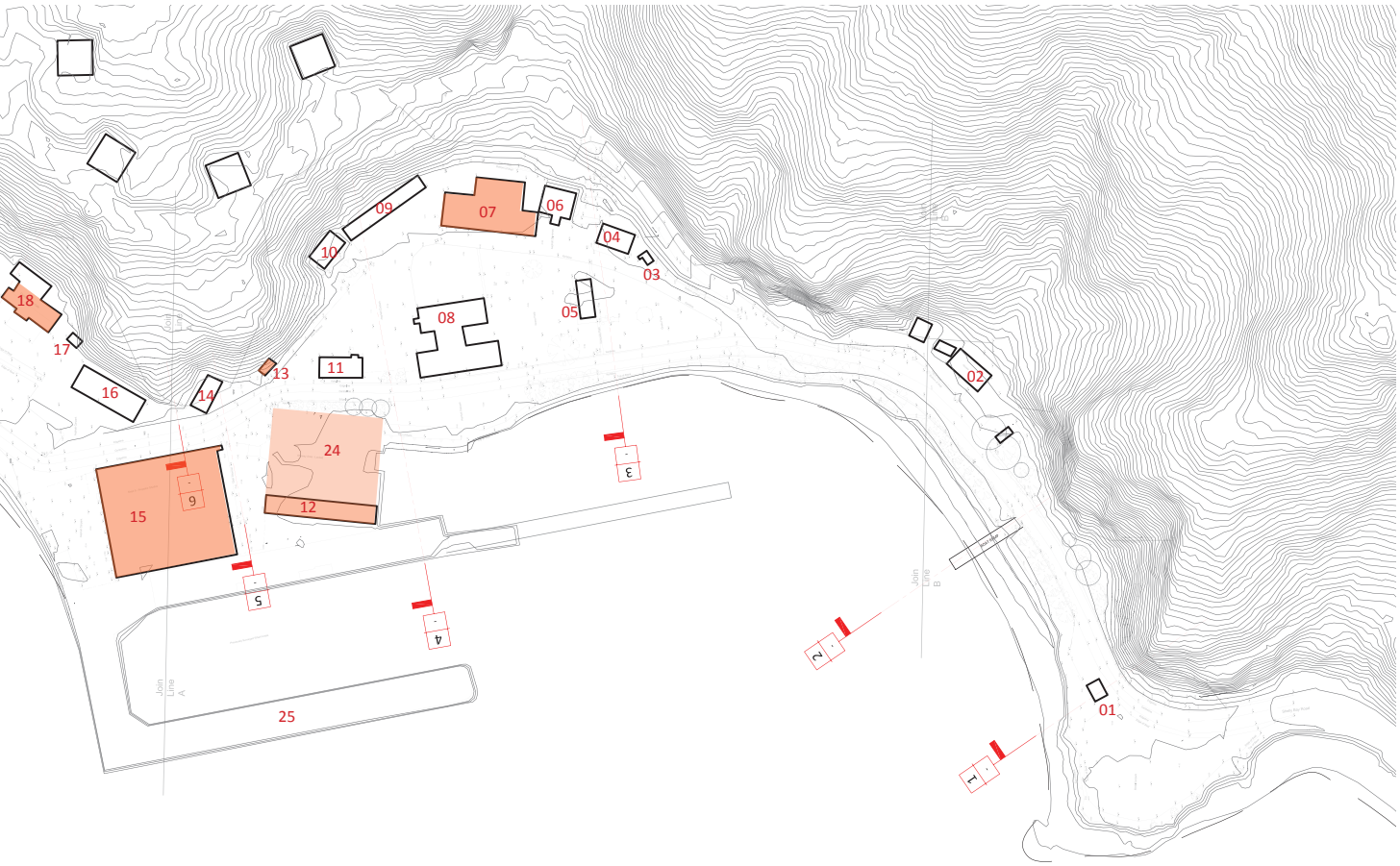
When contemplating work on a place of heritage value it is important to have a clear understanding of the values of the place.

A clear definition of the aim of the work anticipated should be planned that does not lessen those values. The processes of conservation and use of places of value should be informed by research, recording, assessment, and planning.

The heritage assets planned to be retained are illustrated to the right and identified with pink blocks.

EXISTING STRUCTURES fig. DG 2.3.1





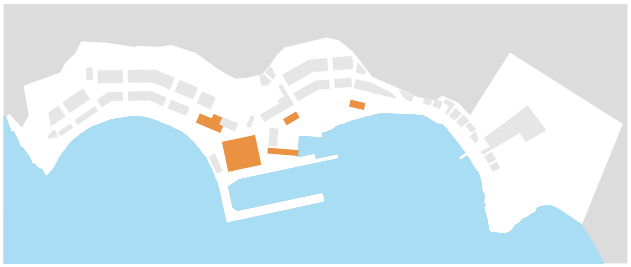
Existing Structures:

01 Guard House
02 Base HQ & Officer's Accommodation
03 Other Ranks Transit Hut
04 Officer's Mess Accommodation Annex
05 Officer's Mess Laundry Bldg.
06 Officer's Mess Games Room
07 Officer's Quarters and Mess
08 Studio 2 - HQ Studios
09 South Bay Garages
10 Library
11 Squash Court - Pixel Paint
12 Shipwrights Bldg.
13 Out Building
14 Barack Warden Store
15 Shed 8 - Propeller Studios
16 Studio 3 - Artisan Screen Prints
17 Transformer Bldg.
18 The Submarine Mining Bldg.
19 Laundries & Boiler House
20 North Bay Garages
21 Old Hospital - Bayview Art Studios
22 Blackmore & Best Gallery
23 Whirlwind Designs & Theacrobatic Design Ltd.

24 Slipway
25 Wharfs

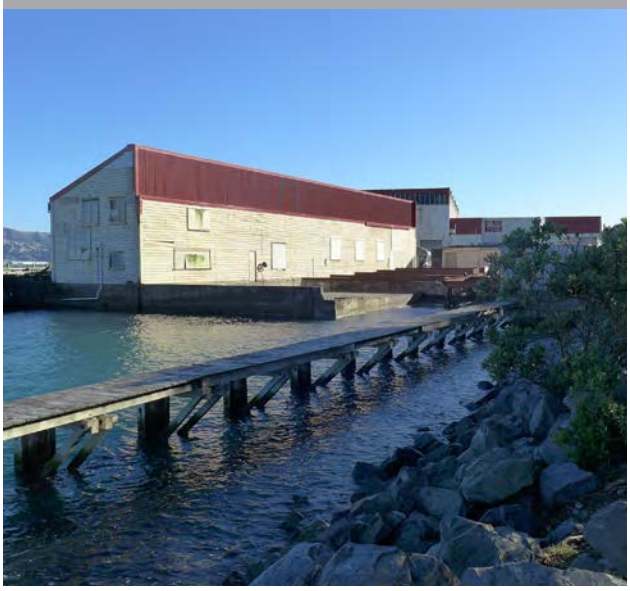
2

2.3



BUILDING 07 Fig: DG 2.3.2

BUILDING 12 Fig: DG 2.3.3



G **DEVELOPMENT GUIDANCE**

The conservation of a place of historic heritage values is usually facilitated by the place serving a useful purpose. The adaptation of a place may arise from maintaining its continuing use, or from an appropriate change of use.

Objective

O1 To provide for and allow the practical adaptive reuse of heritage assets of value that will add to the built form and activity of Shelly Bay and respect its former use.

Guidelines

G1 Ensure any adaptation does not dominate or substantially obscure the original form and fabric, and does not adversely affect the setting of a place.

G2 Complement the original form and fabric with any new work.

G3 Carefully protect and respect patina, the visible evidence of age on the fabric of a place.

G4 Respect a buildings context and setting.

G **EARTHQUAKE STRENGTHENING GUIDANCE**

The primary importance in earthquake strengthening is that of the safety of people occupying the building.

Guidelines

G1 Minimise the adverse effects of any required strengthening or stabilisation on the historic heritage values of a place, including its fabric and spaces.

G2 Intervene as much as necessary and as little as possible.

G3 Allow where practicable and

ASSET 24 Fig: DG 2.3.4

BUILDING 15 (SHED 8) Fig: DG 2.3.5

appropriate for any intervention to be reversible.

G4 Respect the values and integrity of a place of historic heritage value when selecting strengthening systems.

G5 Ensure structural interventions are based on detailed structural assessments and recognise the future use options of any adaptation (particularly for public use)

G ALTERATION GUIDANCE

The ICOMOS New Zealand Charter for the Conservation of Places 2010 provides important guidance on the most appropriate conservation standards. The Charter sets out a hierarchy of degrees of intervention and this should be taken into account in design:

a. Preservation, through stabilisation, maintenance, or repair;
b. Restoration, through reassembly, reinstatement, or removal;
c. Reconstruction; and
d. Adaptation.

Guidelines

G1 Ensure a clear understanding of the historic heritage value of a place and policies for the management of those values guides the extent of any intervention.

G2 Undertake alteration and additions where they are necessary for a compatible use.

G3 Allow where practicable and appropriate for intervention to be reversible, and have little or no adverse effect on the historic heritage value of the place.

G4 Ensure any alterations or additions are compatible with the original form and fabric of the place.

2

2.3

BUILDING 18 Fig: DG 2.3.6

G5 Avoid inappropriate or incompatible contrasts of form, scale, mass, colour, and material.

G ACCESSIBILITY GUIDANCE

There can be a tension between the provision of increased accessibility and the conservation of historic heritage values. The aim is to provide the greatest level of accessibility while ensuring the protection of historic heritage values.

Guidelines

G1 Follow a three step approach to provision of increased accessability within a building:

- Assess the historic heritage significance of a place and identify the most significant spaces and elements;
- Assess the existing and required levels of accessibility; and
- Identify and evaluate accessibility options within the heritage values context and conservation best practice.

G2 Retain heritage values while enabling further accessibility:

- Leave the most significant spaces and areas unaltered to the greatest extent practical;
- Ensure that interventions designed to facilitate accessibility are sensitive to historic heritage values;
- Ensure changes are reversible; and
- Ensure interventions are identifiable.

G3 To enable and enhance accessibility:

- Ensure the main entry is accessible;
- Ensure that a clear path to all areas and facilities is created including appropriate signage;
- Provide accessible toilets; and
- Give consideration to a variety of disabilities.

2.4 Building Protrusions

The developable building envelopes across the Shelly Bay development are defined in the Shelly Bay Masterplan. This section focuses on the interpretation of and flexibility provided for within the Masterplan. The majority of the area is zoned Business and there are no recession plane or site coverage standards. The HASHAA introduces a 27m maximum height limit (or 6 storey maximum).

The HASHAA 27m height envelope is modified to allow for access, block subdivision, views, and setbacks and the stepping down of heights towards the bay, and the Masterplan also provides for protrusions beyond the envelope.

Better architectural outcomes including formal articulation and visual interest can be achieved if some parts of buildings can protrude through the envelopes. These protrusions also give increased opportunities for outdoor living and capturing views towards the harbour.

G **DESIGN GUIDANCE**

Objective

O1 To provide for balcony, bay window and other protrusions that contribute positively to both the architectural form and interior amenity of the dwelling.

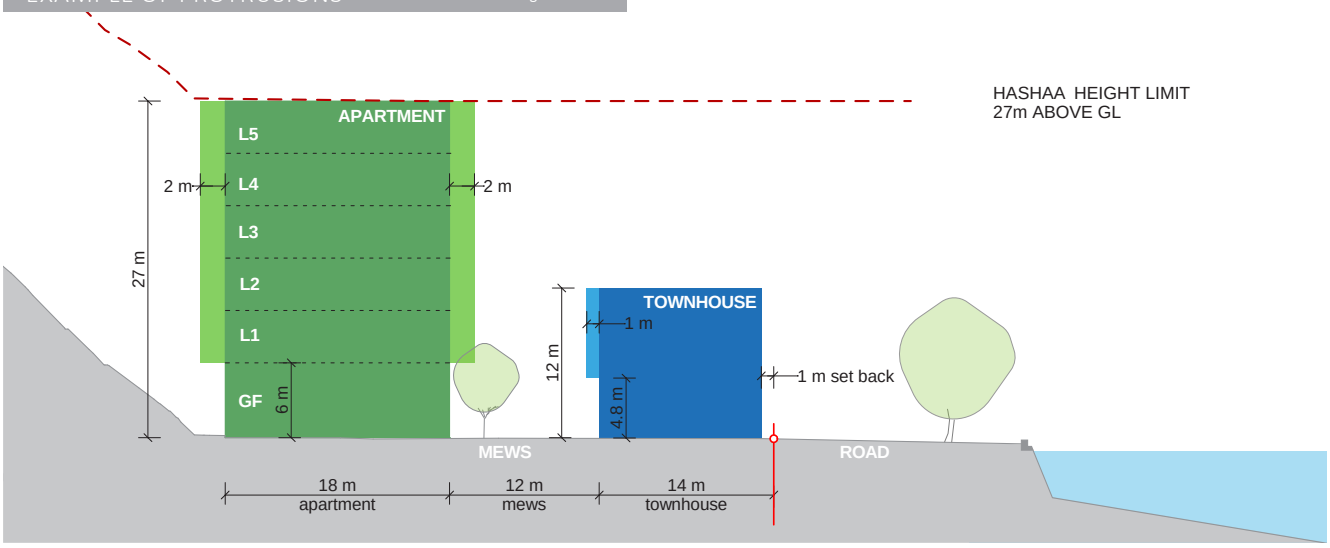
Guidelines

G1 Design all protusions so that they are consistent with a whole-of-building architectural composition.

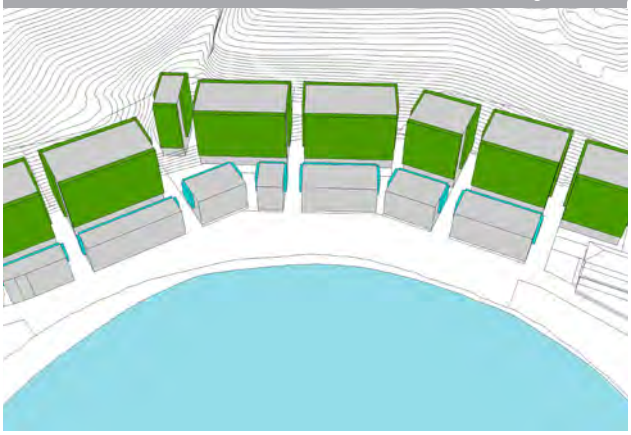
G2 Locate and design building protrusions so they maintain the reasonable amenity and privacy of residents within the development or in adjoining buildings.

G3 Pay particular attention to visual privacy in the location and design of protrusions on lane facades.

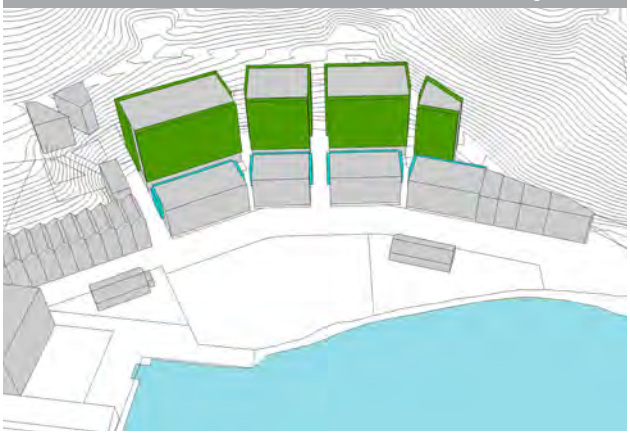
EXAMPLE OF PROTRUSIONS fig. DG 2.4.1



NORTH BAY FACADE PROTRUSION fig. DG 2.4.2



SOUTH BAY FACADE PROTRUSION fig. DG 2.4.3



UNENCLOSED FRONT PROTRUSION fig. DG 2.4.4

UNENCLOSED FRONT PROTRUSION fig. DG 2.4.5

2.5 Public-Private Interface

The public-private interface is the transition between the building, its private or communal space at street level and the adjacent public domain.

The quality of this interface contributes to the amenity and character of the street. Subtle variations through planting and fencing can contribute to an attractive and active public domain with an appropriate pedestrian scale. Conversely long, high blank walls or fences can detract from the appearance of the public domain and impact on safety of pedestrians and residents. Direct access from the street to ground floor dwellings and windows overlooking the street can improve safety and social interaction.

Key components to consider when designing the interface include entries, private terraces or balconies, fences and walls, changes in level, services locations and planting. The design of these elements can influence the real or perceived safety and security of residents, opportunities for social interaction and the identity and character of the development when viewed from the public domain.

G **DESIGN GUIDANCE**

Objectives

O1 To provide a clear and legible transition between the public and private domain.

O2 To provide an active, engaging visual and social interface between dwellings and the street.

O3 To contribute to an attractive, coherent and high amenity public domain.

Guidelines

G1 Ensure buildings are built up to the road and lane frontages, unless otherwise provided for in the Masterplan or specific guidelines.

G2 Provide direct street entry to ground floor level entry terraces and ground floor outdoor living areas for town houses and detached houses.

G3 Locate upper level balconies and windows to overlook the public domain whenever practicable.

G4 Use visually permeable materials and treatments for front fences and walls along street frontages. Limit the height of solid fences or walls to 1m.

G5 Provide planting to enhance the edges of raised terraces to the street.

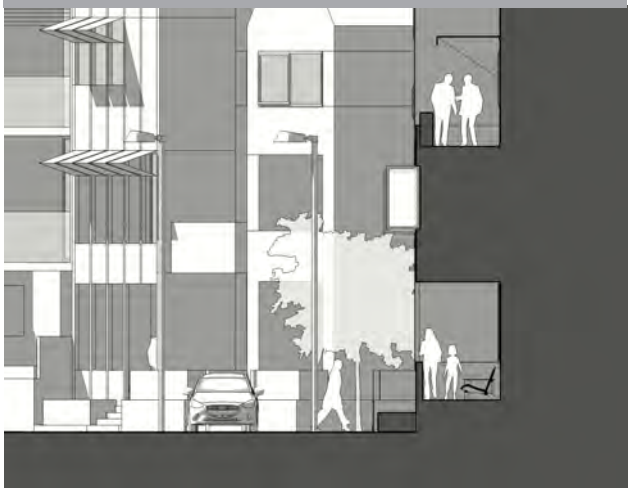
G6 Locate mail boxes in safe visible locations to help identify individual dwellings.

G7 Use durable graffiti resistant and easily cleanable materials (refer Appendix 2).

G8 Address the interface between building an public open space in a positive manner by:

- clearly defining street access, pedestrian paths and building entries;

PUBLIC PRIVATE INTERFACE fig. DG 2.5.1



FRONT BOUNDARY fig. DG 2.5.2

SHELLY BAY WHARF COLONNADE fig. DG 2.5.3

- delineating between communal /private open space and the adjoining public open space; and
- minimising the use of blank walls, high fences and open ground level parking.

2.6 Building Top, Roof Design and Articulation

Building top and roof design determines the overall quality of the skyline. Buildings may be designed to create visually prominent or recessive skylines, and visual interest and variation or consistency and repetition. At Shelly Bay consideration has been given to visually distinct and individually expressed houses and town house roof forms at the street edge and to the tops of taller apartment buildings that should present a calmer backdrop at the rear.

The building top should relate to the composition of the building's facade and its overall form.

VARIED ROOF FORMS fig. DG 2.6.1

THE COMPOSITION OF ROOF FORMS fig. DG 2.6.2

G DESIGN GUIDANCE

Objectives

O1 To ensure each building reinforces the comprehensive approach to the tops of buildings across Shelly Bay.

O2 To ensure the building top is coherently resolved and relates positively to the building below.

Guidelines

G1 Create attractive and distinctive roof forms that support individual dwelling identity for houses and town houses fronting Shelly Bay and Massey Roads.

G2 Establish a consistent, horizontal flat building top for any apartment and aged care building as a recessive backdrop to the buildings in front.

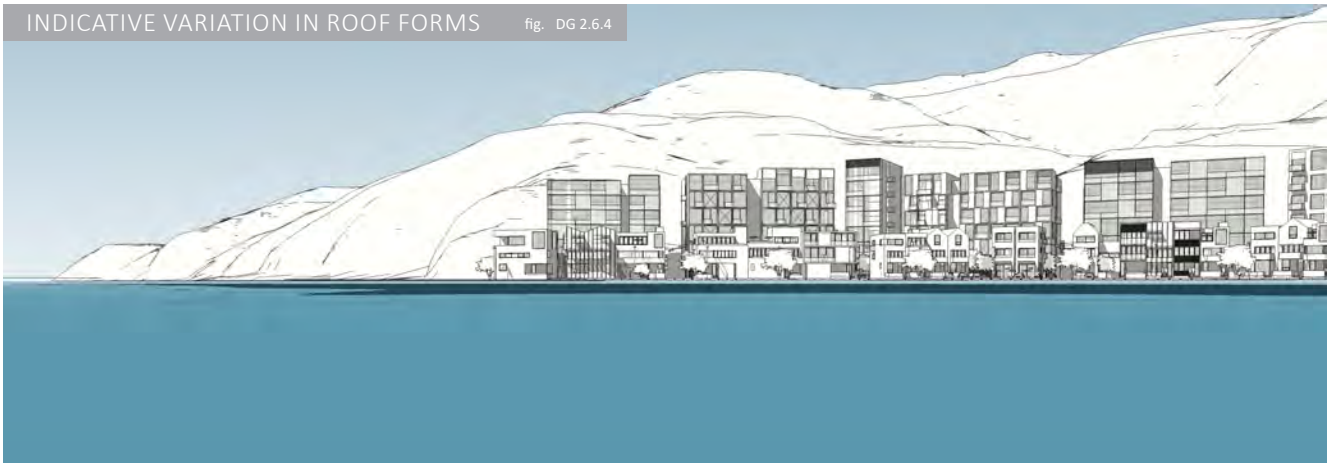
G3 Ensure heritage buildings retain a clear and authentic expression of their historic roof forms.

G4 Articulate the building top of new 'special buildings' at Shelly Bay Wharf to achieve visually distinctive forms that relate to the area's heritage.

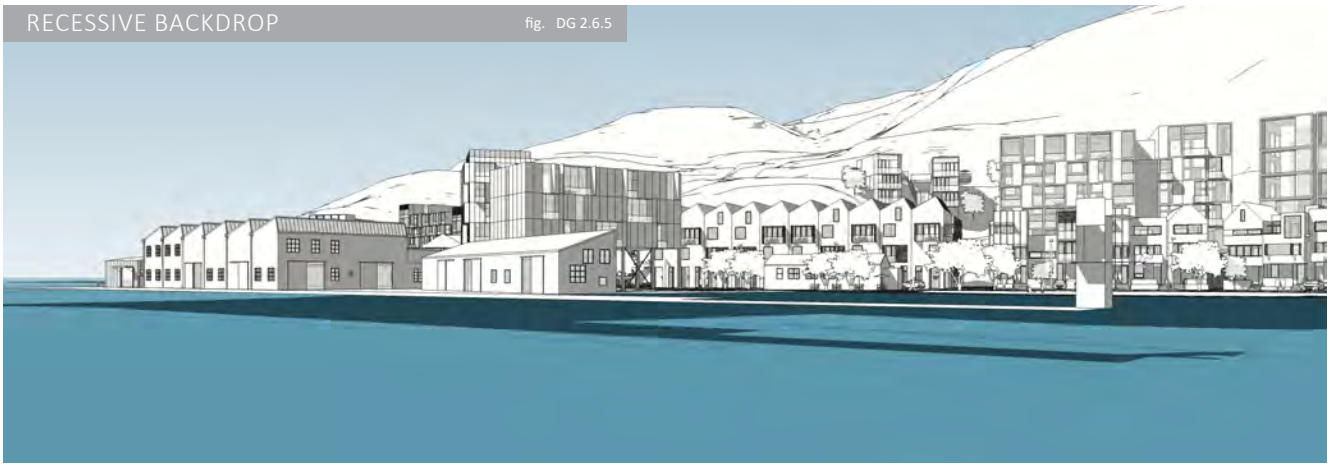
G5 Maintain some continuity of the plane of front facades at the tops of buildings and avoid excessive or visually harsh roof projections that might dominate the skyline in views from the street edge.

VISUAL STEPPING fig. DG 2.6.3

INDICATIVE VARIATION IN ROOF FORMS fig. DG 2.6.4



RECESSIVE BACKDROP fig. DG 2.6.5



2.7 Dwelling Amenity and Environmental Performance

These guidelines address the design of houses, townhouses and apartments and focus on layout, functionality, environmental performance and amenity standards.

G SOLAR AND DAYLIGHT GUIDANCE

Solar and daylight access is important to the provision of pleasant living spaces that reduces reliance on artificial lighting and heating, improving energy efficiency and residential amenity.

Objectives

O1 To maximise the number of dwellings receiving sunlight to habitable rooms, primary windows and private outdoor space.

O2 To avoid overheating by incorporating shading and glare control.

Guidelines

G1 Provide a minimum of two hours direct sunlight between 9am and 3pm at mid winter to living rooms and private outdoor spaces for at least 80% of dwellings in a building.

G2 Minimise the number of single aspect dwellings in positions where sunlight access is compromised.

G3 Optimise direct sunlight to habitable rooms and balconies by considering:

- Dual aspect dwellings;
- Shallow depth layouts;
- Bay windows;
- High ceilings; and
- Windows to the ceiling.

G4 Provide shading to avoid solar heat gains and glare by utilising a number of means such as:

- Balconies or sun shading that extends far enough to shade summer sun, but allows winter sun to penetrate into living rooms;
- Eaves, awnings, balconies, pergolas, and/or external louvres;
- Horizontal shading to north facing windows;
- Vertical shading to west facing windows;
- Operable shading to allow adjustment and choice; and
- High performance glass with low reflectivity and tint.

G NATURAL VENTILATION GUIDANCE

Natural ventilation to create a comfortable indoor environment is important and design should address the orientation of the building, its configuration and the external building envelope. Reliance on mechanical ventilation and air conditioning should be minimised.

Objective

O1 To ensure all habitable rooms are naturally ventilated.

Guidelines

G1 Provide adequate natural ventilation with adjustable opening windows, or other opening devices.

G2 Ensure the depth of habitable rooms supports natural ventilation and achieve cross ventilation where practicable.

G CEILING HEIGHT GUIDANCE

Generous ceiling height contributes to amenity and the perception of space. Height is directly linked to achieving sufficient natural ventilation and daylight access to habitable rooms.

Objective

O1 To achieve generous ceiling heights that provides good daylighting, a sense of space and well proportioned rooms.

Guideline

G1 Provide a minimum ceiling height of 2.7m for habitable rooms and 2.4m for non-habitable rooms.

G ROOM LAYOUT GUIDANCE

The layout of rooms in a dwelling directly impacts on the quality of residential amenity

Objective

O1 To ensure that amenity and environmental performance of a dwelling is maximised by good planning.

Guidelines

G1 Ensure dwellings have a minimum internal area of;

- studio apartments 35m²;
- 1 bedroom dwellings 50m²;
- 2 bedroom 65m²;
- 3 bedroom 85m²

Beyond 3 bedrooms, each additional bedroom increases the minimum internal area by 10m²

G2 Increase the minimum internal area of dwellings by 5m² where a second bathroom is provided and for each additional bathroom provided beyond that.

G3 Limit habitable room depth to a maximum of 2.5 x the ceiling height.

- For open plan layouts where living, dining and kitchen are combined the maximum habitable room depth should be 8m from a window

G4 Locate all living areas and bedrooms on the external face of a building.

G STORAGE GUIDANCE

Adequate storage is an important component of residential design. It should be provided in proportion to the dwelling size.

Objective

O1 To ensure adequate, well designed storage is provided for all dwellings.

Guidelines

G1 Provide dedicated storage in addition to kitchen, bathroom and bedroom storage. Ensure each dwelling has the following minimum storage;

- Studio apartments 4m²;
- 1 bedroom dwellings 6m²;
- 2 bedroom dwellings 8m²;
- 3 bedroom dwellings 10m².

G2 The Aged Care Facility type has separate requirements for storage as follows:

- Care Suites no requirement
- Studio apartments 2m² minimum area
- 1 bedroom dwellings 6m² minimum area
- 2 bedroom dwellings 8m² minimum area
- 3 bedroom dwellings 10m² minimum area

G3 Locate at least 50% of the dedicated storage within the dwelling.

G4 Locate any storage that is not within the dwelling to be conveniently and readily accessible. If in the car park, storage should be provided at the rear, side or above the car park allocated to the dwelling.

G WASTE MANAGEMENT GUIDANCE

Minimisation and the effective management of domestic waste from dwellings contributes to visual and physical amenity as well as limiting potential negative environmental impacts. Waste management includes providing for safe, convenient and unobtrusive storage and collection of waste and recycling.

Objective

O1 To minimise impacts of waste storage facilities on the streetscape, building entry and amenity of residents and neighbours.

Guidelines

G1 Locate adequately sized storage areas for rubbish bags and bins discreetly away from

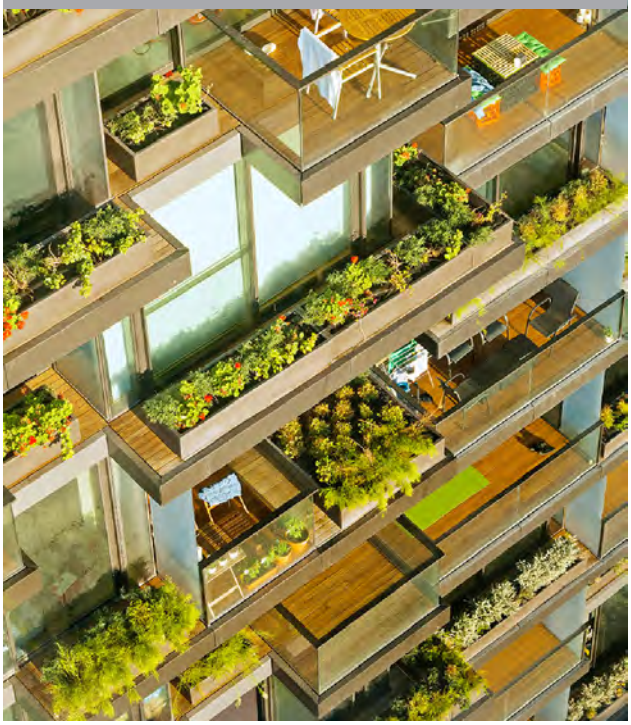
the front of the building and where they do not compromise adjacent dwellings.

G2 Provide good ventilation to waste and recycling storage areas.

G3 Provide circulation for bins to be easily moved between storage and collection points.

OUTDOOR LIVING SPACE fig. DG 2.7.1

OUTDOOR LIVING SPACE fig. DG 2.7.2



G PRIVATE OUTDOOR SPACE GUIDANCE

Private outdoor space including balconies, terraces and courtyards enhance amenity and facilitate an indoor / outdoor lifestyle.
These are also important architectural elements that contribute to the form and articulation of facades.

Objectives

O1 To provide appropriately sized private open space to enhance residential amenity.

O2 To ensure primary private open spaces are appropriately located to enhance liveability for residents.

O3 To ensure private open space and balcony design is integrated into and contributes to the aesthetic of the overall architectural form and detail of the building.

Guidelines

G1 Ensure all dwellings have primary private outdoor living spaces as follows:

- Care Suites (Aged Care Facility only) 2m² minimum area.
- Studio apartments 4m² minimum area.
- 1 bedroom apartments 6m² min area, 2m min depth.
- 2 bedroom apartments / townhouses / houses 8m² min area, 2m min depth.
- 3+ bedroom apartments / townhouses / houses 10m² min area, 2m min depth.

G2 Locate primary open space adjacent to the living room, dining room or kitchen to extend the main living space.

G3 Position private open spaces to predominantly face north, east or west.

G4 Orientate primary open spaces with the longer side facing outwards to optimise daylight access into rooms below.

G5 Select solid, partially solid or

transparent balustrades to respond to the location. These should be designed to allow views and passive surveillance of the street while maintaining visual privacy and allowing a range of uses on the balcony.

G6 Integrate projecting balconies into the building design.

G7 Use operable screens, shutters and pergolas to control sunlight and wind.

G8 Integrate downpipes and balcony drainage with the overall facade and building design.

G9 Screen and integrate into the building design any clothes drying, storage or air conditioning units that are located on balconies or on outdoor open space.

G10 Provide water taps for primary balconies and private open space for watering and washing.

G COMMON CIRCULATION GUIDANCE

Circulation and other common spaces within a building are shared communally by residents. They provide opportunities for casual social interaction among residents. Important design considerations include safety, amenity and durability.

Objective

O1 To ensure common circulation spaces are safe and provide for social interaction.

Guidelines

G2 Provide daylight and natural ventilation to all common circulation spaces.

G3 Articulate longer corridors greater than 12m from the lift.

G4 Provide direct and legible access between vertical circulation and apartment entries by minimising corridor length to give short, straight and clear sight-lines.

G5 Avoid tight corners which compromise access, including for furniture movement.

G6 Provide lighting for amenity and safety.

G7 Provide incidental spaces such as a seat by the lift, or in a corridor or stair landing where there may be a glimpse view to the outside.

G SERVICES GUIDANCE

Services and plant should be considered at the building planning stage to ensure they can be conveniently and unobtrusively located and integrated by design.

Objective

O1 To minimise the effects of services on the appearance and amenity of the environment.

Guidelines

G1 Provide shared provision for communication infrastructure (eg Sky dishes or equivalent) within any single development.

G2 Locate equipment where it is not prominent in view from the street, or for dwellings elevated behind the dwelling.

G3 Locate heat pumps and other plant and integrate them into the design to avoid noise nuisance and be visually unobtrusive from adjacent dwellings.

2.8 Retaining Wall Treatment

These guidelines address the treatment of retaining any cuts in the hillside and focus on the quality, suitability and consistency across the development.

Any retaining should address the character of the development and not detract from the visual amenity of either the public realm or building outlook.

G **DESIGN GUIDANCE**

Objective

O1 To provide high visual amenity for the public realm and buildings through the design of retaining walls

O2 To provide a retaining wall system that is robust and attractive in views from both apartments and publicly accessible places.

O3 To ensure general consistency in the treatment of retaining walls across adjoining sites.

Guidelines

G1 Consider the use of shotcrete for those parts of retaining walls that are not in view from the public realm or directly from any dwelling

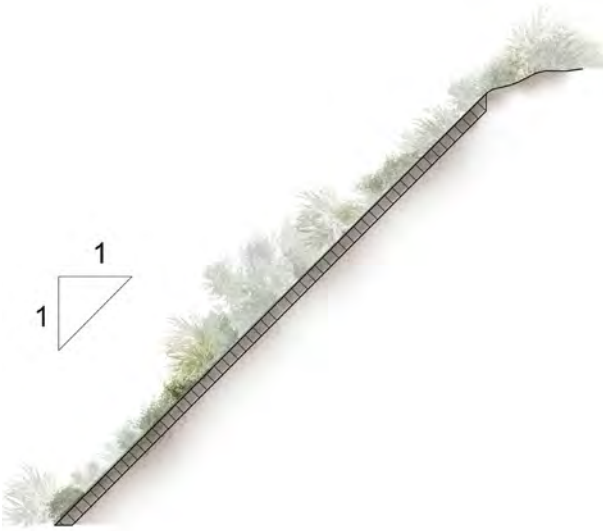
G2 Install planting on slopes and batters using the 'toe slope' mix identified in the Masterplan, section 7.2 Planting Strategy.

G3 Utilise retaining wall treatments from the established palette, with application of types to relate to slopes and achieve consistency across an escarpment:

- Slopes to a maximum of 1 to 1 may be stabilised with geogrid and planted.
- Slopes to a maximum of 3 to 1 use mesh with rock anchors, with planting to base and in pockets up the slope where possible.
- Slopes to a maximum of 4 to 1 use timber crib and planting to base and within crib wall face.
- Slopes to a maximum of 5 to 1 may be terraced using timber retaining with planted terraces between.

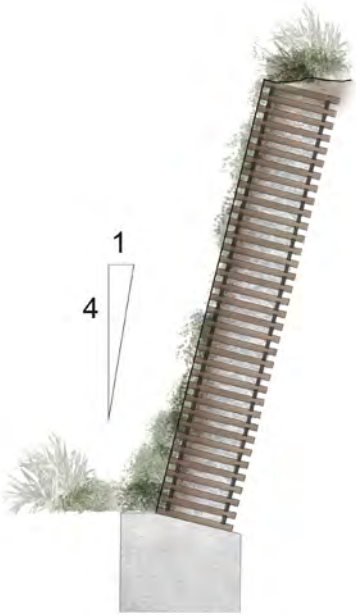
RETAINING WALL EXAMPLES

fig. DG 2.8.1

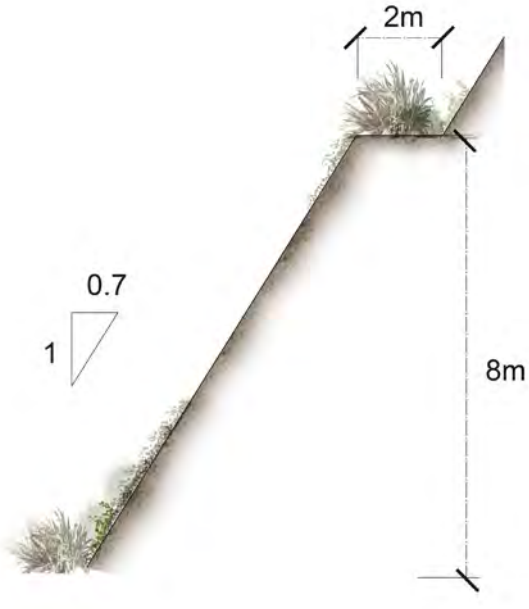


MAX 1:1
Planted slope

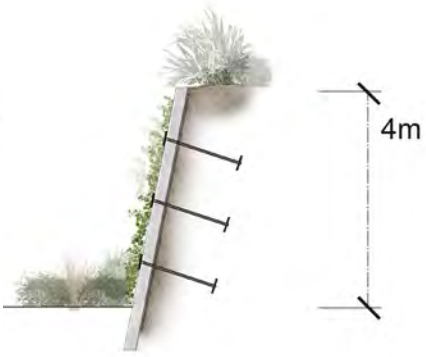
MAX 1.5:1
Terraces of timber retaining



MAX 4:1
Timber crib wall



MAX 1:0.7
Cut slope natural ground with 2m flat bench for every 8m vertical rise



MAX 4m high
Low level hidden shotcrete

3 STREETS

3.1 Overview

The section sets outs the design intent for the street network.

The spatial layout and street pattern is defined in the Masterplan. A network of streets is proposed to ensure high quality access to and within Shelly Bay.

A range of street types including streets, lanes and parking mews are described in the guidance. These have varying characteristics reflecting their different functions and locations. They allow for a hierarchy of movement and a range of modes, and are designed to enhance the pedestrian environment and experience along the foreshore.

The majority of streets will be adopted as public road and therefore the design and quality of those streets is a technical requirement.

T **TECHNICAL SPECIFICATION**

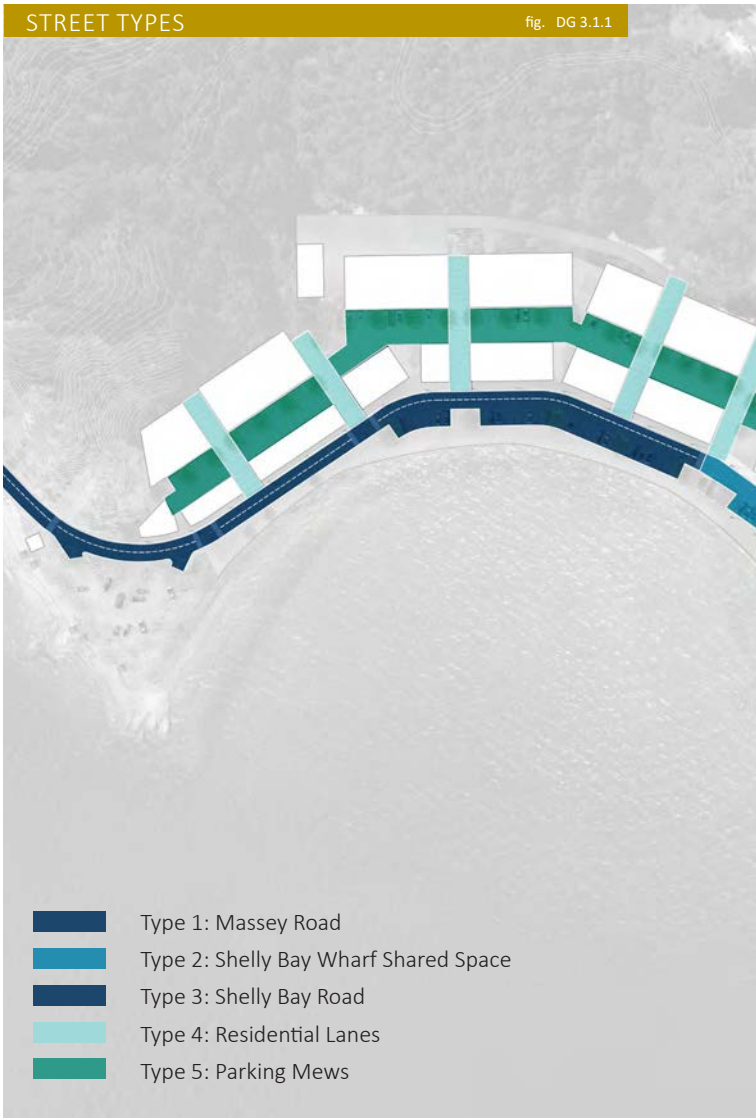
Standards for Massey Road, Shelly Bay Wharf Shared Space, and Shelly Bay Wharf, are to form the basis of detailed design in conjunction with WCC requirements. Specifications are to be compliant with NZS4404:2010 "Land Development and Subdivision Infrastructure"

Standards for the Parking Mews and Residential Lanes are to form the basis of detailed design in conjunction with WCC requirements.

Technical specifications for materials relating to each street and space type are suggested and indicate the required level of quality

Sample concept designs shown in the guide are advisory only, showing the application of the standards.

STREET TYPES fig. DG 3.1.1

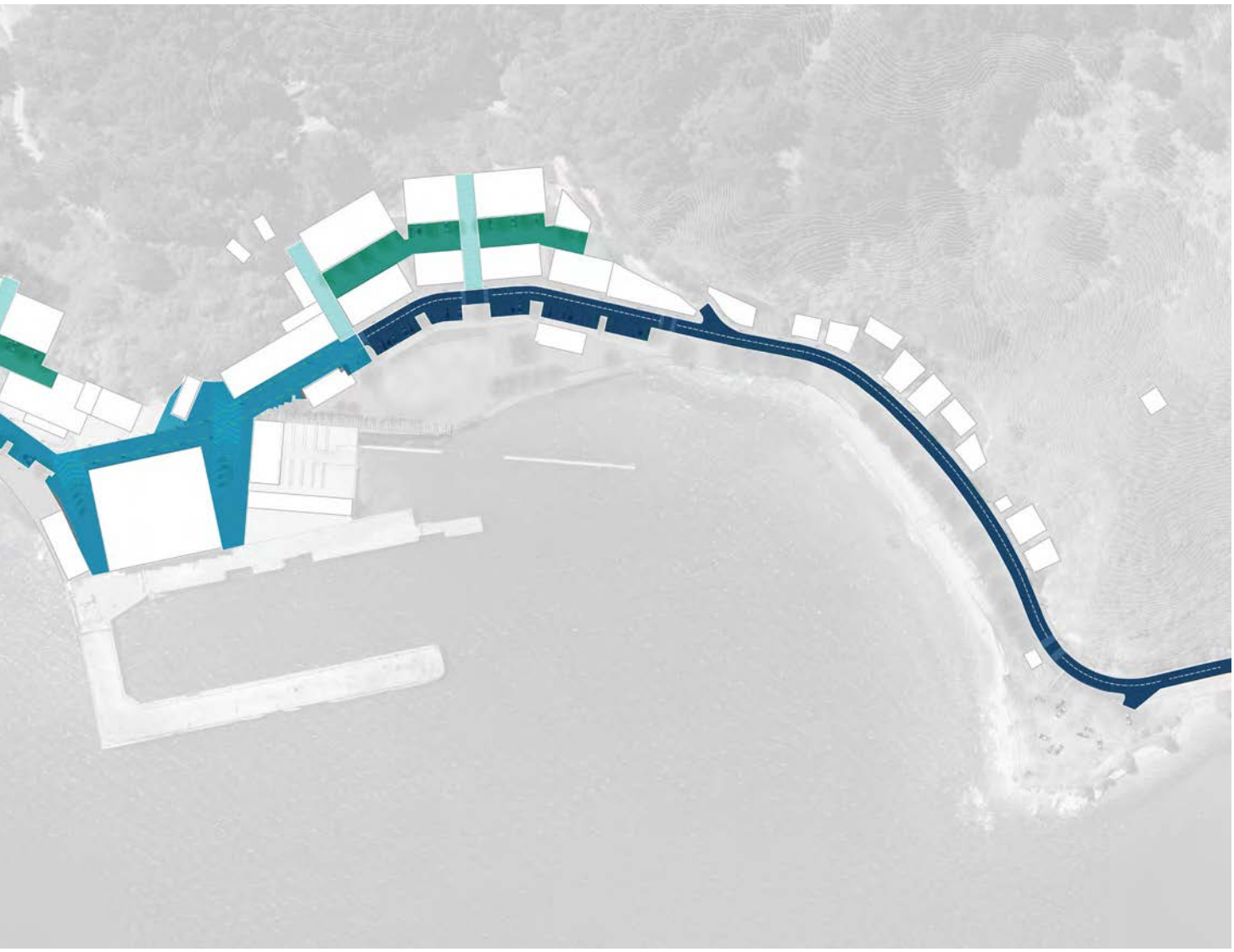


Type 1: Massey Road
Primary street providing through movement and local access.

Type 2: Shelly Bay Wharf Shared Space
Shared space street with pedestrian priority through the centre.

Type 3: Shelly Bay Road
Primary street providing through movement and local access.

Type 4: Residential Lanes
Publicly accessible shared space routes providing residential access.



Type 5: Parking Mews
Shared space routes including car parking.

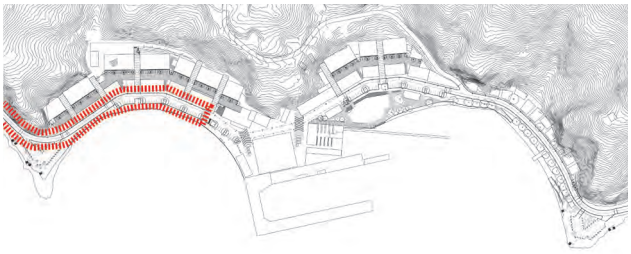
3

3.2 Street Types

Type 1: Massey Road

Massey Road takes its cues from the coastal road leading into the Shelly Bay Village and integrates the North Bay Promenade into a new slow speed streetscape. Raised pedestrian crossings, narrow lanes and street trees all assist to create a low speed environment. Existing Pohutukawa street trees are retained and new Pohutukawa trees are planted at regular intervals on the coastal side of the road.

MASSEY ROAD fig. DG 3.2.1



T **TECHNICAL SPECIFICATION**

T1 Minimum 2.0m wide footpath to the landward side of road along residential frontages.

T2 Minimum 3.0m wide shared pedestrian / cycle path along the coastal side of the road (refer North Bay Promenade)

T3 6m two-way carriageway where no parking occurs.

T4 7m two-way carriageway where adjacent to parking. Parking 90 degree, 4.8m length with kerb overhang to Promenade (refer to Scorching Bay roadside parking precedent).

T5 Carriageway surface to be asphalt with fine grade asphalt to footpaths.

T6 Raised pedestrian crossings to be rough stone setts to ramps to provide rumble strips and exposed aggregate concrete to the walking surface.

G **DESIGN GUIDANCE**

Objective

O1 To establish a high quality, low speed street along North Bay providing both local access and through movement.

Guidelines

G1 Provide safe pedestrian access to the Promenade along the coastal edge and footpaths along the residential edge.

G2 Provide a shared pedestrian / cycle path along the coastal edge.

G3 Provide on street public car parking.

G4 Maintain a consistency of streetscape treatment with Shelly Bay Road in South Bay.

G5 Connect materiality to the wider public realm palette of the coastal road language while introducing more robust and constructed wharf design language for crossings and kerbs.

G6 Plant new Pohutukawa trees at regular intervals on the coastal side of the road.

G7 Provide furniture that is simple, robust and consistent throughout the North and South Bay environments.

G8 Use pole mounted lights with light directed down to avoid night sky pollution and away from residential dwellings.

MASSEY ROAD fig. DG 3.2.2

MASSEY ROAD fig. DG 3.2.3

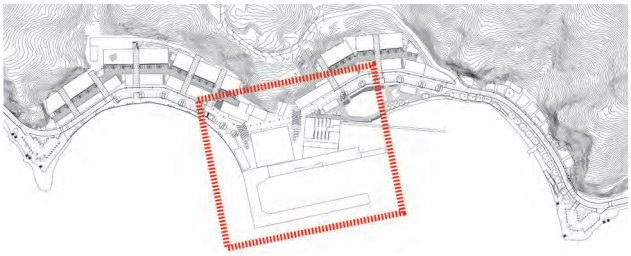
3

3.2

Type 2: Shelly Bay Wharf Shared Space

Shelly Bay Wharf is characterised by the existing wharf sheds, continuous flat asphalt surfaces, prosaic paint markings, rough concrete of seawalls and slipway, and timber wharf structures. This materiality is proposed to be continued into the adaptive reuse of this area into a mixed use village centre. The slow road through encourages cross flow and flexibility in the use of space and is defined by paint markings.

SHELLY BAY WHARF SHARED SPACE fig. DG 3.2.4



T **TECHNICAL SPECIFICATION**

T1 Minimum 2.0m wide footpath to the landward side of road along residential frontages.

T2 Minimum 3.0m wide shared pedestrian / cycle path along the coastal side of the road (refer North Bay Promenade)

T3 6m two-way carriageway where no parking occurs.

T4 7m two-way carriageway where adjacent to parking. Parking 90 degree, 4.8m length with kerb overhang to Promenade (Scorching Bay roadside parking precedent).

T5 Carriageway surface to be asphalt with fine grade asphalt to footpaths.

T6 Raised pedestrian crossings to be rough stone setts to ramps to provide rumble strips and exposed aggregate concrete to the walking surface.

G **DESIGN GUIDANCE**

Objective

O1 To provide a multi-modal shared space environment that manages slow through traffic and facilitates pedestrian flows in a pedestrian priority setting.

Guidelines

G1 Set ground surface finishes flush.

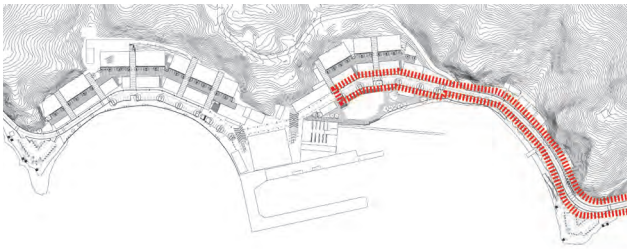
G2 Provide safe pedestrian access to the public open spaces and crossing of traffic flow.

G3 Connect materiality to the wider public realm palette, while maintaining the more robust and unadorned quality that is synonymous with a ‘working’ wharf.

G4 Provide for flexible public open space where vehicles and pedestrians may mix and be managed at different times.

G5 Provide furniture that is simple, robust and consistent throughout the North and South Bay environments.

G6 Use pole mounted lights with light directed down to avoid night sky pollution and away from residential dwellings.



Type 3: Shelly Bay Road

Shelly Bay Road takes its cues from the coastal road leading into the Shelly Bay area, introducing raised pedestrian crossings, narrow lanes and street trees all assist to create a low speed environment. Existing Pohutukawa street trees are generally retained but with some thinning to open views and create space for the now mature trees and new dwellings. New Pohutukawa trees are planted at regular intervals on the coastal side of the road.

SHELLY BAY ROAD fig. DG 3.2.5

T **TECHNICAL SPECIFICATION**

T1 Minimum 1.5m wide footpath to the landward-side of road along residential frontages.

T2 Minimum 2.5m wide shared pedestrian / cycle path along the coastal edge (refer South Bay Promenade) 6m two way carriageway where no parking.

T3 7m two-way carriageway with parking. Parking 90 degree 4.8m with kerb overhang to Promenade (Scorching Bay roadside parking precedent).

T4 Carriageway surface to be asphalt with fine grade asphalt to footpaths.

T5 Raised pedestrian crossings to be rough stone setts to ramps to provide rumble strips and exposed aggregate concrete top surface.

G **DESIGN GUIDANCE**

Objective

O1 To establish a high quality, low speed street along South Bay providing both local access and through movement.

Guidelines

G1 Provide safe pedestrian access to the Village Green along the north and west edge and footpaths for residential activity along the south and east edge.

G2 Provide a shared pedestrian/ cycle path along the coastal edge.

G3 Provide on street public car parking.

G4 Connect materiality to the wider public realm palette and coastal road language, while introducing a more robust and constructed wharf language for crossings and kerbs.

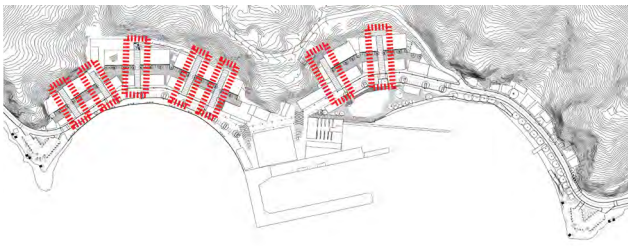
G5 Maintain a consistency of streetscape treatment with Massey Road in North Bay.

G6 Plant new Pohutukawa trees at regular intervals on the coastal side of the road.

G7 Provide furniture that is simple, robust and consistent throughout the North and South Bay environments.

G8 Use pole mounted lights with light directed down to avoid night sky pollution and away from residential dwellings.

3



3.2

Type 4: Residential Lanes

Residential Lanes run as shared spaces from the coastal road to the bush clad hillside behind, providing visual links to the green escarpment and peninsula beyond. They provide access to residential development and parking.

RESIDENTIAL LANES fig. DG 3.2.6

RESIDENTIAL LANES fig. DG 3.2.7

T **TECHNICAL SPECIFICATION**

T1 7m wide flush surface lane evenly graded at no steeper than 1:20 longitudinally.

T2 Medium exposed aggregate dark grey concrete.

T3 Saw-cuts at max 1m intervals, parallel to Lane's short axis, to modulate the surface.

T4 Integrate lighting into the built edges as catenary or attached outreach system.

G **DESIGN GUIDANCE**

Objective

O1 To establish shared space lanes that provide multi-modal access and servicing to the Parking Mews, townhouse garages, and apartment building entries and parking.

Guidelines

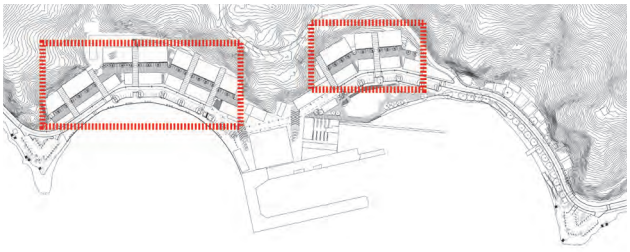
G1 Provide safe pedestrian access to the open spaces beyond.

G2 Connect materiality to wider public realm palette and wharf language rather than the apartment language.

G3 Maintain a consistency of treatment across all lanes.

G4 Provide an unconstructed clear space below 4.8m at building edges.

G5 Ensure clear and open access along the length of the lanes, free of urban furniture and elements.



Type 5: Parking Mews

Parking Mews are connected by the shared public lanes and provide paved courtyards with tree planting that will predominantly be for parking and access but may also be used for community gathering at times. The Mews are privately owned but will not be gated or fenced, and will allow public access.

PARKING MEWS fig. 3.2.8

PARKING MEWS fig. 3.2.9

T **TECHNICAL SPECIFICATION**

T1 Pave flush with dark grey stone setts, with parking indicated by light grey stone sett.

T2 Lighting to be pole mounted, 4m pole with directional downlights.

T3 Wheel-stops 600mm from building wall.

T4 400mm planting strip along apartment buildings to allow for in-ground planting of climbers for green walls where required.

T5 Trees to be small to medium scale deciduous tree to allow sunlight into Mews in winter and tolerate wind conditions.

G **DESIGN GUIDANCE**

Objective

O1 To establish shared space Mews with dedicated parking for apartment dwellers and access to townhouse garaging.

O2 To ensure parking mews are visually attractive and offer a good level of amenity.

Guidelines

G1 Provide safe pedestrian access.

G2 Indicate a more private but shared space through the use of materiality.

G3 Maintain a consistency of treatment along each parking mews lane.

G4 Provide an unconstructed clear space on built edges to 5m high.

G5 Plant trees at regular intervals to provide spatial delineation and shade to pavements, and amenity to apartments. overlooking parking.

4 PUBLIC REALM

4.1 Overview

Public open space acts as a focus for the community and contributes to the character of the Shelly Bay neighbourhood. The types of space range from green community focal spaces to intimate communal areas to exhilarating waterfront promenade edges. Each relates to the character area, land uses, and other elements of the surrounding context.

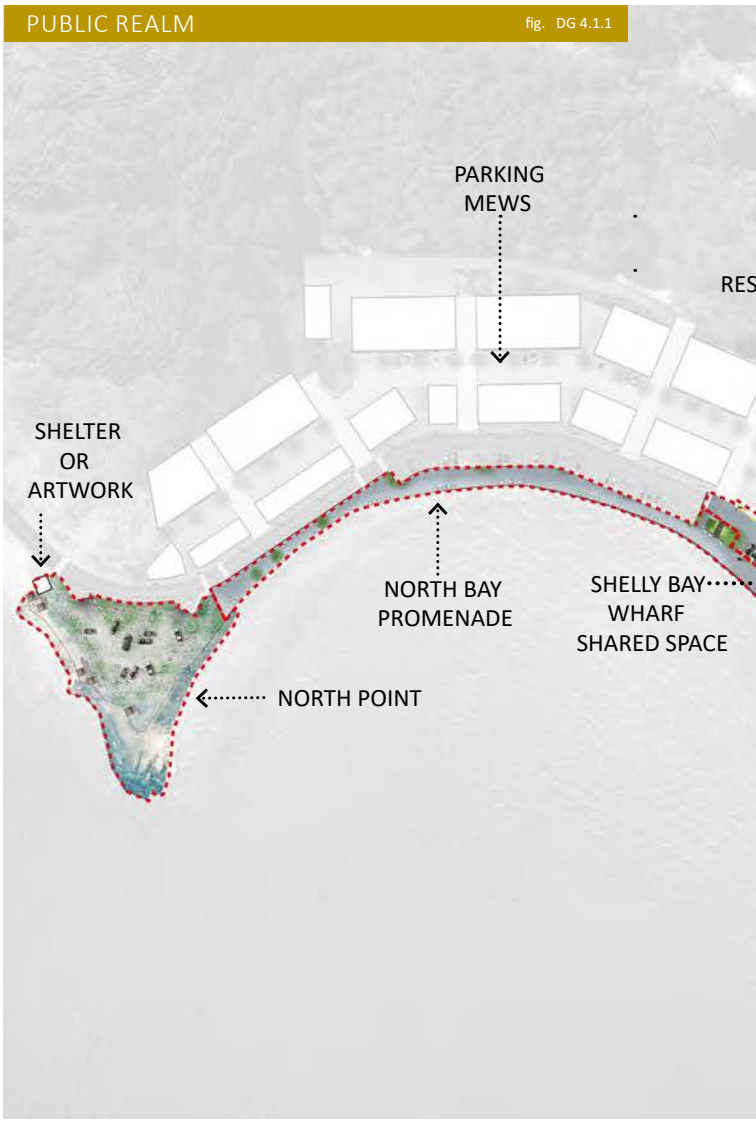
This section establishes parameters for the landscape design of open spaces following the strategy set out in the Masterplan, as well as the identification of building frontages and activities that contribute to each space's identity.

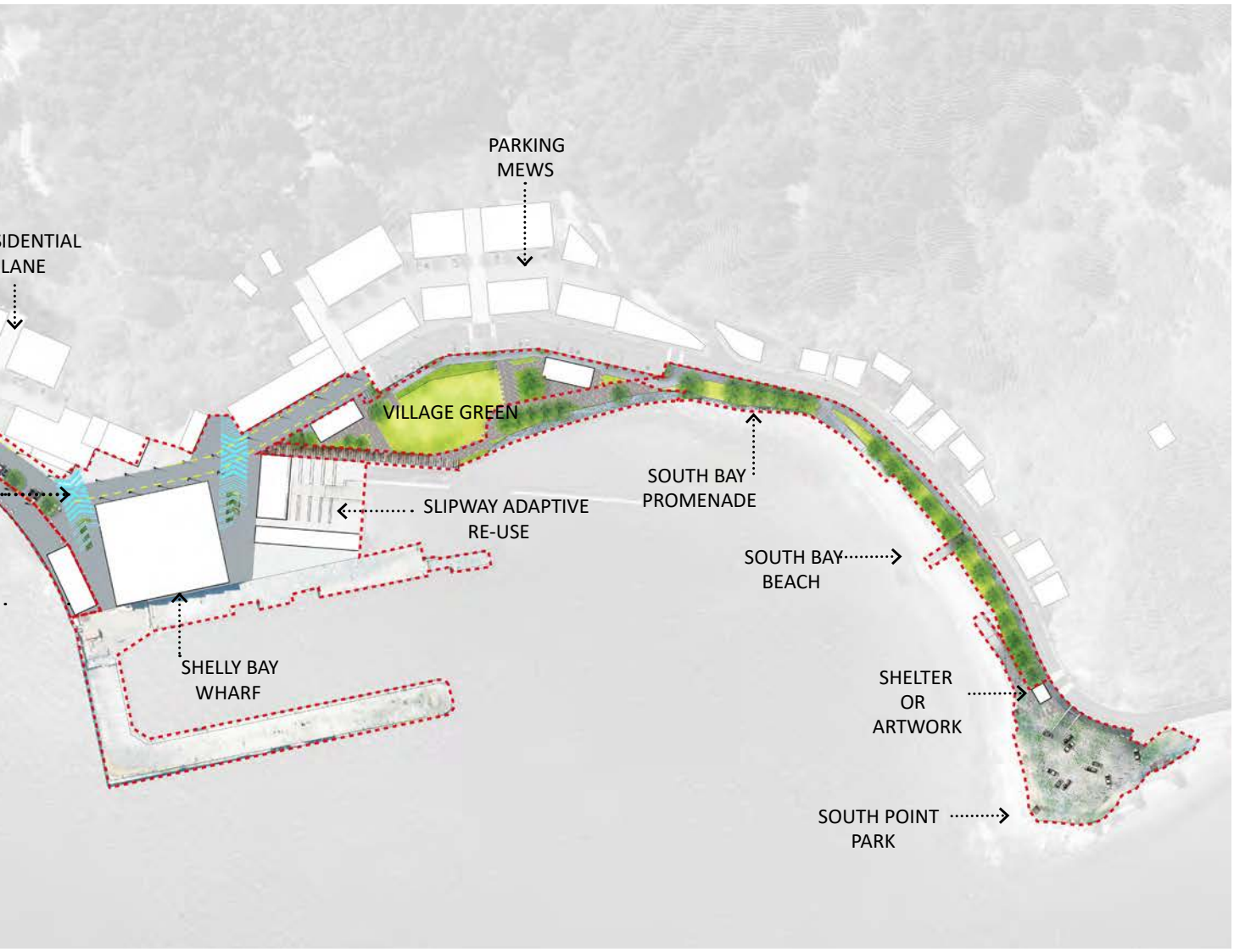
T **TECHNICAL SPECIFICATION**

Application
Standards for the Public Realm are to form the basis of detailed design in conjunction with WCC requirements.

Sample concept designs shown in the guide are advisory only, showing the application of the standards.

PUBLIC REALM fig. DG 4.1.1




PARKING
MEWS
IDENTIAL
LANE
VILLAGE GREEN
SOUTH BAY
PROMENADE
SLIPWAY ADAPTIVE
RE-USE
SOUTH BAY
BEACH
SHELLY BAY
WHARF
SHELTER
OR
ARTWORK
SOUTH POINT
PARK

4

4.2 Description and Intent

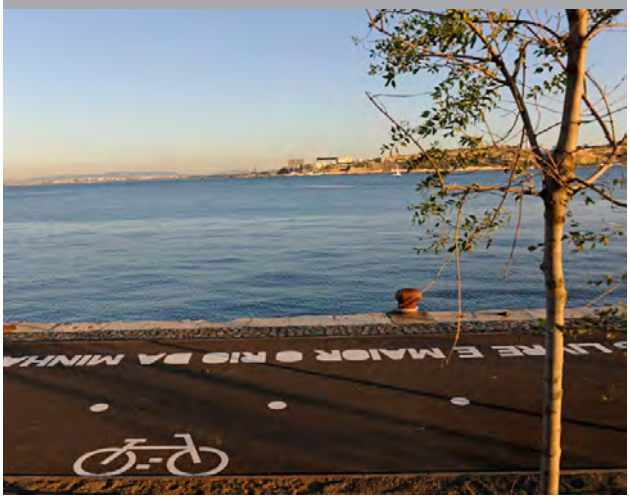
North Bay Promenade

North Bay Promenade builds on the existing coastal edge path to broaden and accommodate shared pedestrian and cycle recreation, with amenity seating, tree planting and parking along the coastal edge. The existing seawall will be raised with an additional wide concrete block located on top as a defined edge. This will raise the seawall and provide a more gentle crossfall to the promenade.

The promenade will be paved in a fine grade asphalt with the potential to have a painted overlay to provide spatial definition and site interpretation.

The promenade is planted with Pohutukawas along the 90° parking lane. The parking and planting provides a separation from the traffic along Massey Road. This traffic is slowed by raised crossings and narrow lanes. Raingardens are included to collect and filter stormwater runoff from the road and parking.

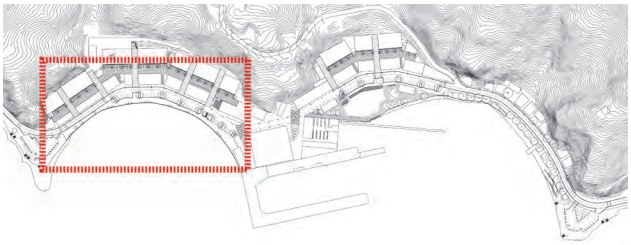
INDICATIVE PRECEDENT fig. DG 4.2.1



T **TECHNICAL SPECIFICATION**

T1 Surface to be fine grade asphalt.

T2 Utilise resilient NZ native species for planting and to supliment the planting of pohutukawas along the 90° parking lane.



NORTH BAY PROMENADE fig. DG 4.2.2

G **DESIGN GUIDANCE**

Objective

O1 To establish a wide generous shared pedestrian / cycle promenade oriented towards and celebrating the coastal edge.

Guidelines

G1 Provide seating oriented to enjoy the sea view, regularly spaced along the promenade.

G2 Connect materiality to the wider public realm palette but express the North Bay character.

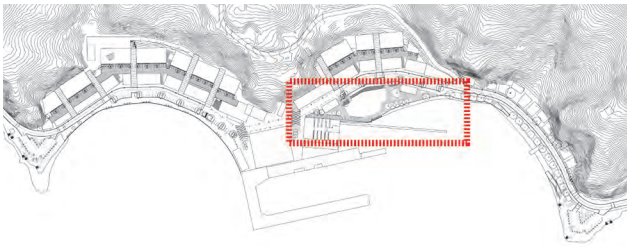
G3 Use furniture from the same palette as the South Bay Promenade.

G4 Retain the simple utilitarian character including the existing seawall and trees.

G5 Raise levels to accommodate a comfortable cross fall to the promenade.

G6 Raise top edge of seawall and provide a new 400mm wide concrete top block at seating height.

G7 Provide safe shared pedestrian and cycle access



South Bay Promenade

South Bay Promenade provides a new broad shared pedestrian and cycle pathway along the coastal edge with a replacement seawall. The promenade width varies as it accommodates existing Pohutukawa trees and introduces new terraces and ramped connections to the South Bay Beach.

The promenade is a mix of paved surfaces which change in relation to adjacent character and conditions. Along the edge of the slipway a timber wharf-like boardwalk is proposed. The seawall requres replacement and a new sea wall is provided. Running between the village green and the bay a mix of concrete paving planks are interspersed with planting accomodating existing Pohutakawa trees. Seating in these planted coastal edge gardens provide protected and relaxed spaces with good views.

INDICATIVE PRECEDENT fig. DG 4.2.3

SOUTH BAY PROMENADE fig. DG 4.2.4

T **TECHNICAL SPECIFICATION**

T1 Timber is heavy hardwood, slip resistant and selected and places to be durable in the long term

T2 Promenade width to be a minimum of 3m to accommodate the shared pedestrian/ cycle path.

G **DESIGN GUIDANCE**

Objective

O1 To establish a wide generous shared pedestrian / cycle promenade oriented to and celebrating the coastal edge.

Guidelines

G1 Provide regular seating oriented to enjoy the sea view.

G2 Connect materiality to the wider public realm palette while reflecting a distinct South Bay character.

G3 Use furniture from the same palette as the North Bay Promenade.

G4 Retain the simple utilitarian character including the existing seawall and trees.

G5 Complement the existing battered stone sea walls in the South Bay with the replacement seawall.

G6 Form the promenade paving surface with wide timber and concrete planks.

G7 Provide safe shared pedestrian and cycle access

4

4.2

North and South Point Parks

The rocky points form natural gateways and threshold spaces to the new Shelly Bay area. These are developed as informal recreation and public parking parks with access provided to the coastal edge.

Small scale terraces are proposed to provide seating and picnicking platforms for casual recreation. The points and edges have been filled with various material. It is proposed that the coastal edge is restored to a more natural looking rocky shore. Planting of the rocky shore will be with indigenous native species. An informal gravel parking area is proposed marked only with wheelstops. Planting up to these parks will integrate this parking into the landscape.

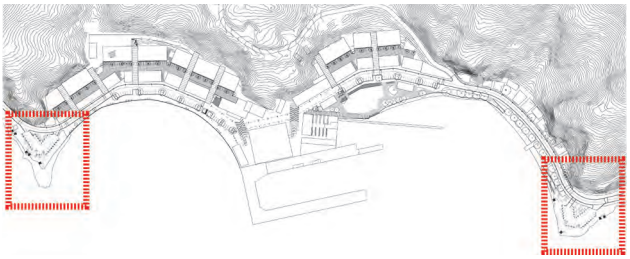
Opportunities exist to rebuild the former guard houses as shelters with interpretation of the areas history or artwork as interpretation.

INDICATIVE PRECEDENT fig. DG 4.2.5

T **TECHNICAL SPECIFICATION**

T1 Gravel carpark with bespoke concrete wheel-stops to define parking.

T2 Terraces to be robust weather concrete with large scale timbers providing seating elements.



NORTH POINT PARK fig. DG 4.2.6

G **DESIGN GUIDANCE**

Objective

O1 To establish flexible open space that restores rocky coastal ecology and accommodates car parking and recreational activities.

Guidelines

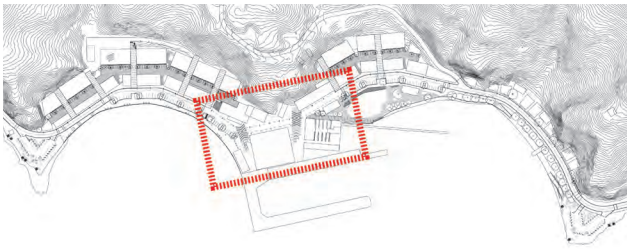
G1 Provide access to the coastal edge in a number of locations for recreational uses including fishing.

G2 Provide small scale terraces oriented to enjoy the sea view, accommodate seating and picnics.

G3 Develop materiality that is principally of the natural rocky shore but with new timber constructed elements.

G4 Utilise local coastal species and apply these in ways consistent with the wider natural coastal edge.

G5 Upgrade the coastal interface with carefully placed rock sympathetic to the natural coast to stabilize the beach edge.



Shelly Bay Wharf

Shelly Bay Wharf is characterised by the existing wharf sheds, continuous flat asphalt surfaces, prosaic paint markings, rough concrete of seawalls and slipway, and timber wharf structures. This materiality is proposed to be continued into the adaptive reuse of this area into a mixed use village centre.

Spaces adjacent and framed by existing, relocated and new built infrastructure are variously oriented and sheltered in different conditions.

The slipway is retained for adaptive reuse, including boutique accommodation, outdoor seating, interactive play and interpretation.

Raingardens are included to collect and filter stormwater runnoff from the adjacent road and parking. These are arranged to assist spatial definition and manage traffic. Seating is provided against the gardens.

Restoration of the wharves will be undertaken as far as practicable to enable pedestrian access and the harbour ferry to dock.

T **TECHNICAL SPECIFICATION**

T1 Asphalt surfacing. Within wharf itself retention of existing wharf surfacing, with replacement where necessary to provide safe surfacing.

T2 Existing wharf structures, services and industrial components including the existing slipways and timber wharfs are to be retained to maintain the existing wharf character. Selective restoration for preservation and public health and safety purposes are to be undertaken.

T3 Raingarden to be provided with min 200mm wide concrete edges.

T4 Limited furniture to be provided and to be simple, robust and consistent to the wharf.

G **DESIGN GUIDANCE**

Objective

O1 To build on the site's existing character and texture, develop interconnected flexible spaces that integrate existing and new built form.

Guidelines

G1 Retain and restore the existing infrastructure to a safe level for proposed adaptive reuse.

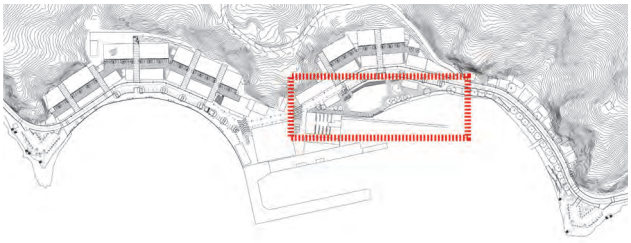
G2 Utilises existing materials including weathered concrete, rusted steel and large scale timbers.

4

4.2
Village Green

The Village Green is located in a sheltered position with access to the coastal edge. This new open space results from the relocation of the existing coastal road inland close to its historical alignment. The new open space comprises a simple, flexible lawn space framed by the retention of existing large Pohutukawa trees and relocated small scale buildings. The scale of the lawn will support various small scale community events. A relocated building occupies the northern end of the Village Green in close proximity to the slipway. Sheltered outdoor seating is available on paved and lawn areas allowing for the continuation of the active spaces associated with the current Chocolate Fish Café. To the south another relocated building may be reused as a community hall or other community use. The roadside edge of the park will accommodate rain gardens for road run-off filtration.

INDICATIVE PRECEDENT fig. DG 4.2.8



VILLAGE GREEN fig. DG 4.2.9

T **TECHNICAL SPECIFICATION**

T1 Use large format concrete paving and timber inlays to provide access across the green space and along the coastal edge.

T2 Retain existing mature Pohutukawas and augment with native coastal species.

G **DESIGN GUIDANCE**

Objective

O1 To establish a new green flexible space that can accommodate active and passive recreation

Guidelines

G1 Utilise space available to include raingardens for stormwater treatment of road runoff.

G2 Provide a clear simple, gently graded green lawn reflecting the simplicity of the current landscape ‘utilitarian/relaxed’ character.

G3 Materiality to be broad lawns with weathered concrete and gravel paving with coastal planting.

VILLAGE GREEN CONTEXT fig. DG 4.2.10

VILLAGE GREEN SOUTH VIEW fig. DG 4.2.11

4

4.2

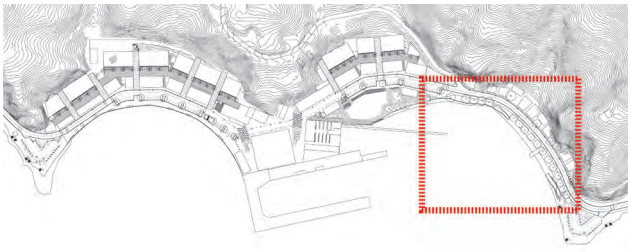
South Bay Beach

South Bay Beach is retained in its relaxed, tree edged environment. A shared cycle / pedestrian path is added along the road. The boat ramp to the centre of the bay is retained with new ramp access for the pedestrians and small scale water craft added to each end. The sea edge requires some erosion protection and this is to be undertaken using carefully placed rocks to create a natural rocky shore edge. To the landward side of the road a 1.5m wide footpath provides safe pedestrian connections from the houses to the South Point Park and Shelly Bay Wharf.

T **TECHNICAL SPECIFICATION**

T1 Locally sourced rock to be used in carefully placed rip rap and weathered concrete to ramps and supporting terrace.

T2 2.5 - 3.0m wide shared cycle / pedestrian asphalt path to road edge (refer Shelly Bay Road).



G **DESIGN GUIDANCE**

Objective

O1 To retain and augment the existing beach character.

Guidelines

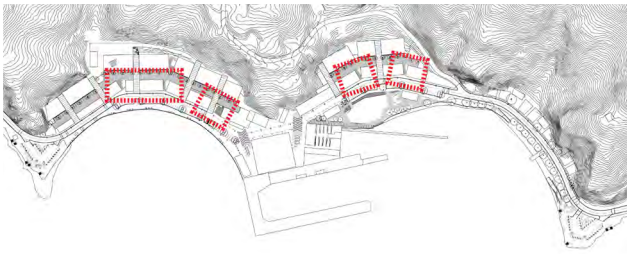
G1 Retain existing natural pebble beach.

G2 Provide safe shared pedestrian and cycle access along road.

G3 Improve pedestrian and small scale water craft access to the beach with an enhanced boat ramp and new pedestrian ramp at the south end of the beach.

G4 Utilise the materiality of the rocky shore.

G5 Upgrade the coastal interface with carefully placed rock sympathetic to the natural coast to stabilize the beach edge.



Communal Courtyards

The open spaces between the town houses and apartments are defined as communal courtyards. In general terms the proposed residential developments are orientated in accordance with the site's topography, fringing the shoreline and base of hills. This curvilinear arrangement opens up generally tapered courtyard spaces between apartment and townhouse developments at their northern and southern ends.

These publicly accessible communally owned courtyards provide access for dwelling occupants to move between the coastal road and parking mews and upper slopes of the apartment lots.

These courtyards are proposed to accommodate a balance of planting and paved surfacing to provide communal amenity and access.

T **TECHNICAL SPECIFICATION**

T1 Utilise resilient NZ native species for planting.

T2 1500mm wide minimum accessible path.

T3 High quality paving.

VIEW THROUGH A COURTYARD fig. DG 4.2.13

G **DESIGN GUIDANCE**

Objectives

O1 To provide amenity and access for future residential occupants in the spaces between buildings.

O2 To encourage design individuality and qualities that reflect and complement the quality and character of the buildings to which they sit adjacent.

Guidelines

G1 Provide a balance of impermeable and permeable surfaces.

G2 Accommodate storm-water filtering gardens where courtyards are adjacent to parking mews.

G3 Develop a material and planting palette that is consistent with, and complements adjacent laneway and parking mews development.

G4 Provide a safe access path through the courtyards between road and parking mews.

G5 Provide amenity lighting which contributes to safety and the unique identity of each space.

4

4.2

Eastern Escarpment Spaces

The eastern side of the apartment developments incorporates the site's steep vegetated slopes which are defined as the eastern escarpment spaces.

These vegetated slopes contribute significantly to the precinct's character and quality, and are proposed to be retained and augmented. Given the steepness of gradients it is likely that physical access to this portion of privately owned land will be minimal, however the slopes will be directly visible from east facing apartments and visually accessible from the surrounding development and waterfront.

It is recognised that the existing invasive pines and other weed species detract from the site's character and should be strategically eradicated from the development sites and replaced by endemic New Zealand bush species.

T **TECHNICAL SPECIFICATION**

T1 Develop a vegetation removal plan in consultation with a qualified arboriculturalist.

T2 Re-vegetate cleared slopes with endemic New Zealand species suited to site conditions.

T3 Retaining structures to be stained timber crib or timber board.

G **DESIGN GUIDANCE**

Objective

O1 To retain the site's verdant green hillside quality but with endemic bush species.

Guidelines

G1 Remove pine and weed species, replace with endemic bush species suitable for site conditions.

G2 Minimise retaining and cut faces.

G3 Where retaining is required, allow for vegetation cover.

ILLUSTRATIVE PLAN fig. DG 4.2.14

APPENDICES

A1 Technical Specifications Construction Systems and Materials

Buildings are to be built with contemporary construction systems and materials. Materials should be used in an authentic manner and should express what they are rather than attempting to represent another material. They should also be used in a way that reinforces functionality, is sustainable and facilitates maintenance.

Only the following materials can be used. The Design Panel may, at its discretion, allow other materials and/or colours if they consider that their inclusion is beneficial to the holistic design of Shelly Bay.

T TOWNHOUSES AND HOUSES

- **Concrete**
  Unpainted / sealer coat only
- **Concrete block**
  Unpainted / sealer coat / painted white, off-white, light grey, mid to dark grey (selected colours only)
- **Stone**
  Honed or flamed finish only (light, mid or dark grey coloured where used as cladding; mid to dark grey coloured where used as paving)
- **Brick**
  Painted white, off-white, light grey (selected colours only)
- **Steel**
  Grey painted steel (light, mid or dark where used as cladding; mid to dark where used as roofing) / galvanised
- **Weathering steel (Corten)**
- **Stainless steel**
  Matt finish only
- **Zinc**
  Natural / pre weathered zinc (quartz, anthra)
- **Aluminium**
  Mill finish / sandblasted / anodised silver or black / powdercoated light, mid or dark grey
- **Copper**
- **Brass**
  Except lacquered
- **Timber**
  Natural unpainted or without stain / light grey stained (selected colours only) / white, off-white, light grey painted (selected colours only)
- **Plaster**
  Natural / grey coloured (selected colours only) / painted white, off-white, light grey (selected colours only)
- **Fibre cement board**
  Sealer coat / painted white, off-white, light grey (selected colours only)
- **Waterproof membrane**
  Self coloured mid to dark grey
- **Glass**
  Except reflective
- **uPVC**
  Self coloured grey or painted grey downpipes only
- **Green walls and roofs**

T APARTMENT BUILDINGS

- **Concrete**

Unpainted / sealer coat only

- **Concrete block**
  Unpainted / sealer coat / painted mid to dark grey; mid to dark green (selected colours only)
- **Stone**
  Honed or flamed finish only (mid to dark grey coloured)
- **Brick**
  Painted mid to dark grey, mid to dark green (selected colours only)
- **Steel**
  Grey painted steel (mid to dark), galvanised
- **Weathering steel (Corten)**
- **Stainless steel**
  Matt finish only
- **Zinc**
  Natural / pre weathered zinc (quartz, anthra)
- **Aluminium**
  Mill finish / sandblasted / anodised black / powdercoated mid to dark grey
- **Copper**
- **Brass**
  Except lacquered
- **Timber**
  Natural unpainted or without stain / dark stained (selected colours only) / painted mid to dark grey; mid to dark green (selected colours only)
- **Plaster**
  Natural / grey coloured (selected colours only)
- **Fibre cement board**
  Sealer coat / painted mid to dark grey; mid to dark green (selected colours only)
- **Waterproof membrane**
  Self coloured mid to dark grey
- **Glass**
  Except reflective
- **uPVC**
  Self coloured grey or painted grey downpipes only
- **Green walls and roofs**

T **EXISTING BUILDINGS | REFURBISHED / RENOVATED / ALTERED**

- **Concrete**
  Unpainted / sealer coat only
- **Concrete block**
  Unpainted / sealer coat / painted white, off-white, light grey, mid to dark grey (selected colours only)
- **Brick**
  Painted white, off-white, light grey (selected colours only)
- **Steel**
  Painted light, mid or dark where used as cladding; red where used as roofing (selected colours only) / galvanised
- **Weathering steel (Corten)**
- **Stainless steel**
  Matt finish only

APPENDICES

A1

- **Zinc**
  Natural / pre weathered zinc (quartz, anthra)
- **Aluminium**
  Mill finish / sandblasted / anodised silver or black / powdercoated light, mid or dark grey
- **Copper**
- **Brass**
  Except lacquered
- **Timber**
  Natural unpainted or without stain / light grey stained (selected colours only) / white, off-white, light grey painted (selected colours only), red where used for doors (selected colours only)
- **Plaster**
  Natural / grey coloured (selected colours only) / painted white, off-white, light grey (selected colours only)
- **Fibre cement board**
  Sealer coat / painted white, off-white, light grey (selected colours only)
- **Waterproof membrane**
  Self coloured mid to dark grey
- **Glass**
  Except reflective
- **uPVC**
  Self coloured grey or painted white or grey downpipes only

T **SPECIAL BUILDINGS**

- **Concrete**
  Unpainted / sealer coat only
- **Concrete block**
  Unpainted / sealer coat / painted white, off-white, light grey, mid to dark grey (selected colours only)
- **Stone**
  Honed or flamed finish only (light, mid or dark grey coloured where used as cladding; mid to dark grey coloured where used as paving)
- **Brick**
  Painted white, off-white, light grey (selected colours only)
- **Steel**
  Grey painted steel (light, mid or dark where used as cladding; mid to dark where used as roofing) / galvanised
- **Weathering steel (Corten)**
- **Stainless steel**
  Matt finish only
- **Zinc**
  Natural / pre weathered zinc (quartz, anthra)
- **Aluminium**
  Mill finish / sandblasted / anodised bronze or black / powdercoated mid or dark grey
- **Copper**

- **Brass**
  Except lacquered

- **Timber**
  Natural unpainted or without stain / light grey stained (selected colours only) / white, off-white, light grey painted (selected colours only)

- **Plaster**
  Natural / grey coloured (selected colours only) / painted white, off-white, light grey (selected colours only)

- **Fibre cement board**
  Sealer coat / painted white, off-white, light grey (selected colours only)

- **Waterproof membrane**
  Self coloured mid to dark grey

- **Glass**
  Except reflective

- **uPVC**
  Self coloured grey or painted grey downpipes only

- **Green walls and roofs**

T **EXCLUSIONS**

All materials and colours not listed above are excluded unless the Design Panel authorises their use. Additionally the following materials and systems are excluded:

- **Roofing tiles**
- **Expanded polystyrene panel systems covered with plaster and/or high build paint**
- **Unpainted tanalised pine**
- **Aluminium windows and doors on existing buildings**

APPENDICES

A2 Technical Specifications Building Colours

A hierarchy of colours has been established to reinforce the Urban Character of Shelly Bay. This establishes the following structure:

- Retention of the original colour palette for existing heritage buildings
- Neutral colours for new residential buildings to give more focus to the existing and new 'special buildings'
- Mid to dark coloured tall buildings so that they recede into the hillside behind

T **TOWNHOUSES AND HOUSES**

- Paint / stain
  White, off-white, light grey, mid to dark grey (selected colours only)
- Stone, timber, metal and other self-coloured materials

refer to the Materials Section

T **APARTMENT BUILDINGS**

- Paint / stain
  Mid to dark grey; mid to dark green (selected colours only)
- Stone, timber, metal and other self-coloured materials

refer to the Materials Section

T **EXISTING BUILDINGS | REFURBISHED / RENOVATED / ALTERED**

- Paint / stain
  White and off-white cladding (selected colours only)
  Red for doors (selected colours only)
  Red and grey for roofing (selected colours only)
- Stone, timber, metal and other self-coloured materials

refer to the Materials Section

T **SPECIAL BUILDINGS**

- Analysis of original colour scheme to be undertaken
- Paint / stain
  White and off-white cladding (selected colours only)
  Red for doors (selected colours only)
  Red and grey for roofing (selected colours only)

- Stone, timber, metal and other self-coloured materials

refer to the Materials Section

APPENDICES

A3 Resource Consent Decision

AECOM New Zealand Limited
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15 February 2016

The Wellington Company
50 Manners Street
Te Aro
WELLINGTON 6011

Dear Sir/Madam

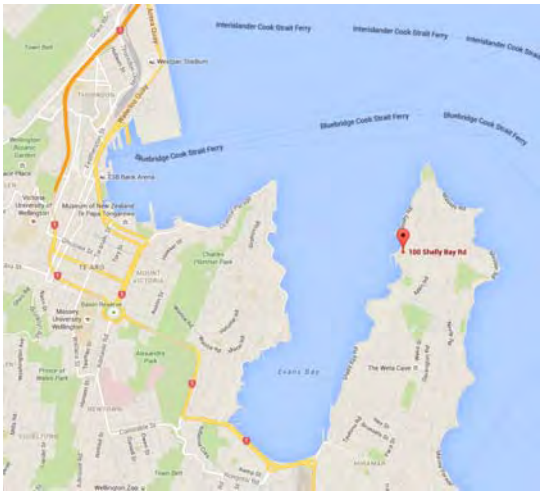
Former Shelly Bay RNZAF Base, Shelly Bay Road, Wellington

1.0 Introduction

1.1 Terms of Reference

This report has been prepared for The Wellington Company Ltd (TWC) by AECOM New Zealand Limited (AECOM), in accordance with the Scope of Works described in the AECOM proposal entitled *Shelly Bay Masterplan Validation and Concept Design Initiation: Tender for Professional Services* dated 5 November 2015. It documents a Preliminary Site Investigation (PSI) undertaken to establish the likely nature and extent of soil contamination at the proposed Shelly Bay residential/commercial development at Shelly Bay, Wellington (the site).

The general site location is shown below.



1.2 Site Description

The site is situated on the western shore of the Watts (Miramar) Peninsula, on Shelly Bay. The wider site encompasses an area of steep, forested hillside above Shelly Bay, dropping down to a narrow coastal strip which contains facilities associated with the former Royal New Zealand Airforce (RNZAF) Shelly Bay Base. Colloquially, these facilities are referenced as being located in North Bay or South Bay.

A public road, which changes from Shelly Bay Road to Massey Road within the site boundary, runs through the site and on the seaward side of the road between North and South Bay are the RNZAF former workshops, wharf and slipway structures.

The figure in **Attachment A** shows the layout of the site.

There are no immediate neighbours to the site, the nearest being those residents in the accommodation area of the south bay and in the former commanders house (located at 264 Shelly Bay Road). The former Mount Crawford Prison is located approximately 500 m above the site to the east.

1.3 Planning Context

Owing to the industrial nature of some of the site's current and former operations, the site has been identified as being on the hazardous activities or industries list (HAIL), as defined by the Ministry for the Environment (MfE). The planned change of land use from a former military base to a mixed residential/commercial development at the site is an *activity* subject to the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS). Under subclause 8(4) of

the NESCS, subdividing land or changing land use is a Permitted Activity while the following requirements are met:

(a) A PSI of the land or piece of land must exist;

(b) The report on the PSI must state that it is highly unlikely that there will be a risk to human health if the activity is done to the piece of land;

(c) The report must be accompanied by a relevant site plan to which the report is referenced;

(d) The consent authority must have the report and the plan.

If the requirement in subclause 8(4) is not met, the activity reverts initially to a Controlled Activity under regulation 9 subclause 9(3).

TWC requested that AECOM complete a PSI as part of a package of work to assess the suitability of the site for a mixed residential/commercial development.

2.0 Objectives

The objectives of the PSI were to:

- Compile information on the potentially contaminating activities that may have been undertaken at or affected the site;
- Provide an assessment of the likelihood of risk to human health for the proposed mixed commercial/residential development.

3.0 Scope of Works

The PSI works were undertaken by AECOM between December 2015 and February 2016 and included;

1. Review of records provided by TWC in relation to previous land uses that could have had an impact on soil and groundwater quality at the site.
2. Targeted soil sampling at pre-selected locations, on 17 December 2015, during geotechnical works undertaken at the site as part of a Preliminary Geotechnical Assessment (PGA).[1]
3. A site walkover[2] undertaken on 17 December 2015 (including compilation of a photographic record) to identify potential sources of impact to soil.
4. A review of information held in the Greater Wellington Regional Council (GWRC) Selected Land Use Register (SLUR).
5. Review of records and selected aerial photographs held by Wellington City Council (WCC) Archives, on 22 January 2016, to determine previous land uses of the site and the surrounding area.
6. Review of selected historical aerial photographs available from Opus International Consultants to determine previous land uses of the site and the surrounding area.
7. Production of this PSI report.

Assessment of compliance of the site with environmental legislation, the presence of asbestos or asbestos containing building material and consideration of responsibility for previous contamination (if any), do not form part of the scope of works for this PSI.

4.0 Environmental Setting

According to the New Zealand Geological Map of the Wellington Area[3], the site is underlain by grey sandstone-mudstone sequences (collectively known as Greywacke) of the Rakaia terrane. The greywacke is overlain by a thin sequence of marine sediments and fill.

[1] Preliminary Geotechnical Assessment. Report prepared by AECOM New Zealand Limited for The Wellington Company dated 9 February 2016.
[2] Access to the seaward side of the site was not able to be gained by the AECOM environmental scientist. Photographs of this area were collected from the roadway.
[3] Begg JG (et al). Geology of the Wellington Area. Institute of Geological and Nuclear Sciences 1:250,000 Geological Map 10.

Investigations indicate that groundwater is present at the site between approximately 1.8 m and 1.9 m below ground level (bgl). Shallow groundwater is inferred to flow to the west towards Shelly Bay at the base of the sediments, at the interface with the greywacke basement.

The closest surface water body is Shelly Bay, located immediately west of the site.

5.0 Overview of Site History

The Wairarapa earthquake in 1855 raised several beach terraces above sea level on the Watts Peninsula. The resultant beaches at the site were selected as a suitable location for the re-location of the Submarine Mining Depot from Thorndon during the "Russian Scare" of 1885.

An area of approximately 76 hectares of Watts Peninsula was acquired by Proclamation No.55, New Zealand Gazette on 28 May 1886 (GAZ 1886 P864) by the New Zealand Defence Force (NZDF) for the "Construction of Defence Works at Watts Peninsula"[4]. The land holdings that form the wider site comprise five individual parcels of land legally described as follows:

- Section 1, SO 19026 - 1.7787ha
- Part Section 1, SO 37939 - 39.5965ha
- Part Section 2, SO 37939 - 25.8338ha
- Part Section 3, SO 37939 - 8.8923ha
- Part Section 3, SO 37939 - 0.2859ha

The site was used for military purposes but remained largely undeveloped until 1914[5] with the construction of munitions stores and a small tramway connecting the stores to the wharf at the site.

The site underwent major development in 1942 with reclamation of 2.7 ha of land, dredging, and the construction of ten naval magazines. The breastwork, wharves, slipway and boilerhouse were added in 1943. The reclamation also enabled substantial re-alignment of the coastal road.

From 1943 the wider site was used for the maintenance of navy support vessels based in Wellington. Associated activities included workshop operations, storage of munitions and fuel, vehicle washing and maintenance and firearms practice.

Occupancy of Shelly Bay was transferred to the RNZAF in 1946 and the site was occupied until 1995, however during the time of occupation a number of civilian influences were present at Shelly Bay. The breastwork and slipway have been leased to a series of civilian companies from 1947 to the present day.

A number of facilities have been decommissioned or removed, including fuel storage tanks, the coal fired boilerhouse and parts of the steam reticulation system. Structural instability also led to the closure of the main wharf area.

The site is now occupied by a number of artisans; film properties hire stores and a cafe.

A summary of the information on the wider site sourced from TWC records, WCC archive files, property files and the GWRC SLUR, is presented in a timeline in **Attachment B**.

A summary of the publically available aerial photographs covering the period 1948 to 2013 is presented in **Attachment C**.

A plan taken from Opus January 2008[6] and the GWRC SLUR are presented as **Attachment D** for reference of building names.

6.0 GWRC SLUR

The wider site is included on the GWRC SLUR as it is believed to have been, or has been, used for the following hazardous activity or industry listed on the HAIL:

C1 - Explosives and ordinances production, storage and use - Explosive or ordinance production, maintenance, dismantling, disposal, bulk storage or re-packaging;

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[4] Letter from Defence Headquarters to the City Solicitor (Letter dated 5 May 1981). Wellington City Council Archive Files.
[5] Shelly Bay Air Force Base Site Profile at Capital Defence. Document referenced in the Wellington Regional Council Documentation. http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm
[6] Shelly Bay – Character and Condition Assessment January 2008, Opus International Consultants Limited dated 31 Janaury 2008 ref 460528.

A17 - Chemical manufacture, application and bulk storage - Storage tanks or drums for fuel, chemicals or liquid waste.

The property appears on the SLUR as: Verified History of Hazardous Activity or Industry. The information included on the SLUR entry is included below

'This site has been used as an Air-Force base. General military camp facilities including workshops, paint stores, munitions stores, sewage pumping station, a rifle range and a shipway and repair yard were onsite. An underground storage tank was also on site but has since been removed. No tank pull report is held by Greater Wellington. There are unconfirmed notes on file suggesting a landfill on this site, but there is no indication of a location or likely contents if it exists. The site was decommissioned in 1995. Potential contaminants include explosives, lead, copper, antimony, solvents and metals and hydrocarbons. No detailed information is held for this site regarding the level of contamination, if any, that has occurred.'

A file note associated with the SLUR listing[7] notes that there are three polygons (areas where HAIL activities may have occurred) on the SLUR related to the previous activities undertaken at the site. These are described below. The polygon locations are shown in **Attachment E**.

Polygon Identified	***Activity Undertaken***	***Comments***
Polygon A	SERCO Paint store Fuel Supply building Shipway/Repair Yard	
Polygon B	Commanders House (no activity identified)	No hazardous activities were associated with this location specifically, however as this location was originally identified in the early versions of the SLUR the polygon remains.
No polygon identified	Sewage Pumping Station	No specific polygon associated with the presence of the sewage pumping station, however this activity is noted to have occurred at the site.
Polygon C	Riffle range and munitions store sites.	Outside the area of the site defined as part of the PSI.

7.0 Site Walkover

A site inspection was undertaken during site works on 17 December 2015 to observe current conditions and evidence of historic activities and included;

- Gaining an understanding of the general environmental setting of the site in respect of the site neighbours and proximity and condition of adjacent water bodies, particularly any areas of potential risk from environmental incidents.
- Record of physical evidence of historical contamination or structures that may indicate activities that could have resulted in contamination in the past, including the locations of current or former underground storage tanks, grease or oil traps, sumps or other interceptors and waste treatment areas.

A photographic record of current site conditions is included as **Attachment F**.

8.0 Soil Sampling

An AECOM environmental scientist was present during advancement of three test pits at the site. The test pit locations were chosen to assess geotechnical properties of soil. The locations of the test pits were;

- TP4 – located adjacent to the roadway near Building No. 8.

[7] Greater Wellington Regional Council File note 15 October 2008 (SN/05/059/02).

- TP5 – located across estimated hydraulic gradient from the boilerhouse and associated drainage separator.
- TP6 – located down estimated hydraulic gradient of the former laundry.

Nine soil samples were collected from the test pits during advancement. Soil samples were collected at changes in lithology in fill material at the site. The location of the test pits are shown on the plan in **Attachment F**.

Sub-samples of soils were screened in the field by placing a portion of each sample collected into a bag for analysis of headspace volatile organic compounds (VOCs) using a photo-ionisation detector (PID).

Soil samples were packaged and sent to Hill Laboratories Ltd in Hamilton under AECOM Chain of Custody procedures. Three soil samples TP04 0.5, TP5 0.5, TP6 0.7 were analysed for total petroleum hydrocarbon (TPH) concentrations and samples TP4 0.3, TP4 1.1, TP5 0.7 and TP5 1.1 and TP6 0.5 for metals (arsenic, cadmium, chromium, copper, lead, nickel and zinc).

Chain of custody documentation and analytical reports as received are presented as **Attachment G**.

8.1 Observations

No visual or olfactory evidence of impact by petroleum hydrocarbons was noted during the site works. Headspace VOC concentrations ranged between 0.0 ppm and 0.1 ppm.

Soils comprised greywacke fill material underlain by marine sands and greywacke basement. Groundwater was present at approximately 1.8 m bgl.

8.2 Analytical Results

Soil sample analytical results as received, together with selected environmental guideline criteria, are included in **Attachment H**.

Reported TPH concentrations were below laboratory method detection limits.

Metals concentrations were generally at or close to the Wellington background concentrations with the exception of arsenic concentrations of 34 mg/kg in the soil sample collected of fill from test pit 6 at 0.5 m bgl, compared to background range of < 2 mg/kg to 7 mg/kg.

9.0 Potential for Contamination

Records indicate that the site has been used for industrial and commercial activities since at least the 1940s, mainly associated with the operation of the RNZAF base including, the boilerhouse, workshop activities, the operation of the slipway and munitions storage in magazines. A summary of the potential hazardous activities and industries undertaken is as per **Attachment F.**

A plan included in **Attachment F** shows the areas of the site where impact to environmental media may have resulted from the hazardous activities carried out.

The main potential sources of contamination associated with the land uses comprise;

- Leaks and spills of hydrocarbon products to ground from the refuelling of vehicles and marine craft.
- Leaks and spills of hydrocarbon products associated with the storage and the maintenance of transport vehicles.
- Concentrations of metals and antifouling substances associated with the maintenance of marine craft and the operation of the slipway.
- Localised impact from the wastewater treatment plant in South Bay.
- Localised metals impact to soil from the use of lead paint, coal ash (if buried at the site) and munitions residues.

A survey of asbestos containing material has not been undertaken at the site as part of this investigation, however as the structures at the site pre-date the cessation of the use of asbestos in building materials (1990's), there is potential for impact to soil from the use and removal of asbestos containing material at the site. Investigations undertaken by Tonkin and Taylor have identified the presence of asbestos in the form of Chrysotile, Amosite and Crocidolite in the subsurface beneath Building No.8 workshops. No other environmental investigations of the site are known to AECOM.

With the exception of potential localised soil and groundwater impact around the wastewater treatment plant, the South Bay area mainly comprised residential facilities. On this basis, it is considered highly unlikely that there is a risk to human health from contaminants in soil and groundwater, under the current or proposed commercial/residential land use. This assessment does not cover the potential for asbestos in soils.

A boilerhouse and septic tank were located in North Bay. Other buildings in North Bay were mainly used for administrative purposes, including messes and a hospital. Notwithstanding the presence of localised impact associated with former activities, as indicated by elevated arsenic encountered within shallow fill at one location, it is considered that it is highly unlikely that there is a risk to human health under the current or proposed commercial/residential land use for much of North Bay. This assessment does not cover the potential for asbestos in soils.

AECOM were not able to investigate the seaward side of Shelly Bay Road where the record review has shown the presence of partially buried fuel storage tanks and industrial activities occurred. As such the likelihood of impact to soil and groundwater in this area is currently unknown.

10.0 Closure

We trust this PSI report meets your requirements. Please do not hesitate to contact us should you wish to discuss it.

Yours sincerely,

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Attachments
Attachment A: Site Layout
Attachment B: Timeline of Events
Attachment C: Aerial Photograph Review
Attachment D: Plans Showing Building Locations
Attachment E: Wellington Regional Council GIS Viewer Selected Land Use Register Polygons
Attachment F: Potential Contaminant Sources and Photolog
Attachment G: Laboratory Analytical Results and Chain of Custody Documentation: Soil Sample Analytical
Attachment H: Results Compare to Guideline Values

11.0 Limitations

This conclusion and all information in this Report is given strictly in accordance with and subject to the following limitations and recommendations:

AECOM New Zealand Limited (AECOM) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of The Wellington Company and only those third parties who have been authorised in writing by AECOM to rely on this Report.

It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this Report.

It is prepared in accordance with the scope of work and for the purpose outlined in the contract dated 7 December 2015.

Where this Report indicates that information has been provided to AECOM by third parties, AECOM has made no independent verification of this information except as expressly stated in the Report. AECOM assumes no liability for any inaccuracies in or omissions to that information.

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It is the responsibility of third parties to independently make inquiries or seek advice in relation to their particular requirements and proposed use of the site.

Any estimates of potential costs which have been provided are presented as estimates only as at the date of the Report. Any cost estimates that have been provided may therefore vary from actual costs at the time of expenditure.

Map Legend

TP4 Test Pit Location

Approximate line of reclamation fill

Notes
Contours are at 5m intervals, and derived from data captured as part of the Wellington City Rural Aerial Photography Pro˙ect 2004.

ATTACHMENT A: SITE LAYOUT

ATTACHMENT B: TIMELINE OF EVENTS

Date	*Source*	*Information*
1886	Letter from Defence Headquarters to the City Solicitor (Letter dated 5 May 1981).	The base area is contained within an area of land that was set aside in 1886 for Defence Works by proclamation under the Public Works Act 1885. Notes that the existing formed road is largely formed on land reclaimed by Defence during World War II and only coincides with the legal road in isolated places.
1886	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	The Submarine Mining Depot was relocated from Thorndon and Mahanga Bay to the site.
1907	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	Responsibility for the Submarine Mining Depot at Shelly Bay transferred to the Navy.
1914	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	Munitions stores were built and a small tramway constructed connecting the depot with "its wharf" – it not clear which Wharf this document is referring to.
1915	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	Government Magazine built at Shelly Bay by Public Works Department.
1942	Shelly Bay Naval Depot Plans - Wellington City Archive	General plans prepared for the development of the site.
1942	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	Excavations made for the magazines.
April 1942	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	Contract let to construct the armament depot located on the hillside behind Shelly Bay. Involved the construction of ten magazine buildings, laboratory, office, garage and a house for an ordinance officer.
May 1942	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	Reclamation work commenced in Shelly Bay and adjacent Northward Bay. Notes that the reclamation was done by excavating the adjacent hillside and using it as fill for reclamation works. Reclamation largely completed by the end of 1942.
October 1942	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	Wharves started in October following dredging of the bay.
November 1943	Shelly Bay Character and Condition Assessment Opus January 2008.	Decision to house personnel on site. Initiation of the officers' quarters in South Bay.

ATTACHMENT B: TIMELINE OF EVENTS

Date	***Source***	***Information***
1 June 1944	Shelly Bay Character and Condition Assessment Opus January 2008.	Full complement of 200 personnel at the site but construction not completed.
May 1945	Shelly Bay Character and Condition Assessment Opus January 2008.	Base completed
April 1946	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	Base transferred to the RNZAF.
21 April 1947	Letter to the town clerk from PMoF entitled Military Buildings on Road Reservation Areas.	Letter references temporary buildings erected on road reserve areas by the Public Works Department for the "respective fighting services during the war period have been removed with the exception of the following:" C. Naval Barracks, Shelly Bay. At present occupied by RNZAF. Letter notes that the Navy closed this section of Massey Road and carried out extensive reclamation, building and road deviation works for the purpose of providing a Naval Stores Depot. The new road formation has been formed mainly on the reclaimed section of land. The letter considers it necessary to re-locate the legal roadway.
July 1947	Shelly Bay Character and Condition Assessment Opus January 2008.	Barney Daniel won contract for shipwrights building and slipway.
16 November 1971	Letter from GI Cooper and WS Brambley Trustees for a Company being formed to be known as Shelly Bay Slipways Limited: Application for a Motors Spirits Retailers Licence Restricted to Marine Craft Only at Shelly Bay Wharf Wellington. Plan: Shelly Bay Slipways Limited Shelly Bay Wharf Wellington – Proposed marine refuelling facilities	Proposed marine refuelling facilities for dispensing super and regular grade petrol from wharf with 2 x 1000 gallon tanks located outside workshop. Letter notes the presence of a marine diesel pump installed "on the Slipway". The plan notes that the 2000 gallon marine diesel tank is semi buried with a concrete block pit and that the pumps are located on a jetty that is lower than the main wharf.
1979	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	Largely used for administration for 300 personnel with approximately 150 people based at the site.
8 May 1981	Letter from City Solicitor (Mr Kerr) to the Town Clerk.	Reference to "reclaimed land". *I gather that some of the wharf and associated area are unauthorised harbour reclamation."*
11 June 1981(or 1983 writing is not clear)	Evening Post Article: the slipping of Shelly Bay.	Article notes: Ex-wartime launches used as civil aviation control craft for the flying boat base in Evans Bay and also finishing boats, pleasure craft and coasters that needed repairing were serviced at the Shelly Bay Slipway.

ATTACHMENT B: TIMELINE OF EVENTS

Date	***Source***	***Information***
1985	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	Combined mess constructed.
1 July 1986	Memorandum to the Town Clerk from the Town Planning Committee	Memorandum to construct three stretches of rock slope protection (rip rap) to prevent coastal erosion. Notes that the improvement works – will "improve the present unsightly mess of demolition material which has been dumped there.
15 September 1987	Letter from Wellington Harbour Maritime Planning Authority Circular No. 13391 to the Chairman and Members of the Authority – Seawall in Shelly Bay – Ministry of Defence. Report by the Planner A W Stewart	Notes that during an inspection of the replacement of the sea wall at Shelly Bay – most of the concrete and brick building rubble had been removed. The letter also indicates that a few pieces of old steel and a piece of reinforcing mesh remain.
24 October 1990	Letter from Wellington City Council to the Secretatry for Defence.	Notes that the slipway facility at Shelley Bay (sic) is to be closed.
28 August 1992	Letter to Defence Force Headquarters NZ from Wellington Regional Council (Manager of Consents and Investigations) – Contained in WRC SLUR search.	Consideration being given to decommissioning various underground storage tanks at Shelly Bay.
11 January 1993	Application to Wellington City Council for Building Consent to remove "two petrol tanks"	Application to remove "existing fuel tanks and pumps".
30 June 1995	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	Last official day of RNZAF on site.
9 February 1998	Wellington Regional Council fax to New Zealand Defence Force – dated 9 February 1998. Reference K/9/5/59) – Contained in WRC SLUR search.	Site contained underground storage tanks which have now been removed (no date listed). Unconfirmed notes on file regarding a landfill on site. Location and contents of fill unknown.
November 2001	Email to Wellington City Council from Unknown?: Shelly Bay Slipway Building Demolition of Lean-to Structures.	Application to demolish lean-to's constructed without the permission of NZDF containing Asbestos sheet wall lining on the Shelly Bay Slipway. SERCO quotation sought and accepted for the removal "of the asbestos content in an approved manner and to demolish the structures and remove all debris to the closest landfill". Demolition to occur 10-20 December 2001.

ATTACHMENT B: TIMELINE OF EVENTS

Date	***Source***	***Information***
15 October 2008	Greater Wellington Regional Council File Note entitled Changes to GISMO polygon layer, Shelly Bay Defence Land (SN/05/059/02)	Potential hazardous activities and industries undertaken include; • SERCO Paint Store • Fuel Supply Buildings • Sewage Pumping Station • Shipway/Repair Yard • Commanders House (no hazardous activities but area of original polygon so remains). • Munitions store sites and rifle range. Map attached 2002 Serco map.
Mid 2010	Capital Defence – Wellington Built Military Heritage http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm	One wing of the WW2 barracks was demolished due to an unsafe roof.

ATTACHMENT C: AERIAL PHOTOGRAPH REVIEW

Date/Source	***Key Site Features***	***Surrounding Land Features***
1947 Oblique Aerial Photograph Page 31 (00278:10:31)	Oblique angle photograph of South Bay, the Wharf area and North Bay. South Bay accommodation buildings developed. Buildings present over the area that currently houses the sewage treatment plant. North Bay building in the area of grass in front of the current café property (use unknown). Hospital, boilerhouse, gymnasium accommodations and mess present.	Magazines present on "Main Road" leading to the site of the current Massey Memorial.
1948 Aerial taken from http://capitaldefence.freewebhost.co.nz/prfles/other/sbay2.htm Site overview, scale unknown. Reference as "Overlooking Shelly Bay Air Force Base, Wellington" ref no 1/2-046266. Alexander Turnball National Library.	Oblique angle photograph showing the South Bay accommodation area and the Wharf area in the foreground with the North Bay buildings present in the area of the current café and the gymnasium.	Magazines present on Main Road.
1962 Supplied by TWC. Scale unknown.	Aerial showing North and South bays and Main Road. The site layout is as per the current layout with the exception of the following: - The combined mess is not present. - The garaging is not present in either the north or South Bay - Accommodation buildings present in the area of the sewage treatment plant. - The dangerous goods store is not present.	Magazines present on Main Road.
5 May 1968 Aerial Contact Print Sheet I/9 and I/10. Wellington City Council Archives Scale 1:3000 (AC108:1:61 and AC108:1:62)	Aerial showing North and South Bays and Main Road. - Accommodation buildings present in the area of the sewage treatment plant have been removed. - The building in the area in front of the café has been removed. - The coal bunkers are visible. The site layout is as per the current layout with the exception of the following: - The combined mess is not present. - The dangerous goods store is not present.	Magazines present on Main Road.
28 September 1975 Aerial Contract Print Sheet 1:124 and 1:125. Wellington City Council Archives 1:3000 (AC109:1:124 and AC109:1:125)	Aerial showing North and South Bays and Main Road. As for the 1968 aerial with the exception that a lean-to structure is present in the area between the Shipwrights Building and the Inner Wharf.	Magazines present on Main Road.

ATTACHMENT C: AERIAL PHOTOGRAPH REVIEW

Date/Source	*Key Site Features*	*Surrounding Land Features*
1996 Aerial Photograph – Wellington City Council website http://wellington.govt.nz/webmap/wccmap.html	Aerial showing North and South Bay, Main Road (with heavy vegetation) and the Wellington Prison. As for the 1975 aerial with the exception of; - The combined mess is present. - The dangerous goods store is present. - There is a concrete pad present directly adjacent to the dangerous good store. - The sewage treatment plant is present.	The Magazines are no longer visible on the aerial.
2004 Aerial Photograph – Wellington City Council website http://wellington.govt.nz/webmap/wccmap.html	Aerial showing North and South Bay, Main Road (no longer recognisable) and the Wellington Prison. As for the 1996 aerial with the exception of; - The lean-to structure has been removed and several white structures (possibly concrete) are in the area of the lean-to. Possibly indicating the presence of fuel storage tanks?	None relevant to the investigation.
2006 Aerial Photograph – Wellington City Council website http://wellington.govt.nz/webmap/wccmap.html	No significant change to features at the site. More storage of materials around the dangerous goods store.	None relevant to the investigation.
2009 Aerial Photograph – Wellington City Council website http://wellington.govt.nz/webmap/wccmap.html	No significant change to features at the site. More storage of materials around the dangerous goods store.	None relevant to the investigation.
2010 Aerial Photograph – Wellington City Council website http://wellington.govt.nz/webmap/wccmap.html	No significant change to features at the site.	None relevant to the investigation.
2013 Aerial Photograph – Wellington City Council website http://wellington.govt.nz/webmap/wccmap.html	Airmens accommodation removed from the site between 2010 aerial and this aerial.	None relevant to the investigation.

8

Site Character Matrix 2008

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	16a	16b	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		A				G Bay																									
Medium	Medium	Medium	Medium	Medium	Medium	Low	Medium	High	Low	Low	Medium	Low	High	High	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium	High	Medium	Medium	High	Medium	Medium	Medium	Low	Medium
		High						High					High	High		High							High			Medium					
												Low	High	High	Low	Medium	Medium		Low	Low								Low				Low
													Medium	Medium																	


SHELLY BAY
AIR FORCE BASE
Wellington, New Zealand.
1. Gym and Cook lounge.
2. "Elephant House"
3. Combined Mess.
4. W/O's & SNCO's Mess.
5. W/O's & SNCO's Mess TV room.
6. MTC / Bayview Annex
7. Other ranks garages.
8. Airmen's Accommodation
9. Laundry and boiler house.
10. Coal bunker.
11. Base incinerator.
12. Junior Ranks Club (orig 1886 bldg)
13. SERCO workshop/offices.
14. SERCO paint store.
15. Fuel supply bldg.
16. Wharf - outer.
17. Wharf - inner.
18. Supply MT & AFCC
19. Slipway winch house.
20 Slipway/repair yard
21. Shipwrights shop.
22. Library.
23. Garages.
24. Base HQ and Officers Accomodation.
25. Officers Mess and accommodation.
26. Officers Laundry.
27. Sewage pumping station
28.
29. RCDR's Tied HQ & outbuildings.
30. Dog Kennels.
31. Guard House.
32. Officers Pad.
33. Magazines (numbered m1 - m10) (m10 is off the map).
34. Reservoir.
35. Rifle range.
Map traced 19/5/2002 from SERCO map.

ATTACHMENT E: WELLINGTON REGIONAL COUNCIL GIS VIEWER SELECTED LAND USE REGISTER POLYGONS

Extracted from Wellington Regional Council GIS Viewer: Extraction Date 19 January 2016.

No bores present within 1000 m of the site (Buffer Search 19 January 2016).

ATTACHMENT E: POTENTIAL CONTAMINANT SOURCES

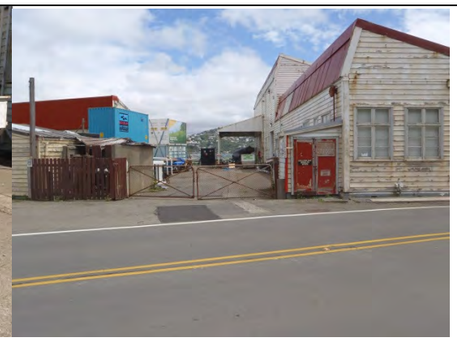
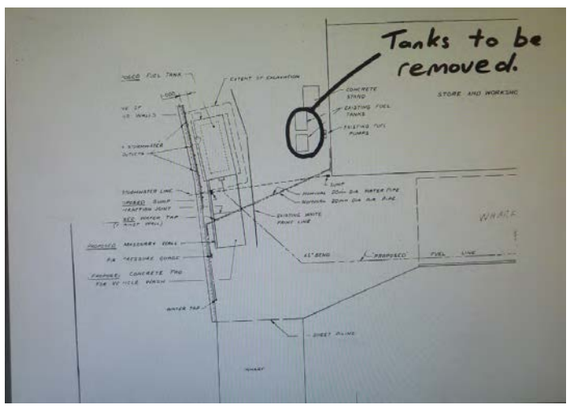
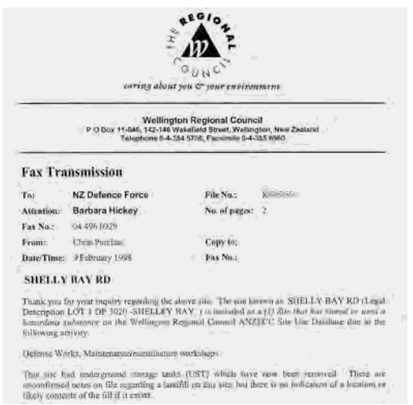
ATTACHMENT F: POTENTIAL CONTAMINANT SOURCES AND PHOTOLOG

Element	***Source of Information***	***Comment***	***Photograph***
Stormwater	Site Walkover	The boilerhouse condensate and blowdown previously entered the stormwater via an interceptor located adjacent to the boilerhouse facility. Photograph 1: Overview of the separator pit located adjacent to the boilerhouse. The stormwater manhole is noted in the middle of the picture. Photograph 2: Interceptor pit – no visual or olfactory evidence of impact of the water. Sediment in the interceptor may be impacted by metal contamination. Photograph 3: Inside the stormwater manhole located closest to the boiler house. No visual or olfactory evidence of impact noted on the water surface. ***Evaluation of potential for soil and groundwater impact***: No significant impact expected.	  
		Surface water run-off and small streams are evident on the hillside with all water draining from the slope collected in an interceptor channel at the foot of the slope. Photograph 4: Example of the interceptor channel at the base of the greywacke escarpment (North Bay). No visual or olfactory evidence of impact. Photograph 5: Example of the interceptor channel at the base of the greywacke escarpment (North Bay). No visual or olfactory evidence of impact. ***Evaluation of potential for soil and groundwater impact***: No significant impact expected.	 
		Stomwater collection at the rear of the Officers Mess and Accommodation building (South Bay). Photograph 6: Stormwater grate. ***Evaluation of potential for soil and groundwater impact***: No significant impact expected.	

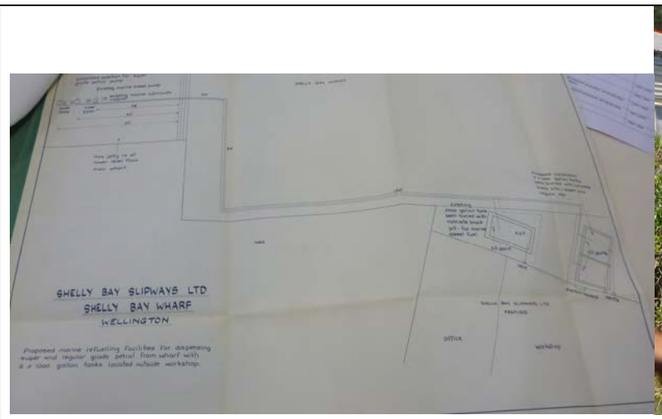
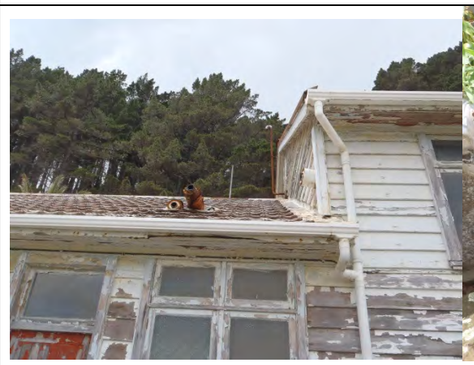
ATTACHMENT E: POTENTIAL CONTAMINANT SOURCES AND PHOTOLOG

Commanders House	Wellington Regional Council Selected Land Use Register	No evidence of current or historical hazardous activities. Photograph 7: Commanders House showing stormwater runoff from the hills above the site. ***Evaluation of potential for soil and groundwater impact***: No significant impact expected.	
Wastewater Pumping Station	Site walkover	A wastewater pumping station is a wooden building and associated underground structures operated by Wellington Water located at the south end of South Bay. Photograph 8: Building housing the pumping station equipment. Photograph 9: Wastewater retention structures. Access was unable to be made to the chambers present in the area to assess if biosolids were present. ***Evaluation of potential for soil and groundwater impact***: Biosolids may be present at the site and operational losses may have potential to create localised impact to soil and water in the vicinity of the plant.	 
Sewage/Septic	Opus January 2008	Opus January 2008 notes that wastewater from the Shipwrights Building drains to the Sea. Anecdotal evidence indicates that a disused septic tank is located at Building 6. A partially buried septic tank present adjacent to the Mess Building. Photograph 10: Septic tank located adjacent to the Mess Building. ***Evaluation of potential for soil and groundwater impact***: Considering the potential age and if maintenance of the facility is undertaken, significant impact to soil and groundwater is considered unlikely.	

ATTACHMENT E: POTENTIAL CONTAMINANT SOURCES AND PHOTOLOG

Current Dangerous Goods Storage Container	Geotechnical Investigation	A dangerous goods storage container is present in the area between Building No. 8 and the Shipwrights Building. No information on the contents of the container was sought as part of this investigation. Photograph 11: Dangerous Goods Storage Container (black in the centre of the photograph) Photograph 12: Overview of the area containing the Dangerous Goods Storage Container. ***Evaluation of potential for soil and groundwater impact***: The photograph does not show any significant staining associated with the dangerous goods storage container. It is considered unlikely that significant impact to soil or groundwater would be related to the storage container.	 
Dangerous Goods Store/Fuel Storage	Geotechnical Investigation / Opus January 2008.	The facility was not observed as part of the PSI, however information provided during the geotechnical investigation showed that the dangerous goods store (referred to as the fuel supply building and paint store) is a concrete block structure adjacent to Building No. 8. The fuel supply building contained a diesel tank (an above ground tank located in shallow pit) which was removed in 1995 when the base closed. Photograph 13: Overview of the Dangerous Goods Store area taken from Shelly Bay Road. Photograph 14: Inside the Dangerous Goods Store. ***Evaluation of potential for soil and groundwater impact***: The photograph does not show significant staining inside the Dangerous Goods Store. As the building is retaining water it is considered unlikely that significant impact to soil and groundwater would be associated with this structure.	 
Fuel Storage	Geotechnical Investigation Wellington City Council Archives Plan 0066_1_34.pdf (1993). Wellington Regional Council fax to New Zealand Defence Force – dated 9 February 1998. Reference K/9/5/59) – Contained in WRC SLUR search.	An above ground fuel storage tank was located inside the Dangerous Goods Store (details above). Photograph 15: Plan from Wellington City Archives file 0060:1:34 showing the location of the Dangerous Goods Store and "existing fuel tanks" it is not clear if the "existing tanks are below or above ground. No direct records are available to confirm if the removal of the "existing" tanks. A fax from Wellington Regional Council to the New Zealand Defence Force dated 9 February 1998 states that the site contained underground storage tanks which have now been removed. It is not clear if the tanks removed are related to these "existing tanks". ***Evaluation of potential for soil and groundwater impact***: It is not known from the records reviewed if the tanks are above ground or underground. If the tanks were located underground, soil and groundwater may have been impacted due to operational losses.	As for above photographs and below.   THE REGIONAL COUNCIL caring about you & your environment Wellington Regional Council P O Box 11-646, 142-146 Wakefield Street, Wellington, New Zealand Telephone 0-4-384 5708, Facsimile 0-4-385 6960 **Fax Transmission** To: NZ Defence Force — File No.: [redacted] Attention: Barbara Hickey — No. of pages: 2 Fax No.: 04 496 1029 From: Chris Purchas — Copy to: Date/Time: 9 February 1998 — Fax No.: **SHELLY BAY RD** Thank you for your inquiry regarding the above site. The site known as SHELLY BAY RD (Legal Description LOT 1 DP 3020 -SHELLEY BAY,) is included as a *HAIL site that has ceased to until a hazardous substance on the Wellington Regional Council ANZECC Site Use Database due to the following activity.* Defence Works, Maintenance/manufacture workshops This site had underground storage tanks (UST) which have now been removed. There are unconfirmed notes on file regarding a landfill on this site, but there is no indication of a location or likely contents of the fill if it exists.

ATTACHMENT E: POTENTIAL CONTAMINANT SOURCES AND PHOTOLOG

	Geotechnical Investigation (Photograph) Plan: Shelly Bay Slipways Limited Shelly Bay Wharf Wellington – Proposed marine refuelling facilities Letter from GI Cooper and WS Brambley Trustees for a Company being formed to be known as Shelly Bay Slipways Limited: Application for a Motors Spirits Retailers Licence Restricted to Marine Craft Only at Shelly Bay Wharf Wellington.	Wellington City Council records show the presence of an existing 2,000 gallon semi-buried diesel storage tank present in a concrete block bund. The document also includes an application dated 16 November 1971 for the installation of 2 semi-buried 1000 gallon super and regular motor spirits tanks. No direct records are available to confirm if the removal of the "existing" tank or whether the proposed tanks were installed. A fax from Wellington Regional Council to the New Zealand Defence Force dated 9 February 1998 states that the site contained underground storage tanks which have now been removed. It is not clear if the tanks removed are related to these tanks. Photograph 16: Plan from Wellington City Council archives of the location of the existing and proposed semi-buried tanks. Photograph 17: Photograph of the approximate area where the semi-buried tanks are/were thought to be located. ***Evaluation of potential for soil and groundwater impact***: soil and groundwater may have been impacted due to operational losses.	 
Asbestos	Site Walkover	Asbestos lagging may have been used in piping that transferred heat from the boilerhouse to the buildings at the base. The piping remains present at the site with sections showing various stages of aging/decay exposing lagging. Testing of the lagging material and an asbestos survey have not been undertaken as part of these works. Photograph 18: Pipping and lagging exiting the boilerhouse roof. Photograph 19: Pipe lagging exposed at the base of the greywacke escarpment (North Bay). ***Evaluation of potential for soil and groundwater impact***: An asbestos survey has not been completed for the site. There is potential for the structures already demolished to impact soil if the asbestos was not removed appropriately. If structures or the lagging is to be removed at the site there is potential for soil to be impacted by asbestos if not undertaken correctly. Groundwater is unlikely to be affected by asbestos.	 
	Site Walkover	Possible asbestos containing material present on the floor of the boilerhouse. Photograph 20: Possible asbestos containing material noted on the floor of the boilerhouse. ***Evaluation of potential for soil and groundwater impact***: An asbestos survey has not been completed for the site. There is potential for the structures already demolished to impact soil if the asbestos was not removed appropriately. If structures are to be removed at the site there is potential for soil to be impacted by asbestos if not undertaken correctly. Groundwater is unlikely to be affected by asbestos.	

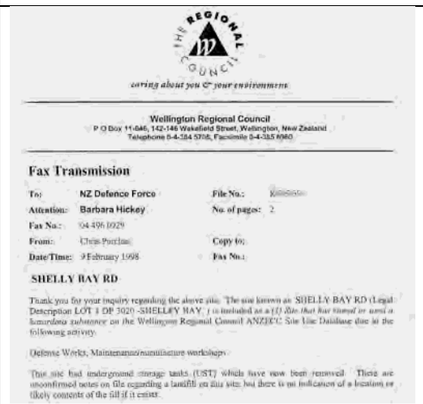
ATTACHMENT E: POTENTIAL CONTAMINANT SOURCES AND PHOTOLOG

	Wellington City Archives Email to Wellington City Council from Unknown?: Shelly Bay Slipway Building Demolition of Lean-to Structures November 2001. 1996 Aerial Photograph – Wellington City Council website http://wellington.govt.nz/webmap/wccmap.html	Council records from 2001 show that asbestos sheeting was present in unauthorised lean-to's in the area of the Slipway. These lean-to's were demolished as they were deemed unsafe in December 2001. The letter indicates that SERCO (the base maintenance operators) were to remove the asbestos appropriately and send material to the closest landfill. Photograph 21: Wellington City Council 1996 aerial photograph showing the presence of the lean-to structures adjacent to the Shipwrights Building. ***Evaluation of potential for soil and groundwater impact***: There is potential for the structures already demolished to impact soil if the asbestos was not removed appropriately. Groundwater is unlikely to be affected by asbestos.	
	Anecdotal Evidence	AECOM understands that during works undertaken by Tonkin and Taylor in relation to the sea wall in the area of Building No. 8 that asbestos was found in loose and asbestos containing material namely Chrysotile, Amosite and Crocidolite. ***Evaluation of potential for soil and groundwater impact***: There is potential for the asbestos to be present in soil adjacent to the seawall in the area of Building No. 8 Groundwater is unlikely to be affected by asbestos.	No photograph available.
	Opus January 2008	Opus report that the interior of Building No. 8/HQ Building and the Laundry Building (adjacent to the Boilerhouse) may have asbestos present in the interior of the building. Opus also report that Super 6 roofing (containing asbestos) may be present on the Shipwrights Building. Photograph 22: Shipwrights Building looking northwest across the Slipway area. It appears that the roof of the structure is newly painted/new. This may have occurred following the Opus January 2008 report. ***Evaluation of potential for soil and groundwater impact***: An asbestos survey has not been completed for the site. There is potential for the structures already demolished to impact soil if the asbestos was not removed appropriately. If structures are to be removed at the site there is potential for soil to be impacted by asbestos if not undertaken correctly. Groundwater is unlikely to be affected by asbestos.	
Transformer/PCB's	Current Transformer Location: Site Walkover Historical Transformer Location: Plan Showing Naval Buildings in Relation to the Road Reserve Shelly Bay (Compiled from Survey Office Plan No. 18318 and Public Works Dept Plan No. W.D.O 1785). Pencil date	Two transformer locations were noted at the site, one historical transformer located to the east of the slipway adjacent to the library and one located adjacent to the current café. Photograph 23: Current transformer location in the area of the café. Photograph 24: Snapshot of the plan showing the historical transformer location. ***Evaluation of potential for soil and groundwater impact***: The transformers may have previously contained oils with polychlorinated biphenyls (PCB). No visual or olfactory evidence of staining was observed around the current transformer. There may be so localised impact around the transformer locations.	 
Leaded Paints		The presence on leaded paint on the buildings is possible and may have affected soil quality. Limited soil sampling suggests that there is not a significant risk from leaded paint associated with the former Airmen's Accommodation.	No photograph available.

ATTACHMENT E: POTENTIAL CONTAMINANT SOURCES AND PHOTOLOG

Liquid Waste	Site Walkover Opus January 2008	A fat trap is present at the rear of the combined mess building. Photograph 25: Fat trap at the rear of the combined mess. Photograph 26: Last chamber of the fat trap. Some residual fat remains. Opus January 2008 reports that an area of liquid residue contamination was present on the concrete floor in southwest corner of the Shipwrights Building. Access to this building was restricted during the PSI. No photograph of the staining is available. ***Evaluation of potential for soil and groundwater impact***: Significant impact to soil or groundwater is not expected related to the fat trap. The origin of the liquid residue "contamination" noted in the Opus January 2008 report is unknown, therefore the impact on soil and groundwater is unable to be quantified.	 
Boilerhouse/Pumphouses	Site Walkover	A coal fired boilerhouse is present in the north bay. There was no evidence in either Wellington City Archives or during the Site Walkover of boiler ash at the site. Minor hydrocarbon staining noted on the floor of the main boilerhouse room. Photograph 27: Boilerhouse interior taken from the main door. Photograph 28: Hydrocarbon staining on the main boilerhouse room floor. Photograph 29: Boilerhouse fireplace. Photograph 30: Boilerhouse and Laundry looking east over the former Airmans accommodation. ***Evaluation of potential for soil and groundwater impact***: Soil and groundwater impact may be present related to the burning of coal to fire the boiler and hydrocarbon staining on the concrete. No evidence of ash burial was found in records relating to the site or during the site walkover. Significant impact related to the operation of the boilerhouse is considered unlikely.	  

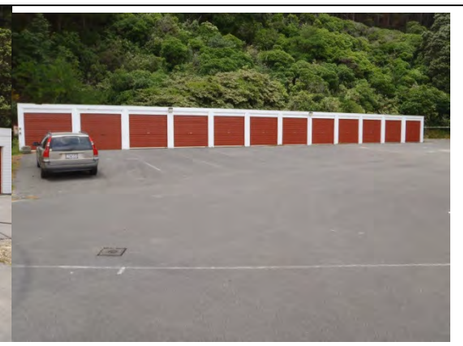
ATTACHMENT E: POTENTIAL CONTAMINANT SOURCES AND PHOTOLOG

Pumphouses for Heating	Site Walkover	Pumphouses located across the site to service the heating system. Photograph 31: Pumphouse located adjacent to the South Bay parade ground. Photograph 32: Pumphouse exterior – North Bay behind the mess buildings. Photograph 33: Pumphouse interior – North Bay behind the mess buildings Photograph 34: Pumphouse located adhacent to the Serco Paint Store. ***Evaluation of potential for soil and groundwater impact***: No significant impact expected.	   
Landfilling	Wellington Regional Council Selected Land Use Register Wellington Regional Council fax to New Zealand Defence Force – dated 9 February 1998. Reference K/9/5/59) – Contained in WRC SLUR search.	The records contained in the Selected land use register mentions a landfill present at the site, however no information is available to confirm the location. Anecdotal evidence suggest that a green waste landfill was located at the head of Magazine Road. Photograph 35: Fax noting the presence of a landfill at the site. ***Evaluation of potential for soil and groundwater impact***: No evidence of placement of domestic refuse or inert waste was noted in records reviewed and no evidence of landfilling (other than reclamation) was found. It is considered unlikely that significant impact related to landfilling at the site is present.	 THE REGIONAL COUNCIL caring about you & your environment Wellington Regional Council P O Box 11-646, 142-146 Wakefield Street, Wellington, New Zealand Telephone 0-4-384 5708, Facsimile 0-4-385 6960 **Fax Transmission** To: NZ Defence Force — File No.: [redacted] Attention: Barbara Hickey — No. of pages: 2 Fax No.: 04 496 0029 From: Chris Purdue — Copy to: Date/Time: 9 February 1998 — Fax No.: **SHELLY BAY RD** Thank you for your inquiry regarding the above site. The site known as SHELLY BAY RD (Legal Description LOT 1 DP 3020 -SHELLEY BAY) is included as a *HAIL Site that has timed in until a hazardous substance on the Wellington Regional Council ANZECC Site Use Database due to the following activity:* Defense Works, Maintenance/installature workshops This site had underground storage tanks (UST) which have now been removed. There are unconfirmed notes on file regarding a landfill on this site, but there is no indication of a location or likely contents of the fill if it exists.
Magazines	Aerial photographs and historical information from Capital Defence	Not in area of audit. Materials used for the construction of the magazines is unknown.	No photographs available.

ATTACHMENT E: POTENTIAL CONTAMINANT SOURCES AND PHOTOLOG

Slipway	Site walkover Evening Post Article: the slipping of Shelly Bay. Opus January 2008	The facility was not observed as part of the PSI. Photographs were taken from outside the fenced area. Article notes: Ex-wartime launches used as civil aviation control craft for the flying boat base in Evans Bay and also finishing boats, pleasure craft and coasters that needed repairing were serviced at the Shelly Bay Slipway. Activities at the slipway have included the recovery of scrap metal, vehicle repair and trailer fabrication. Sediments may contain elevated levels of metals and hydrocarbons from industries undertaken in the area. Photograph 36: Slipway and finger pier taken from Shelly Bay Road. Photograph 37: Slipway concrete area looking southwest taken from Shelly Bay Road. Photograph 38: Slipway concrete area looking north taken from Shelly Bay Road. Photograph 39: Slipway cradle area looking south taken from Shelly Bay Road. ***Evaluation of potential for soil and groundwater impact***: Based on aerial photographs it appears that the working areas of the slipway have been concreted. It is therefore considered that localised impact to soil and groundwater may have occurred in localised area (such as the crane hydraulic fluids (if used). If dredging of the slipway area is required for the development, sediment may be impacted and require specialist disposal.	   
Generator/Refrigeration?	Site Walkover	Generator/Refrigerator present at the rear (east) of the mess facility in North Bay. Photograph 40: Southern exposure of the gas/refrigeration plant at the mess facility. Photograph 41: Northern exposure of the gas/refrigeration plant at the mess facility. ***Evaluation of potential for soil and groundwater impact***: No significant impact expected.	 

ATTACHMENT E: POTENTIAL CONTAMINANT SOURCES AND PHOTOLOG

Garaging	Site Walkover	Vehicle garages are located on the eastern boundary of North Bay and the northeast boundary of South Bay. Photograph 42: North Bay garaging. Photograph 43: South Bay garaging ***Evaluation of potential for soil and groundwater impact***: No significant impact expected.	 
Serco Paint Store	Site Walkover	The Serco Paint Store and Workshop is located directly to the east of Building 8. The facility was not inspected as part of the PSI, however it is expected that vehicle maintenance and the storage of paint was undertaken in this building. Photograph 44: Serco workshop facility. ***Evaluation of potential for soil and groundwater impact***: No significant impact expected.	
Current Site Activities		The interior of buildings were not inspected during the PSI and a survey of current use was not undertaken. The wider site is occupied by artists, sculptors, printmakers and Propeller Studios. With the exception of Propeller Studios (which has a Dangerous Goods Container – listed above), significant use of hazardous substances is not expected. Minor use of solvents, paints and printers ink is not expected to create a significant impact at the site. ***Evaluation of potential for soil and groundwater impact***: No significant impact expected.	No photographs available.

ATTACHMENT F: LABORATORY ANALYTICAL RESULTS AND CHAIN OF CUSTODY DOCUMENTATION

Hill Laboratories
BETTER TESTING BETTER RESULTS

R J Hill Laboratories Limited
1 Clyde Street
Private Bag 3205
Hamilton 3240, New Zealand

Tel +64 7 858 2000
Fax +64 7 858 2001
Email mail@hill-labs.co.nz
Web www.hill-labs.co.nz

ANALYSIS REPORT

Client:	AECOM Consulting Services (NZ) Limited	**Lab No:**	1518089	SPv1
Contact:	N Rowe	**Date Registered:**	19-Dec-2015	
	C/- AECOM Consulting Services (NZ) Limited	**Date Reported:**	13-Jan-2016	
	PO Box 3367	**Quote No:**	72191	
	WELLINGTON 6140	**Order No:**	60480847.1.02	
		Client Reference:	SB WC	
		Submitted By:	N Rowe	

Sample Type: Soil

		Sample Name:	TP4 0.3 17-Dec-2015	TP4 0.5m 17-Dec-2015	TP4 1.1m 17-Dec-2015	TP5 0.5 17-Dec-2015	TP5 0.7 17-Dec-2015
		Lab Number:	1518089.1	1518089.2	1518089.3	1518089.5	1518089.6
Individual Tests							
Dry Matter	g/100g as rcvd		-	92	-	92	-
Heavy Metals, Screen Level							
Total Recoverable Arsenic	mg/kg dry wt		5	-	4	-	4
Total Recoverable Cadmium	mg/kg dry wt		0.14	-	< 0.10	-	0.14
Total Recoverable Chromium	mg/kg dry wt		18	-	22	-	8
Total Recoverable Copper	mg/kg dry wt		29	-	16	-	7
Total Recoverable Lead	mg/kg dry wt		85	-	64	-	10.9
Total Recoverable Nickel	mg/kg dry wt		10	-	17	-	6
Total Recoverable Zinc	mg/kg dry wt		89	-	76	-	41
Total Petroleum Hydrocarbons in Soil							
C7 - C9	mg/kg dry wt		-	< 8	-	< 8	-
C10 - C14	mg/kg dry wt		-	< 20	-	< 20	-
C15 - C36	mg/kg dry wt		-	< 40	-	< 40	-
Total hydrocarbons (C7 - C36)	mg/kg dry wt		-	< 70	-	< 70	-

		Sample Name:	TP5 1.1 17-Dec-2015	TP6 0.5 17-Dec-2015	TP6 0.7 17-Dec-2015		
		Lab Number:	1518089.7	1518089.8	1518089.9		
Individual Tests							
Dry Matter	g/100g as rcvd		-	-	90	-	-
Heavy Metals, Screen Level							
Total Recoverable Arsenic	mg/kg dry wt		2	34	-	-	-
Total Recoverable Cadmium	mg/kg dry wt		< 0.10	< 0.10	-	-	-
Total Recoverable Chromium	mg/kg dry wt		9	21	-	-	-
Total Recoverable Copper	mg/kg dry wt		3	17	-	-	-
Total Recoverable Lead	mg/kg dry wt		7.5	62	-	-	-
Total Recoverable Nickel	mg/kg dry wt		5	11	-	-	-
Total Recoverable Zinc	mg/kg dry wt		25	71	-	-	-
Total Petroleum Hydrocarbons in Soil							
C7 - C9	mg/kg dry wt		-	-	< 8	-	-
C10 - C14	mg/kg dry wt		-	-	< 20	-	-
C15 - C36	mg/kg dry wt		-	-	< 40	-	-
Total hydrocarbons (C7 - C36)	mg/kg dry wt		-	-	< 70	-	-

Analyst's Comments

Appendix No.1 - Chain of Custody

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	1, 3, 6-8
Total Petroleum Hydrocarbons in Soil	Sonication extraction in DCM, Silica cleanup, GC-FID analysis US EPA 8015B/MfE Petroleum Industry Guidelines. Tested on as received sample [KBIs:5786,2805,10734]	8 - 60 mg/kg dry wt	2, 5, 9
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. US EPA 3550. (Free water removed before analysis).	0.10 g/100g as rcvd	2, 5, 9

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

Martin Cowell - BSc
Client Services Manager - Environmental Division

URS

AECOM

CHAIN OF CUSTODY AND SAMPLE RECEIPT DOCUMENTATION

FROM:	TO:
URS New Zealand Limited Lambton House, Level 4 160 Lambton Quay PO Box 3367 21277 Wellington 6140 Ph: (04) 496 3863	**R J Hill Laboratories Limited** 1 Clyde Street Hamilton Ph: (07) 858 2000 URS Client: NGA WC

RESULTS ATTENTION: N. Rowe
PROJECT NO: 43
PURCHASE ORDER NO: TBC
SAMPLER(S): NR

LAB QUOTE NO:
- ☑ 30443 Normal Priority
- ☐ 30833 High Priority
- ☐ 30481 Urgent Priority
- ☐ ____ Special Quote

RESULTS REQUIRED BY:

SAMPLE ID	MATRIX	DATE/TIME	COMMENTS	CONTAINERS												
					SOIL JARS	SOIL JARS	SOIL JARS									
				ANALYTES	TPH (C7 - C36)	HEAVY METALS	HOLD COLD									
TP10-3	SOIL	12/12/15				✓										
TP4 0.5					✓	✓										
TP4 1.1						✓	✓									
TP4 2.0					✓											
TP5 0.5					✓											
TP5 0.7						✓										
TP5 1.1						✓										
TP6 0.5					✓	✓										
TP6 0.7					✓											
Total No. of Sample Bottles:				Including:			0									Blank or Duplicate Samples

ANALYSES REQUIRED

Received by: Lisa Bailey

Job No: **151 8089**

Date Recv: 19-Dec-15 06:46

CHAIN OF CUSTODY DATA

RELINQUISHED BY		RECEIVED BY		METHOD OF SHIPME
NAME: Natalie Rowe	DATE: 12/12/15	NAME: [illegible] B	DATE:	URS RECEPTION
COMPANY: URS NEW ZEALAND LTD	TIME:	COMPANY: Hill Labs.	TIME:	HILLS DOCKET
AECOM				

SAMPLE RECEIPT DATA

PLEASE COMPLETE THIS SECTION (CIRCLE AS APPROPRIATE) AND RETURN FAX A COPY IMMEDIATELY AFTER RECEIVING SAMPLES)

ALL SAMPLES AND ASSOCIATED DOCUMENTATION WERE RECEIVED IN GOOD ORDER	YES / NO	PLEASE CONTACT THE LABORATORY	CUSTODY SEAL INTACT:	YES / NO / NA
			SAMPLES CHILLED:	YES / NO / NA Temp: 17.6°C
			LABORATORY BATCH NO:	

SPECIAL HANDLING/STORAGE OR DISPOSAL INSTRUCTIONS:

CAUTION - SAMPLES MAY CONTAIN HAZARDOUS SUBSTANCES

REPORTING

REPORT FORMAT: FAX ☐ LETTER ☐ EMAIL ☐ DISK ☐

EMAIL ADDRESS:

INTERNAL USE - URS WORK INSTRUCTIONS AND CHECKLIST OVERLEAF

Table 1: Shelly Bay - Soil Sample Analytical Results

	Sample Details and Analytical Results								**Wellington Background Concentrations for Comparative Purposes (Type 2 Greywacke)[3]**	**Oil Industry Guidelines: Tier 1 Soil Acceptance Criteria[1]**		
URS Sample Reference	TP4 0.3	TP4 0.5m	TP4 1.1m	TP5 0.5	TP5 0.7	TP5 1.1	TP6 0.5	TP6 0.7		All Pathways Soil Acceptance Criteria - Residential[2]		All Pathways Soil Acceptance Criteria - Commercial/Industrial[4]
Laboratory Sample Reference	1518089.1	1518089.2	1518089.3	1518089.5	1518089.6	1518089.7	1518089.8	1518089.9				
Date Sampled	17-Dec-15	17-Dec-15	17-Dec-15	17-Dec-15	17-Dec-15	17-Dec-15	17-Dec-15	17-Dec-15				
Sample Location	Test Pit 4 - West of Café Premises			Test Pit 5 - Southwest of the Boilerhouse and Separator			Test Pit 6 - Northwest of the Boilerhouse and Separator			Contamination depth Surface (<1m) / 1m-4m		Contamination depth Surface (<1m) / 1m-4m
Sample Depth (m below current surface)	0.3	0.5	1.1	0.5	0.7	1.1	0.5	0.7				
Sample Soil Type	SILT	Silty GRAVEL	Silty GRAVEL	SAND	SAND	Sandy GRAVEL	Silty GRAVEL	GRAVEL and SHELLS		SAND		SAND
Guideline Soil Type	Sandy SILT	SAND	SAND	SAND	SAND	SAND	SAND	SAND				
Sample of soil remaining or removed	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining	Remaining				
Total Petroleum Hydrocarbons (TPH)												
C_7-C_9	-	< 8	-	< 8	-	-	-	< 8	-	120m / 120m	120m / 120m	120m / 120m
C_{10}-C_{14}	-	< 20	-	< 20	-	-	-	< 20	-	(470)x / (560)x	(470)x / (560)x	(1500)x / (1900)x
C_{15}-C_{36}	-	< 40	-	< 40	-	-	-	< 40	-	NA / NA	NA / NA	NA / NA
Total hydrocarbons (C_7 - C_{36})	-	< 70	-	< 70	-	-	-	< 70	< 30 - 190**	-	-	-
Heavy Metals - Total Recoverable										**Soil Contaminant Standards[5] (Residential 10%)**	**Soil Contaminant Standards[5] (High Density Residential)**	**Soil Contaminant Standards[5] (Commercial/Industrial)**
Arsenic	5	-	4	-	4	2	***34***	-	< 2-7	20	45	70
Cadmium	**0.14**	-	< 0.10	-	**0.14**	< 0.10	< 0.10	-	< 0.1-0.1	3	230	1300
Chromium (guideline is for Chromium III)	**18**	-	**22**	-	8	9	**21**	-	6-16	460	1500	>10000
Copper	**29**	-	16	-	7	3	17	-	3-25	> 10000	>10000	>10000
Lead (guideline is Inorganic Lead)	**85**	-	64	-	10.9	7.5	62	-	5.9-78.6	210	500	3300
Nickel	10	-	**17**	-	6	5	11	-	4-13	-	-	-
Zinc	89	-	76	-	41	25	71	-	24-105	-	-	-

Notes:
All results and criteria are expressed in mg/kg dry weight
Bold - exceeds the Wellington Background Concentrations
Italics - Exceeds the Residential (10% Produce)

1 Ministry for the Environment, 1999. Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (Oil Industry Guidelines)
2 Values taken from table 4.13 of the Oil Industry Guidelines.
3 Greater Wellington Regional Council (GWRC) August 2003. Determination of Common Pollutant Background Soil Concentrations for the Wellington Region. Table 3-3: For main soil type 2 - Greywacke
4 Values taken from table 4.14 of the Oil Industry Guidelines
5 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. Table B2.

**Wellington Background Guidline values for total TPH are for the C7-C44 hydrocarbon range
Guideline value is for Chromium V1
Groundwater was encountered at approximately 1.8 m below ground level (bgl) at the site.

The Wellington Company

Shelly Bay Masterplan

Transportation Assessment Report

September 2016

TDG Ref: 13725 shellybaymasterplan tar .docx

The Wellington Company

Shelly Bay Masterplan

Transportation Assessment Report

Quality Assurance Statement

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Status: Final report

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Table of Contents

1. Introduction

TDG has been appointed by The Wellington Company to provide transport consultancy services in relation to a mixed use development proposal at the Shelly Bay site, a former Air Force Base, located on the Miramar peninsular.

The proposal plans provide for development of a new residential subdivision; an aged care centre; boutique hotel; commercial / retail; and cafés / restaurant / bars.

This transportation assessment forms part of the resource consent for the redevelopment of the site. It has been progressed with due regard to the policies and standards contained within the District Plan and NZS 4404:2010 'Land Development and Subdivision Infrastructure' ("NZS 4404:2010").

The Transportation Assessment Report has been prepared to assess and report on the transportation features and effects of the proposal, as follows:

- Section 2 Existing Transport Network Conditions – describes the site location in the context of the road and public transport networks, including traffic flows;
- Section 3 Development Proposal – details the proposal;
- Section 4 Site Access – describes the site access and internal roading arrangements;
- Section 5 Parking – evaluates the proposed parking arrangements, including in relation to the District Plan requirements;
- Section 6 Trip Generation – identifies the likely trip generation that would be expected at the site;
- Section 7 Traffic Effects Assessment – examines the effects of the development on the local transport network;
- Section 8 District Plan – summarises the relevant District Plan rules.

In summary, this report concludes that the development of this site to provide 273 residential dwellings, 120 aged care units and hospitality / commercial / retail activities, with associated vehicular and pedestrian facilities and connections, can be supported from a transportation perspective. It is noted that the provision of a ferry service between the development site and Queens Wharf, as proposed, will lead to a reduction in development site traffic in the form of less private vehicle trips, both for commuters and recreational visitors alike.

2. Existing Transport Network Conditions

2.1 Site Location

The proposal site comprises the former Shelly Bay Air Force Base, which is located on the western shore of the Miramar Peninsula, in Wellington. The site is located along Shelly Road.

Figure 1 shows the location of the site in the context of the surrounding road network, as defined by the District Plan. Land use in the vicinity of the site is zoned business.

2.2 Local Road Network

2.2.1 Road Hierarchy

The local road network in the immediate vicinity of the site includes Cobham Drive and Miramar Avenue. To the west, Cobham Drive is classified as an Arterial Road (and as State Highway 1), and Miramar Avenue is classified as a Principal Street. Towards the east of the site, Miramar Avenue links to various Collectors to distribute traffic towards Miramar.

The proposed Shelly Bay Development will utilise these needs as the main routes to access to and from the central city and beyond.

Shelly Bay Road itself is classified as a Local Road.

2.2.2 Access Roads

The primary access is from the South via Shelly Bay Road, which connects to the wider road network via Miramar Avenue and Cobham Drive.

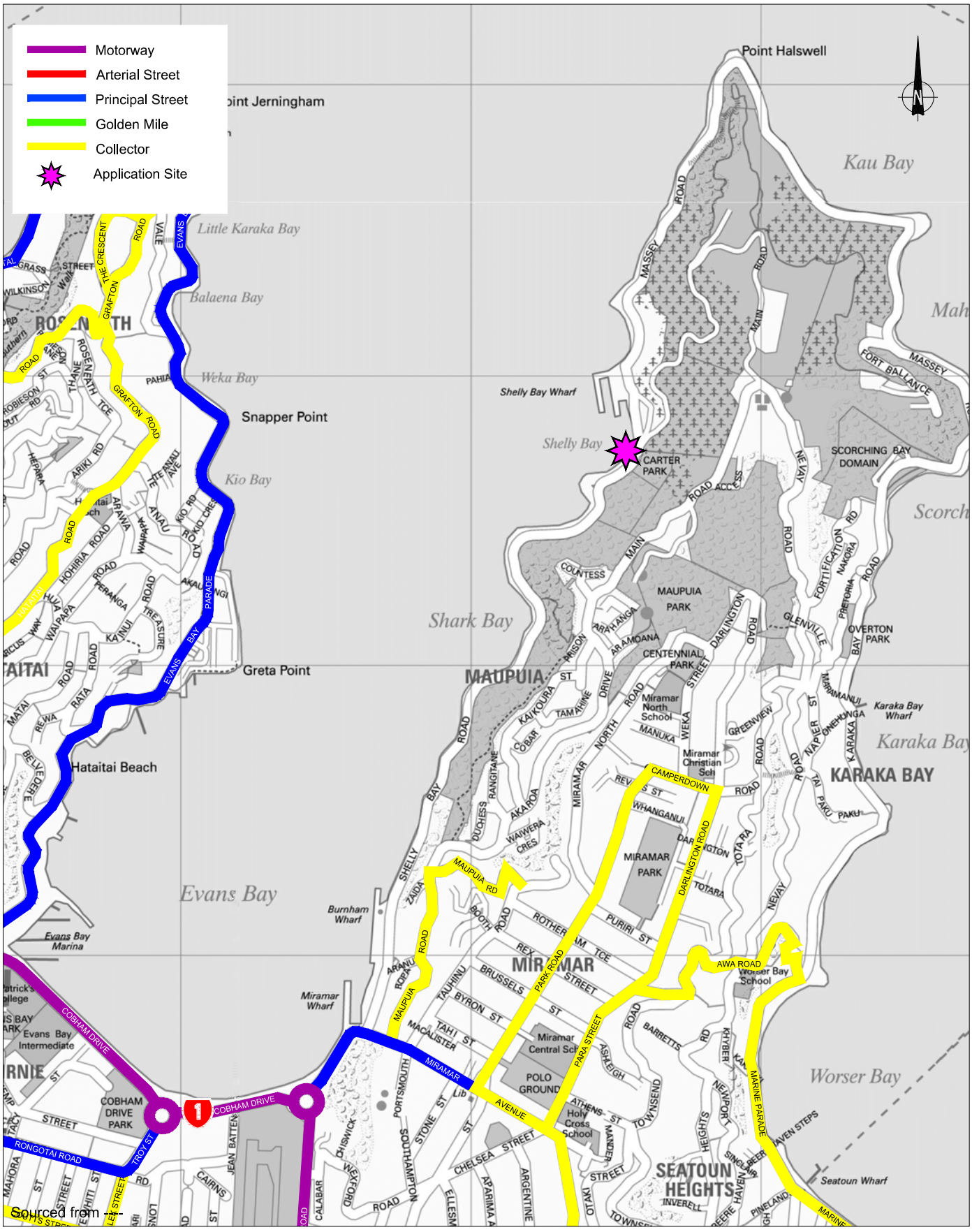
Access from the North is via Massey Road from Scorching Bay.

Possible pedestrian and bicycle access could be gained via Main Rd from Mount Crawford (Wellington Prison). No public vehicular access to Shelly Bay is permitted via this route at present.

2.3 Existing Traffic Patterns

On average Shelly Bay Road carries about 1,200vpd, but it does not have characteristic peak hour flows as a result of the current land use and occupation. At present it performs more as a recreational road with recreational or 'scenic drive' functions.

The current daily peak hour is between 1-2pm as indicated on **Figure 2**.



Monday, 22 August 2016 0 20mm

Sourced from --

Shelly Bay, Mixed Use Development, Miramar, Wellington

Road Hierarchy

TDG

1

SCALE: NTS

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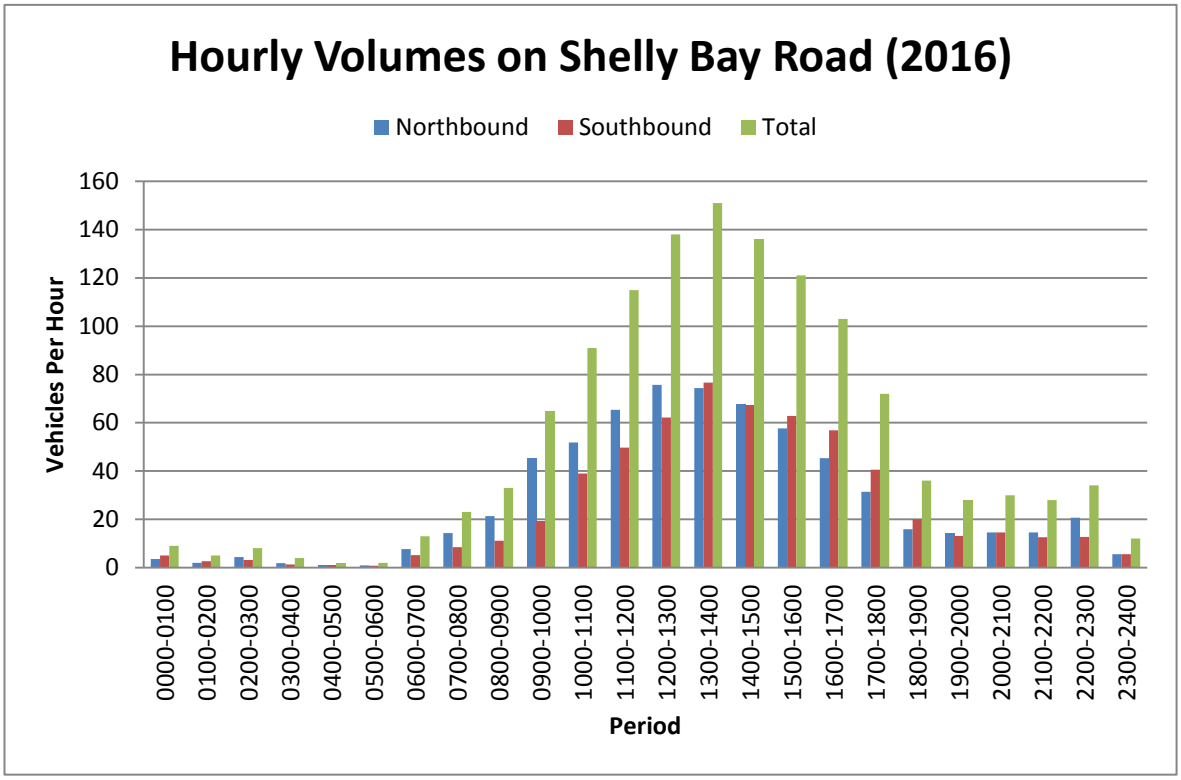


Figure 2: Shelly Bay Hourly Vehicle Volumes (2016)

These existing small hourly volumes reflect the limited access function currently served by Shelly Bay Road. In this way, the road has spare capacity to accommodate additional traffic.

2.4 Road Safety Record

The accident record for the roads surrounding the site has been obtained from the industry-available Crash Analysis System (CAS), for the latest complete five year period from 2011-2015 and the latest of 2016. The accident record is summarised in **Table 1** and in **Figure 3**.

Significantly, none of the recorded incidents within the search area, across the five year period, included any crashes that resulted in serious injuries or fatalities. Overall, there is nothing to suggest from these records that there are inherent safety issues that require attention in respect of this current proposal.

	Location of Accident	Year	Cause	Severity	Weather
1	Cobham Dr / Miramar Ave	2015	Car changing lanes hit car in blind spot	Non Injury	Dry / Bright
2	Cobham Dr / Miramar Ave	2015	Truck hit rear end of car slowing down for traffic	Non Injury	Wet / Overcast
3	Cobham Dr / Miramar Ave	2012	Cyclist on Cobham Dr hit car merging from left	Minor Injury	Dry / Bright
4	Cobham Dr / Shelly Bay Rd	2010	Motor Cycle on Cobham hit U-tuning Car	Minor Injury	Heavy Rain / Overcast
5	Miramar Ave / Shelly Bay Rd	2010	Car on Miramar Ave hit rear end of SUV going slow	Non Injury	Dry / Dark
6	Miramar Ave / Shelly Bay Rd	2012	Van on Miramar Ave hit Motor Cycle turning right	Minor Injury	Dry / Bright
7	Shelly Bay Rd / Miramar Ave	2012	Car on Shelly Bay Rd hit rear end of car going slow	Non Injury	Dry / Bright
8	Shelly Bay Rd / Miramar Ave	2011	Cyclist on Shelly Bay Rd lost control when overtaken by a truck	Minor Injury	Dry / Overcast

Table 1: CAS Summary of Accident Record

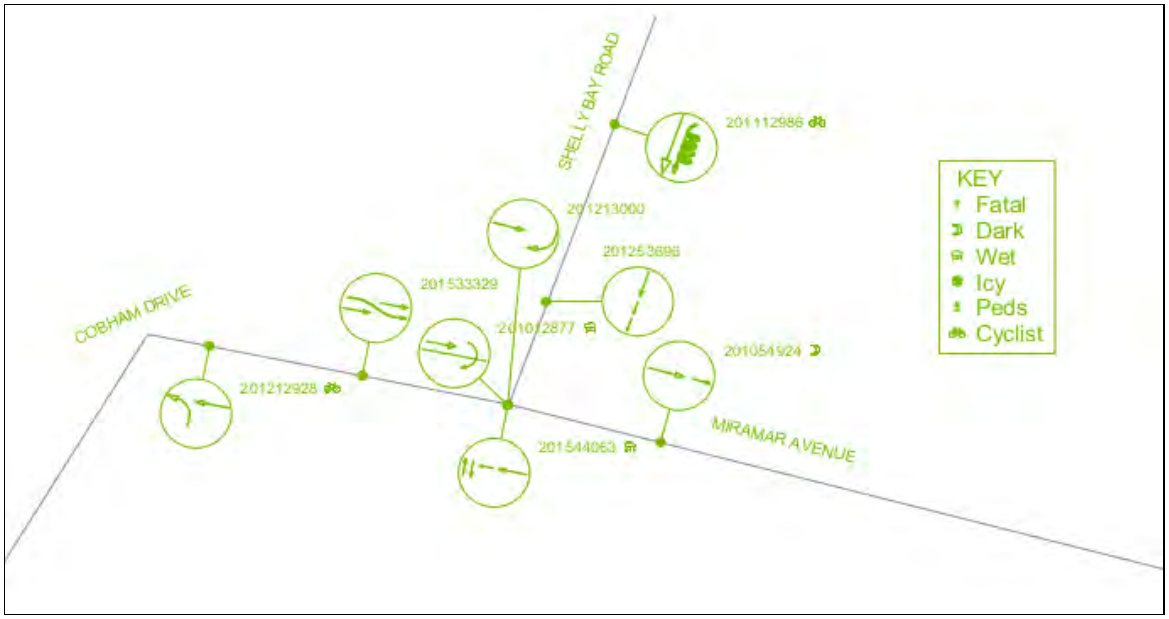


Figure 3: CAS Data between 2011 - 2016

2.5 Sustainable Transport Modes

Shelly Bay Road is currently used largely for recreational purposes, accommodating some cyclist and pedestrian demands, especially on weekends.

There are no dedicated pedestrian or bicycle facilities along Shelly Bay Road; instead the roadway is a shared between all modes of travel.

There are no public transport routes at present to Shelly Bay. The closest bus route is the #24 bus service that stops at Mt Crawford (Wellington Prison), on top of the escarpment. The Miramar Avenue 'Portsmouth Road stop' is approximately 2.6km from Shelly Bay, with access to the routes illustrated diagrammatically within **Figure 4**. A summary of the available bus connections in the vicinity of the site is provided within **Table 2**.

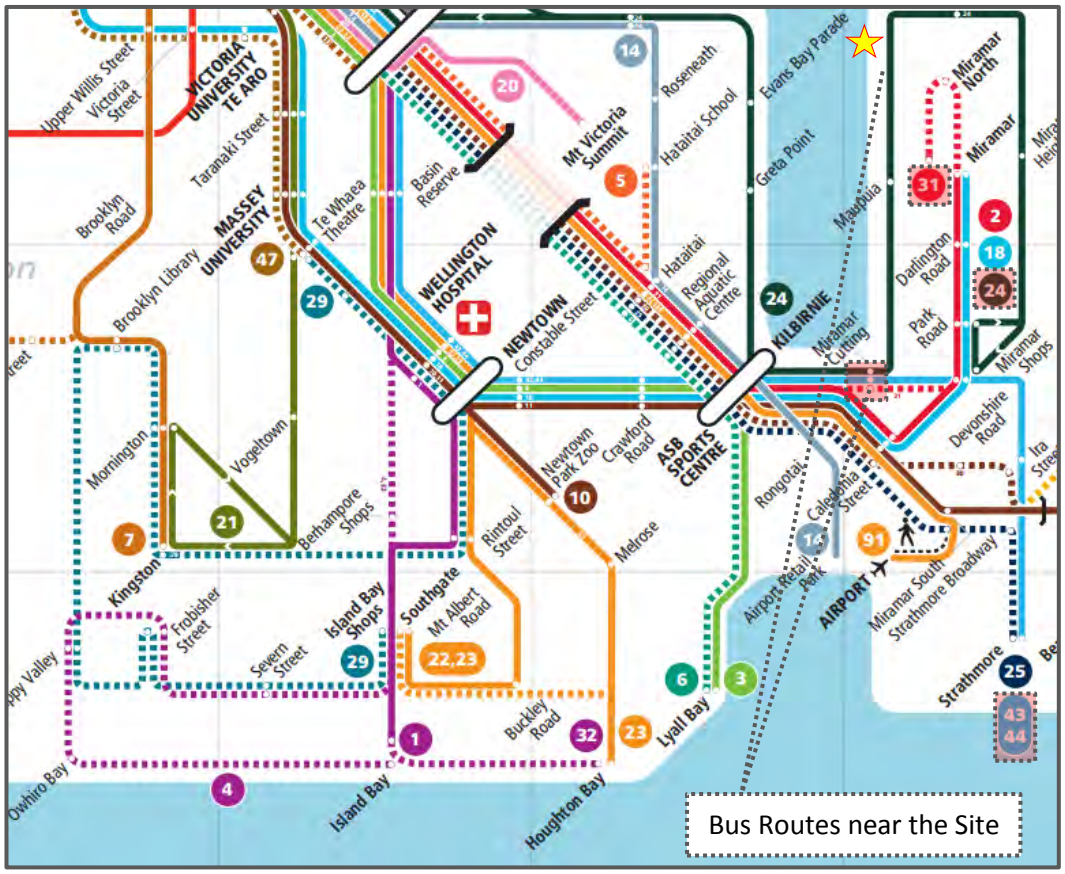


Figure 4: Wellington Bus Network

Bus Service	Bus Stop	Route	Frequency
24	Mt Crawford	Miramar Heights – Wellington	60 minutes (Mon-Fri) 30 minutes at peak times
31	Miramar Ave at Portsmouth Rd	Miramar North Express – Wellington	10-20 Minutes (Mon-Fri) at morning peak times
43	Miramar Ave at Portsmouth Rd	Strathmore – Wellington - Khandallah	60 minutes (Mon-Fri) 10-20 minutes at afternoon peak times
44	Miramar Ave at Portsmouth Rd	Strathmore – Wellington - Khandallah	60 minutes (Mon-Fri)

Table 2: Bus Services Accessible from the Site

At present then, direct accessibility by bus is limited, although the scale of the proposed development may warrant a review of the existing services.

2.6 Existing Commuting Travel Patterns

Data from the latest 2013 Census provides information on the travel to work mode share by census area. The census data for the 20-meshblocks in Miramar, which is in close proximity to the site, identifies a resident population of some 1,000 people that were over the age of 15 and employed on census day. The mode share of persons that travelled to work on census day is set out in **Table 3**.

Travel Mode for Commute to Work	Percentage
Drove a Vehicle	51%
Motorcycle / Scooter	2%
Passenger in a Vehicle	4%
Bus	16%
Walk or Jogged	8%
Worked at Home / Other	19%

Table 3: Existing Commuting Travel Patterns (2013 Census)

As shown, some 16% of commuting trips were made by bus, reflecting the high frequency and convenient service nearby. A further 8% of existing residents walk, cycle, or jog to work, whilst some 2% used a motorcycle as a means of travelling to work.

These existing commuter travel mode patterns of the surrounding residential areas demonstrate that it can be reasonably expected that a number of residents within the proposed development would undertake to commute by bus, if a convenient service was available. Otherwise, the development would generate more car trips and it is on this conservative basis that the subsequent traffic analyses have been made.

3. Development Proposal

3.1 Development Description

The site is zoned 'Business 1' within the District Plan, reflecting the prior use as an Air Force Base, as established back in the 1940's. Since the NZ Defence Force sold the land in 2009, the site has retained some residential use as well as accommodating various commercial activities, within existing buildings around the bay.

The Masterplan for the site provides for a mixed use development, including: residential, commercial and retail activities, within either renovated existing structures or new build development.

An overview of the particular activities proposed for the site is given in **Table 4** below.

Activity	GFA (m^2)	Residential Units
Residential Dwellings	-	273
Retirement Complex		
Self-contained units/Apartments	-	65
1-bed serviced apt	-	20
Care Suites	-	35
Boutique Hotel (50-bedrooms)	1,262	
Mixed use Commercial/Retail (low density)	2,180	
Hospitality (Café/restaurant/bars)	1,065	
Community (Public toilets/community Hall)	400	
Total	**4,907**	**393**

Table 4: Proposed Masterplan Development Activities

As shown, the predominant land use will be residential dwellings, comprising a range of development forms including stand-alone dwellings; terraced houses; apartment buildings; and retirement units / aged care facilities. A range of supporting and complementary activities are also proposed, including cafes; restaurants; a boutique hotel; commercial and retail space; and some community amenities.

Access and parking has been designed with consideration to policy standards within the District Plan and NZS4404 2010 'Land Development and Subdivision Infrastructure' ("NZS 4404"), as detailed below.

3.2 Access and Layout

The masterplan design guide includes details of the roading network proposed to serve the development. Each of the roading elements are described in detail below.

3.2.1 Shelly Bay Road

It is proposed that the current Shelly Bay Road alignment will be amended in the area of the development; to both facilitate the proposed development layout, and provide for improved vehicle tracking along the bay, as compared to what currently exists. This will require appropriate land swap negotiations with Council, particularly with regard to vesting the completed carriageway and road reserve following construction.

The proposed new road alignment will accommodate traffic within a 6.0m carriageway (with localised widening at bends), with 2 x 3.0m traffic lanes. The cross section (from east to west) generally provides for:

- 2.0m footpath;
- 3.0m southbound traffic lane;
- 3.0m northbound traffic lane;
- Minimum 3.5m shared pedestrian / cycle lane.

With respect to the adopted traffic lane widths of 3.0m, NZS4404 2010 provides guidance on lane dimensions in accordance with the adjacent land use activity, traffic volumes, and speed environment. Of note is the difference between two-way carriageway widths of 5.5-5.7m, and 8.4m (i.e. 2 lanes at 4.2m). The distinction between these two cross sections is linked to the provision (or not) for cyclists to be accommodated alongside vehicles within the traffic lane, which in turn is related to the target operating speed.

With the dedicated off-street cycle path provided on the seaward side of the development, the traffic lanes within the main carriageway will not need to accommodate cyclists alongside vehicles. Furthermore, whilst the current legal speed limit through the development site on Shelly Bay Road is 40km/h, the proposed active speed management measures of a narrower carriageway and raised pedestrian platforms, along with proposed 'slow zone' signage, mean the operational speed will be closer to 30km/h. Accordingly, if cyclists do choose to use the traffic lanes, they will more likely be recreational road cyclists, who will generally be travelling at similar speeds to vehicles, and therefore will be able to safely share the road space.

It is considered that in providing a wider carriageway width (to facilitate shared cycle manoeuvres within the carriageway rather than within an off-street provision) this would compromise the intended 'slow speed' environment of the design sought within the village. By maintaining a tighter carriageway width, and facilitating cyclists off-street, a better and more desirable outcome for vehicles, pedestrians and cyclists can be achieved.

In areas where 90-degree kerbside parking is provided adjacent to the 6m wide carriageway, a parking envelope width of 5.8m, measured from the edge of the northbound traffic lane to the kerb, will be provided. In taking account of the 0.6m overhang for vehicles parking at the kerb, the available 5.8m parking envelope will usefully provide a 'buffer strip' for vehicles manoeuvring between carparks and the traffic lane, similar to the existing arrangements on Oriental Parade.

The central section of Shelly Bay Road through the heart of the development has been designed as a shared space environment. Whilst there will still be nib kerbs delineating the footpaths from the carriageway in this area, surface treatment and two raised pedestrian

tables will serve to reinforce the presence of pedestrians, both crossing the traffic lanes and within the wharf area itself.

At the south end of the development, the cross sections have been designed to reflect the smaller pedestrian demand associated with the adjacent lower density townhouse form, with a 1.5m footpath on the landside of the carriageway, and a 3.0m shared cycle and pedestrian path that extends to the south point carpark on the seaward side.

3.2.2 Development 'Laneways'

Access to the site activities on the eastern of Shelly Bay Road, will be provided via a number of 'laneways'. These laneways have been designed to a width of some 7m, to enable two-way traffic flow alongside pedestrian movements, and to provide for access and turning to/from the 'parking mews', which run through the development parallel to Shelly Bay Road. These laneways have been designed to accommodate access by a fire appliance and equivalent trucks, including rubbish trucks.

With respect to sightline visibilities at these laneway intersections on Shelly Bay Road, the WCC Code of Practice for Land Development provides sight distance requirements based on speed; 40m for 50km/h roads and 20m for 30km/h roads. As described above, the operating speed for the development will be closer to 30km/h, and whilst specific sightlines at respective individual accesses cannot at this stage be confirmed, given the high level masterplan layout, there is no reason why a compliant arrangement cannot be achieved during the detailed design.

In addition, the detailed design of these laneways will need to be cognisant of achieving adequate pedestrian splays at the exit points to Shelly Bay Road, in accordance with the industry standards set down in AS/NZS2890.1 'Part 1: Off-street Car Parking' ("AS/NZS 2890.1") Figure 3.3. That is, they will be designed to meet the necessary pedestrian visibility splays requiring a minimum 2m line of sight either side of the driveway, at a distance of 2.5m back from the property boundary. It may be necessary to incorporate signage and textural surface changes on the laneway approaches to Shelly Bay Road, to manage exiting vehicle speeds ahead of the footpath edge, in order to prompt drivers of the potential presence of pedestrians.

It is intended that whilst these laneways would remain under the management of a residents association (i.e. not vested to Council), they would provide for public access (pedestrian and cycle) to the reserve land at the rear of the development.

3.2.3 Development 'Parking Mews'

Access between laneways will be achieved via internal 'parking mews', which provide internal circulation between adjacent blocks as well as on-site parking for residents. These parking mews have been designed to an overall width of 12m, comprising 90-degree parking spaces alongside a generally 6.6m aisle width.

The speed environment on these parking mews is intended to be low, and in a similar manner to the laneways will be based on a shared space design. Planting and landscaping will be used to reinforce the requirement for vehicles to negotiate these routes slowly, with

due regard for potential pedestrian presence, particularly at the points of intersect with the laneways.

These parking mews have been designed to accommodate emergency vehicle access, as well as occasional truck movements (such as for rubbish collections) that may need to circulate between adjacent laneways from time to time.

3.2.4 Access by Ferry

A ferry service connecting the development site with Queens Wharf will operate from the existing Shelly Bay Wharf, providing regular return journeys for residents (including commuter trips), visitors and recreational users. In the manner of the established Eastbourne ferry, this service will have the benefit of reducing reliance on private vehicle trips, and improving accessibility options for the development.

4. Site Access

There are two existing vehicle accesses to the site, via Shelly Bay Road and Massey Road. Massey Road will stay mainly a recreational route, so the focus of access to the Shelly Bay development will be via Shelly Bay Road.

4.1 Shelly Bay Road

The primary access is from the South via Shelly Bay Road which connects to the wider road network via Miramar Avenue. This t-intersection is give-way controlled, with priority given to vehicles on Miramar Avenue. North of this intersection, the current carriageway width on Shelly Bay Road is around 5.5m (edgeline to edgeline), with narrow shoulders. The first 500m has a footpath on the western side. The speed limit along Shelly Bay Road is 40km/h.

4.2 Public Transport

The Shelly Bay area is not directly served by bus at present. The closest bus route is the service #24 (Miramar Heights), which follows an Akaroa Drive / Main Road / Nevay Road route above the site, and operates at a low frequencies (every 60 minutes outside of the peak) on weekday daylight hours only. This route will be replaced by a new bus route in 2018, which will operate at similar frequencies to present, but will also run in the evenings and weekends.

Bus stops for the above route are located near 162 Akaroa Drive, approximately 1.6 km by foot from the site, and also at the intersection of Main Road and Nevay Road, some 2.0 km by foot from the site. The link between the site and this bus route would be significantly improved by the addition of a more-direct pedestrian connection to existing or new bus stops on Main Road that would be some 400m from the site.

In the longer term, another option may be to extend the #30 (Scorching Bay) route, which currently travels via Seatoun and Karaka Bay Road to a Massey Road terminus in Scorching Bay, and operates at peak times only. This route will be replaced by a new bus route in 2018, which will operate at slightly lower frequencies to present, but it may be able to be relatively easily extended around the peninsula by approximately 3.5 km to Shelly Bay, providing a direct (peak only) bus link to the site. Any such extension would be dependent on GWRC planning and funding processes. However, it may be prudent to make provision for a pair of bus stops at the site at the construction stage to facilitate this option in the future.

5. Parking

The proposal plans have been designed to ensure that adequate on-site parking is provided to fully meet the anticipated parking demand generated by the site's various activities. Accordingly, an assessment of the parking provision requirements under the District Plan, along with a demand based assessment using industry standards and data collected by TDG for like activities, is provided in detail below.

5.1 Parking Requirements

In consulting industry standard data sources with respect to typical parking demands generated for the range of land use activities included under the proposed masterplan, reference has been made to the NZ Transport Agency Research Report 453 'Trips and Parking Related to Land Use 2011' ("RR 453"), and the RTA Guide to 'Traffic Generating Developments 2002' ("RTA Guide"). In addition, surveyed parking demand data recorded by TDG at similar established activities has further supported these industry standard figures.

The parking requirements for the various activities included under the proposal plans, is set out in **Table 5**.

Activity	Proposed Unit	Industry Rates	Industry Provision
Residential[1]	273	1 per unit	273
Retirement Units[2]			
2-3 bed unit	65	1 per unit	65
1-bed serviced apt	20	0.3 - 1 per unit	7 - 20
Care Suites	35	2 parks per 3 staff	6
Visitors	(120 units total)	1 per 5 units	24
Hotel[3]	50-bedroom	1 per 5 rooms	10
Commercial[4]	1,540m² GFA	1.25-2.0 spaces per 100m² GFA (pro-rata for low density)	20 - 30
Retail[4]	640m² GFA	3.5 spaces per 100m² GFA (pro-rata for low density)	39
Hospitality[4]	100 seats	0.6 spaces per seat (Restaurant activity)	60
Overall Total			**504 - 527**

Table 5: Recommended Parking Provision Requirements

In assessing the peak parking demands generated by the individual component activities included in a mixed use development of this size, typical industry standards suggest a provision of between 504 and 527 parking spaces.

[1] Wellington City District Plan Permitted Activity requirement (in Residential Zones)
[2] TDG surveyed rates at retirement complexes in the Wellington Region
[3] RTA Guide
[4] RR 453

5.2 Proposed Parking Provision

The development masterplan makes provision for parking in various forms, from dedicated garages, parking garages with stackers, on street, to public car parks at either end of the Shelly Bay Development. The provided parking is as indicated on **Table 6**.

Component		Spaces Provided
Residential	In garages	165
	Uncovered	87
Aged Care	Uncovered	51
Hotel	Uncovered	8
Visitor / Public	Uncovered	128
Car Sacker		60
	Total	499

Table 6: Proposed Parking Provision and Allocation

Although the proposed parking provision is marginally less than the minimum industry suggested parking requirements, it is assessed that due to the mixed use nature of the development, the commercial; retail; restaurant / café and recreational demand will not occur concurrently / overlap, and therefore the provided parking capacity can be judged as sufficient, in the manner commensurate with the truly mixed used nature of the development.

6. Trip Generation

Trip generation rates for each of the site's component activities included within the proposal are set out below in turn, and have been derived from a combination of industry standards and survey data collected by TDG for like activities.

6.1 Residential Units

Surveys of households reported within RR 453 indicate daily trip generation rates for 'Outer Suburban' residential activities typically average around 8.2vpd per dwelling, with associated peak hour movements of 0.9vph. For comparison, the RTA Guide provides similar peak hour generation rates for residential 'Dwelling Houses' of 0.85vph per unit.

Even though the census data for surrounding residential areas indicate 24% public transport and non-motorised means of travel for commuting trips, the current lack of sustainable transport infrastructure currently serving Shelly Bay is such that the generation of trips have been assessed as per RR 453. That is, peak hour and daily traffic generation rates of 0.9vph and 8.2vpd per unit, respectively, have been applied to the proposed 273 dwellings, with the resultant traffic generation summarised in **Table 7**.

	Arrivals	Departures	Total
AM Peak*	49	197	246
PM Peak**	197	49	246
Daily	1119	1119	2,238

* AM Peak: 80% departures, 20% arrivals
** PM Peak: 80% arrivals, 20% departures

Table 7: Traffic Generation (273 dwellings)

Accordingly, around 240-250 vehicle movements are expected to be generated by the residential components of the proposed development during the morning and evening peak hours, which translates to a daily traffic generation of some 2,200 vehicle movements to / from the adjacent road network.

6.2 Aged Care

Data informing the RR 453 provides peak hour trip rates for a Retirement Complex at around 0.3vph per unit in the peak hours and 2.6vpd for the full day. It is envisaged that the proposed Aged Care facility of 120 units will follow a similar trend. That is, peak hour and daily traffic generation rates of 0.3vph and 2.6 vpd per unit, respectively, have been applied to the proposed 120 units, with the resultant traffic generation summarised in **Table 8**.

	Arrivals	Departures	Total
AM Peak*	29	7	36
PM Peak**	7	29	36
Daily	156	156	312

* AM Peak: 20% departures, 80% arrivals
** PM Peak: 20% arrivals, 80% departures

Table 8: Traffic Generation (120 retirement units)

6.3 Boutique Hotel

Data informing the RR 453 provides peak hour trip rates for a hotel at around 1.2vph per room in the peak hours, and 6.4vpd per room for the full day. It is noted that these industry standards typically relate to large centrally located hotels that often include on-site conference facilities or meeting rooms for hire, which themselves generate a proportion of vehicle trips to and from the site that are unrelated to the hotel accommodation. The proposed boutique hotel does not include any such conference facilities, with associated trip generation therefore comprising hotel staff and guest movements only. Accordingly, whilst the peak hour trip rate of 1.2vph is expected to reflect the likely trip generation patterns in this case, the daily rate will be much lower; a revised (50%) daily trip rate per room of 3.2vpd as therefore been adopted.

Applying these rates to the proposed 50 rooms, gives the resultant traffic generation as summarised in **Table 9**.

	Arrivals	Departures	Total
AM Peak*	24	36	60
PM Peak**	36	24	60
Daily	80	80	160

* AM Peak: 60% departures, 40% arrivals
** PM Peak: 60% arrivals, 40% departures

Table 9: Traffic Generation (hotel)

6.4 Commercial / Retail

It is noted that the type of commercial and retail activity proposed for the development is of a low density type, similar to that which exists in part at the site already, comprising artists' studios with associated galleries, providing the public with an opportunity to view and purchase the work. Such activities therefore will not generate the quantum of traffic associated with higher density office space more traditionally found within central or fringe areas of the city.

The RTA Guide notes that commercial activities typically generate a range of trip generation rates, depending on number of staff on-site, and provides guidance for peak hour trip rates at 2vph per 100m² GFA, with corresponding daily traffic generation of 10vpd per 100m²GFA.

For the purposes of determining the overall traffic generated by the proposed commercial and associated retail activities, these peak hour and daily traffic generation rates have been adopted and applied to the combined floor area of 2,180m^2, with the resultant traffic generation summarised in **Table 10**, noting that these forecasts are considered conservative.

	Arrivals	Departures	Total
AM Peak*	31	13	44
PM Peak**	13	31	44
Daily	109	109	218

* AM Peak: 30% departures, 70% arrivals
** PM Peak: 30% arrivals, 70% departures

Table 10: Traffic Generation (commercial / retail)

6.5 Restaurant / Café

Data informing the RR 453 provides peak hour trip rates for a Restaurant at around 0.5vph per seat in the peak hours and 6.1vpd per seat for the full day. Applying these rates to the proposed 1065m^2, which is estimated to be in the order of 100 seats, gives the resultant traffic generation summarised in **Table 11**.

	Arrivals	Departures	Total
AM Peak*	35	15	50
PM Peak**	15	35	50
Daily	305	305	610

* AM Peak: 30% departures, 70% arrivals
** PM Peak: 30% arrivals, 70% departures

Table 11: Traffic Generation (Restaurant)

6.6 Total Site Traffic Generation

Drawing from the above identified rates, **Table 12** below sets out the trip generation for the sites various activities included under the proposal plans.

	AM Peak Hour	PM Peak Hour	Daily
Residential	246	246	2,238
Aged Care	36	36	312
Hotel	60	60	160
Commercial / Retail	44	44	218
Restaurant / Café	50	50	610
Total	436	436	3,538

Table 12: Total Site Traffic Generation

It is noted that the assessment above has not taken into consideration the provision of a ferry service to and from Queens Wharf, which would provide for both commuters at the development and also a portion of the recreational trips to the site. This will have the result of removing a proportion of the associated vehicle trips set out above, such that vehicle movements will reduce commensurate to the volume of people utilising the convenience of the ferry service, which will at peak times in particular provide quicker access to / from the heart of Wellington city.

6.7 Development Traffic Distribution

It is anticipated that the majority of peak hour traffic to and from the site will route towards Wellington city centre via Miramar Avenue. Due to the proximity of local amenities, schools and possible work opportunities in Miramar, there will be a portion of the development generated trips that will travel east along Miramar Avenue. The existing traffic along Miramar Avenue has a 60:40 split with 60% travelling towards Wellington city centre and 40% travelling towards Miramar in the AM peak, with the reverse in the PM peak.

In order to analyse the performance of the Shelly Bay Road and Miramar Avenue intersection, the development traffic flows have been assigned to the road network according to the peak hour directional split.

7. Traffic Effect Assessment

This chapter sets out the adopted approach for assessing the impact of the development site traffic on the adjacent road network in terms of performance, at the key intersection of Shelly Bay Road and Miramar Avenue.

7.1 Intersection Performance

For the purposes of assessing performance, the intersection has been modelled using the industry-recognised modelling package SIDRA, using the latest version of the software (version 6.1).

Accordingly, the priority T- intersection of Shelly Bay Road and Miramar Road has been modelled using both the existing traffic flows (as recorded in May 2016) for the Weekday AM and PM peak hours. The predicted increase in traffic flow was added to this model and compared based on the Level of Service ("LoS") for each movement, by approach. The resulting LoS for each movement is set out in **Table 13** below.

APPROACH	MOVEMENT	EXISTING		WITH DEVELOPMENT TRAFFIC	
		LoS	Ave Delay (secs)	LoS	Ave Delay (secs)
AM Peak Hour					
Cobham Drive	Through	A	0	A	0
	Left	A	5.8	A	5.6
Shelly Bay Road	Left	C	15.0	D	28.3
	Right	B	14.9	D	28.3
Miramar East	Through	A	0	A	0
	Right	A	0.9	B	10.4
All Vehicles		N/A	0.3	N/A	3.9
PM Peak Hour					
Cobham Drive	Through	A	0	A	0.2
	Left	A	5.6	A	5.6
Shelly Bay Road	Left	C	16.4	D	34.0
	Right	C	16.2	D	33.9
Miramar East	Through	A	0	A	0
	Right	C	15.6	D	33.3
All Vehicles		N/A	0.7	N/A	5.1

Table 13: LOS by Approach

The intersection is currently shown to be operating at LoS C on the Shelly Bay Road approach movements, and for the right turn in movement from Miramar Avenue, during the PM peak hour.

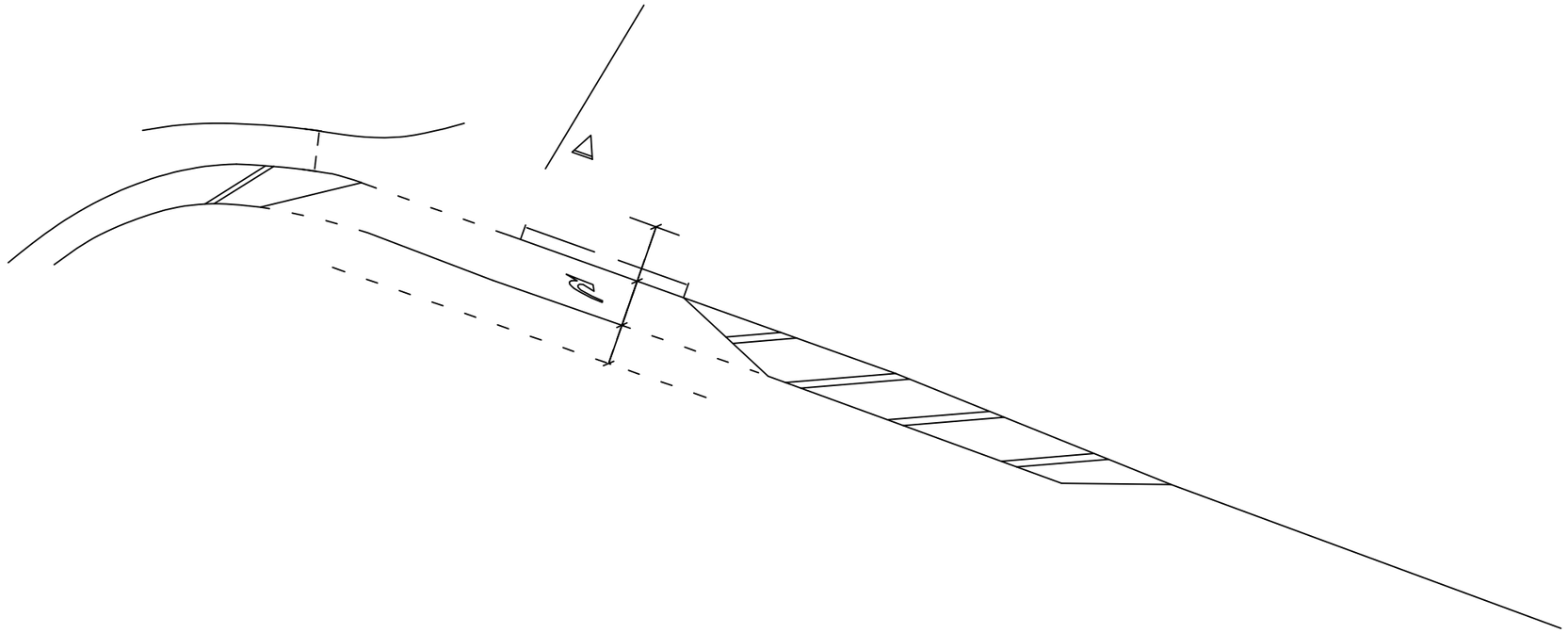
With the addition of the forecast development traffic, the LoS for these movements from Shelly Bay Road, during both the AM and PM peaks, is reduced slightly to LoS D. The traffic turning out of Shelly Bay Road in the AM peak in each direction, experiences a LoS D. The LoS of the right turning traffic from Miramar has also dropped from LoS A to B. During the PM peak hour these three movements are operating at a LoS of D, with all other approaches remaining at LoS A.

The added delays occurring at the t-intersection as a result of the proposed development site trips are not surprising, given the level of added traffic, but are assessed to remain within acceptable peak performance standards of LoS D. Even then, and as set out next, intersection improvements that provide mitigation for the increased turning movements are suggested.

7.2 Intersection Upgrade

The Eastbound carriageway along Miramar Avenue is currently almost 6m wide in the area immediately beyond the Shelly Bay Road intersection. The Westbound carriageway is 3.5m wide, with a 3m right turn lane.

With minor road marking changes to the Shelly Bay Road and Miramar Avenue intersection, the right turn movement from Shelly Bay Road could be given additional width to 4.0m within the centre of Miramar Avenue, to facilitate more frequent two staged right turns. This would have a positive effect on the intersection performance, by shortening the gap acceptance of the right turning vehicles from Shelly Bay Road. **Figure 5** presents a possible indicative layout showing this revised arrangement.



0 20mm@A3

Monday, 22 August 2016

REV	DATE	DRN	CHK	DESCRIPTION

Shelly Bay,
Proposed Intersec

DRAW AP	---	---	
DAT 22/08/16	STATU ---		
SCAL			
DWG N 13725W1A			

TDG

5

8. District Plan Provisions

As previously described, the development site is subject to a 'Business 1' zoning within the provisions of the District Plan. Rule 34.1.1 of the District Plan relates to the requirements for Permitted Activities in respect of parking, servicing and site access. The proposed masterplan design is assessed against each of the related Standards at Rule 34.6, in **Table 14** as follows:

Standards	Assessment of Compliance
	Vehicle Parking
34.6.1.6.1	*All parking shall be provided and maintained in accordance with sections 1, 2 and 5 of the joint Australian and New Zealand Standard 2890.1 – 2004, Parking Facilities, Part 1: Off-Street Car Parking* All on-site and on-street parking areas have been designed in accordance with these standards.
34.6.1.6.2	*Where carparking is located within a building, a minimum height clearance of no less than 2.2 metres is required* This minimum height clearance is able to be met by the areas of internal parking included within the proposal.
34.6.1.6.3	*The gradient for carparking circulation routes shall not be more than 1 in 8* No parking circulation routes have a gradient of more than 1 in 8.
	Servicing
34.6.1.6.5	*On each site in the Business Areas, at least one loading area shall be provided as follows:* *Where loading areas are located within a building, a minimum height clearance of 4.25 metres is required* No loading areas are proposed inside of any building. In some cases, adjacent lots may share access to a loading zone, in the manner of other established higher density activities around Wellington. Importantly, the site can provide adequate loading areas to accommodate the overall servicing demands generated by the proposed activities. The specific details of individual loading zone locations will be provided as part of the detailed design.
	For buildings serviced by lifts, all levels shall have access to a loading area by way of a lift No loading areas are proposed inside of any building.
	The loading area shall be located no further than 15 metres from a lift and there shall be access between them No loading areas are proposed inside of any building.
	Turning paths shall be based on the standard for a medium rigid truck as illustrated below (ref Pg. 34/31) No loading areas are proposed inside of any building.
34.6.1.6.6	*For loading areas located outdoors, the minimum width shall be 3 metres and the minimum length 9 metres* The masterplan incorporates adequate provision for such loading areas to be provided on-site, clear of the public street. In addition, the proposed access arrangements provide for a medium rigid truck to access the various activity components of the site, including adequate provision for these trucks to turn on-site and therefore to enter and exit the laneways in a forward direction, avoiding the need to reverse to and from the public street (Shelly Bay Road)

34.6.1.6.7	*For loading areas located within a building, the minimum width shall be 4 metres and the minimum length 9 metres* No loading areas are proposed inside of any building.
	Site Access for Vehicles
34.6.1.6.9	*Site access shall be provided and maintained in accordance with section 3 of the joint Australian and New Zealand Standard 2890.1 – 2004, Parking Facilities, Part 1: Off-Street Car Parking (or its successor)* As described in the preceding chapters, the site access arrangements have been designed to comply with these standards.
34.6.1.6.10	*Subject to standard 34.6.1.6.12 no vehicular access, shall be situated closer to an intersection than the following:* ▪ *Arterial and principal streets 20m* ▪ *Collector streets 15m* ▪ *Other streets 10m* The masterplan design shows the access arrangements proposed comply with these minimum separation distances
34.6.1.6.11	*No vehicle access is permitted to a site across any restricted road frontage identified on District Plan Maps 43-45* Shelly Bay Road is not identified as a restricted road frontage.
34.6.1.6.12	*There shall be a maximum of one vehicle access to any site except that sites with more than one frontage may have access across each frontage, unless once of the frontages is to a State Highway, in which case no access shall be to the State Highway* The masterplan scheme represents a subdivision which would split the land contained within the development site such that each title would not typically have more than one access
34.6.1.6.14	*The width of any vehicle crossing to a site shall not exceed 6 metres* The proposed laneways providing access to the landside development are shown as 7m wide. This has been done to enable truck manoeuvres to/from the site, and inbound/outbound vehicles to pass at the boundary. The minor deviation from the District plan standards will not have an impact on the safety of the proposed accessways, particularly given the required pedestrian visibility splays for vehicles exiting the site will be achieved (and confirmed during the detailed design).
34.6.1.6.15	*Where vehicular access can be provided from a service lane or right-of-way registered in favour of the site or other private road or private right-of-way, no vehicle access shall be from the street.* The shared access laneways will provide access to both the parking mews and the internal carparks, as well as for the occasional service vehicle visits (rubbish collection etc.). Access to development on the wharf will generally be achieved via identified vehicle routes through the shared space environment.
34.6.1.6.16	*All access to sites must be designed to permit free flow of traffic so that vehicles do not queue on the street.* The laneways arrangement, and associated connectivity within the site via the parking mews, will assist in distributing traffic across adjacent accessways, helping to mitigate any on-street queuing. It is noted that through traffic volumes on Shelly Bay Road are low, and therefore delays caused by traffic at the development driveways will be infrequent.

Table 14: Assessment against District Plan Standards

As shown, the masterplan scheme has been developed in a manner that is cognisant of the various rules and standards of the District Plan, in complying with the relevant design standards, or demonstrating that the intent of the standards can be met through the detailed design stages.

In addition to these standards set out above, Rule 34.1.1 states that a development is a Permitted Activity provided that it complies with the standards specified in section 34.6.1 (Activities), except:

"Any activity that provides more than 70 parking spaces"

Given the masterplan development provides more than 70 car parks, it requires assessment against the Discretionary Activity (Restricted) Rule 34.3.1, which states:

34.3.1 Any activity that provides more than 70 parking spaces is a Discretionary Activity (Restricted) in respect of:

34.3.1.1 the movement of vehicular traffic to and from the site

34.3.1.2 the impact on the roading network and the hierarchy of roads (see Map 33) from trip patterns, travel demand or vehicle use

34.3.1.3 the provision and location of facilities for multiple modes of transport

This report has included an assessment of the added traffic arising from the proposed development activities, including in respect of the capacity and operation of the Shelly Bay Road intersection with Miramar Avenue to the south. The analyses indicate that with proposed mitigation at the intersection, the development traffic can be accommodated without causing a significant reduction in level of service.

In respect of parking, and whilst the District Plan does not include a specific requirement for residential activities to provide parking within Business zone 1, the proposed development plans have been progressed on the basis of providing 1 space for every dwelling, in the manner of other suburban residential developments elsewhere in the city, and as required by a residential zoning.

In addition, the proposed public provision has been determined on the basis of industry guidance with respect to parking demand generation rates applied to the proposed activities, and assessed as adequately providing for development up to the proposed levels set out in Chapter 3.

In respect of access by other modes, it is noted that the development does not foreclose options for direct servicing by buses in the future, and indeed may facilitate a review by GWRC. Similarly, the development may prompt WCC to advance their earlier plans for a shared path along the seaward side of Shelly Bay Road, connecting between the existing path at Miramar Avenue and the new shared path to be introduced as part of the site works. Furthermore, and as described through earlier sections of this report, a ferry service connecting the development site with Queens Wharf in Wellington city, will usefully provide a convenient transport alternative to private vehicle trips, for residents and visitors alike.

9. Conclusion

In conclusion:

- the development access strategy has been developed in accordance with industry standards with regards to access and vehicle circulation routes;
- the increase in traffic won't adversely affect the capacity on Shelly Bay Road and Miramar Avenue intersection;
- possible solutions to public transport, and improved access by foot and by cycle could be investigated and would add to the accessibility of the proposed development;
- overall this assessment finds that the traffic-related impacts would be minor and that the level of use and activity can be properly and safely accommodated in this location.

Based on the assessment presented in this report, it is concluded that the proposed residential and retail, hospitality and commercial activities can be accommodated with little adverse effects on the surrounding transport network, and more particularly within a substantially improved Shelly Bay environment.

TDG

PREPARED FOR WELLINGTON CITY COUNCIL - CITY SHAPER
1 SEPTEMBER 2016

SHELLY BAY, WELLINGTON
SERVICING FEASIBILITY

COMMERCIAL IN CONFIDENCE

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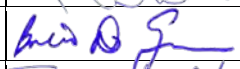
\\BROWNCAN.LOCAL\NZ\PROJECTS\WLG\709360 WCC SHELLY BAY BULK INFRASTRUCTURE COSTINGS\100 GENERAL\709360 RE 20160803 S2P.DOCX

QUALITY ASSURANCE STATEMENT

Task	Name	Signature
Project Manager	Scot Plunkett	
Prepared by	Scot Plunkett	
Reviewed by	Brett Gawn	
Approved for Issue by	Scot Plunkett	

DOCUMENT REVISIONS

Issue	Date	Issue Details	Author	Checked	Approved

TABLE OF CONTENTS

APPENDICES

Declaration:

Much of the information contained in this report has been sourced from investigations completed by Calibre Consulting in assessing the costs of providing bulk infrastructure services to Shelly Bay. Those investigations form part of a separate report for Wellington City Council. Calibre Consulting has also been engaged by the developer to provide initial land surveying expertise to assist with the subdivisional aspects of the proposal.

1 PURPOSE

The purpose of this report is to confirm the ability of the Shelly Bay development site to be appropriately serviced.

2 BACKGROUND & METHODOLOGY

The Wellington Company is preparing a resource consent application for the proposed development of the Shelly Bay site. Schematic plans of the proposed development are attached as Appendix A.

In December 2015 the Shelly Bay site was announced as a Special Housing Area (SHA). For the Council to grant any resource consent under the Housing Accords and Special Housing Areas Act 2013 (the Act) the ability of the development site to be appropriately serviced needs to be considered. Details of the consideration required can be found in section 34 of the Act. An excerpt from the Act is included in Appendix B.

The Act refers to "sufficient and appropriate infrastructure" on several occasions. This phrase has been determined to mean services (such as access, drainage and utilities) that could reasonably be expected to be provided in an urban situation, in a manner and to a standard that would generally be satisfactory to the general public.

To satisfy the Council that "sufficient and appropriate infrastructure" is available or achievable for the proposed development the following steps have been completed:

- Determining the scale and standard of services required
- Assessment of the existing infrastructure
- Considering and developing options for upgrade or replacement of services as required
- Confirming the feasibility and fit of the proposed services

3 SUMMARY

Sufficient and appropriate infrastructure is in place, or can reasonably be provided, to support the proposed development of the Shelly Bay area.

The provision of suitable access, drainage and utility services can be achieved using standard civil engineering design and construction methodologies. Relevant authorities and service providers are satisfied that the development site can be adequately provided for. Fanciful, untested or cost-prohibitive solutions are not required to appropriately service the development.

4 INFRASTRUCTURE

4.1 ACCESS

Based on the proposed number of residential units, Shelly Bay Road would fall under the designation of Collector Road. In a normal "greenfield" situation this would require a carriageway width of 14m plus 8m of footpaths and berms, making 22m in total. Constructing a road to this standard is not feasible due to the cliff face along one side of the road and the sea wall and harbour on the other. Upgrading the current carriageway to fully meet the guidelines of the Council's Codes would serve to urbanise the road and may have adverse effects overall.

The Council has indicated their expectations for the level of service required by Shelly Bay Road to provide access to the developed site. Calibre has also assessed the level of infrastructure considered necessary to service the proposal. The final design and specifics of the access road will however be confirmed as a result of the overall planning and detailed engineering design processes.

The proposed traffic lanes are consistent for the various options at a minimum carriageway width of 6.0m (two 3m moving lanes). The variations are predominantly around footpath/cycle lane provision and the extent of roadside parking.

The primary function of the route will be to "move", so only needs to have traffic lanes and appropriately allow for pedestrian/cycle traffic. There is limited need for berm or other parking along the route. Parking on the harbour side of the carriageway is readily available in some places along the route, but will require substantial construction at other points.

A 1.0-1.5m wide pedestrian/cycle lane has been allowed for as a minimum requirement, with additional width the subject of potentially significant construction works. Preliminary investigations and some conceptual design work have been completed to assess the current layout's ability to accommodate this allowance. In general it is expected that the existing road alignment can largely accommodate a 6.0m carriageway plus 1-1.5m pedestrian/cycle corridor, without need for significant structural works or creating large scale environmental impacts. Sketches indicating the ability of the alignment to accommodate this combined 7-7.5m width are attached in Appendix C.

The final design will need to be a balance between technical requirements and guidelines and retention of the existing natural character and amenity of the coastal route.

Notwithstanding the above the various options and alternatives will all provide roading infrastructure that will adequately service the scale of the development proposed. Whilst the finished result may not be fully compliant with standard Code of Practice requirements or 100 percent satisfactory to all parties, it will be of a scale and standard that sufficiently and appropriately caters for the development proposal.

4.2 WATER SUPPLY

Based on the expected population that will be generated by the development the water supply needs have been determined. The current infrastructure is considered to be in poor condition and grossly undersized. Consultation with Wellington Water Limited (WWL) confirmed that a new reservoir and related watermain infrastructure would be required to service this level of development. The major components of the capital works are a new reservoir (Shelly Bay), replacement of the pipeline between the Mt Crawford and Shelly Bay reservoirs, replacement of the pipeline from Shelly Bay reservoir and local reticulation.

There is considerable upgrading work needed to provide the level of service required for the proposal. The provision of a new reservoir and related pipelines is however fairly standard practice for a development at the scale of this proposal. The final details and specifications are yet to be determined, but in consultation with WWL the solutions comprise standard practice subdivisional engineering works, and are not considered unusually onerous or containing unexpected levels of risk.

The proposed infrastructure is considered to adequately meet or comply with the relevant standards for developments of this nature, and will provide sufficient and appropriate water supply infrastructure for the proposal.

4.3 WASTEWATER

The necessary wastewater drainage capacity was calculated using the Regional Standard for Water Service and the expected population generated by the development. The existing pipework was determined to be in such a condition as to be unable to cope with increased flows, and there were also issues with the size of the existing gravity feed to the existing pump station.

Consultation with WWL determined that a new wastewater pump station and rising main would be required to service the development. Due to uncertainty regarding the capacity of the existing downstream wastewater infrastructure it was determined that the new rising main would need to be extended so as to connect to the pump station in Salek Street, Kilbirnie. The major components of the capital works are a new wastewater pump station, a new rising main to the Salek Street pump station and local reticulation.

The Salek Street pump station is approximately 3.5km from the development site. Connection to this pump station will require construction of the new pipe alignment along busy roads (including SH1) and through or around large road intersections. Whilst these matters add complexity and cost to the requirements the actual logistics of the construction are within standard operating procedures for this manner of work.

The internal drainage network for the development site will also need to be designed. This will service the individual sites and connect to the public infrastructure or "mains". The infrastructure design has allowed for the local reticulation. The design of any local reticulation is however subject to the details of the land use proposal and subsequent detailed engineering design.

The proposed infrastructure is considered to adequately meet or comply with the relevant standards for developments of this nature, and will provide sufficient and appropriate wastewater drainage infrastructure for the proposal.

4.4 STORMWATER

Current stormwater disposal for the site is via several discharge points directly feeding into Shelly Bay. Along the access to the site (Shelly Bay Road) there are several additional discharge points from the road directly to the harbour. Given the coastal nature of the site and the access road this is the logical arrangement. Current requirements for disposal, the protection of the coastal environment, discharge specifics and pollutant treatments are considered to be beyond the existing infrastructure.

The proposed development of the site and Shelly Bay Road will require upgrades and/or additions to the current discharge situation. New outfall structures have provisionally been allowed for to service the site and the upgraded Shelly Bay Road. Details of the locations and specifications for the outfalls will need to be confirmed and consented through both Wellington City and Regional Councils.

An internal stormwater network will also need to be designed for the development. This will service individual sites and allow rainfall and sub-surface runoff from above the site to be controlled through the site. The internal network design effectively comprises the positioning and sizing of appropriate catchment (sumps, raingardens etc) and distribution (pipework) networks. These are standard and expected matters for all land development proposals. The discharge points will be designed to allow for this internal network, in addition to the existing stormwater disposal.

The required infrastructure will allow for the sufficient and appropriate drainage of stormwater into, within and thorough the site, along with the appropriate and controlled disposal into the harbour.

4.5 POWER

Wellington Electricity is the infrastructure provider for power services in the Shelly Bay area. Wellington Electricity has assessed the proposal for their likely power servicing requirements. Based on the load proposed the required transformer capacity has been calculated. Upstream reinforcement work would be required to supply the development, and potentially three substations would be required. Wellington Electricity did not raise any issues or concerns regarding their ability to appropriately service the development as proposed.

4.6 TELECOMMUNICATIONS

Chorus Network Services (Chorus) is an infrastructure provider for telecommunication services in the Shelly Bay area. Chorus has confirmed that they will be able to provide telephone reticulation for the proposed development. Chorus' undertakings include the network design, supply of telecommunications specific materials and supervising installation. Chorus did not raise any issues or concerns regarding their ability to appropriately service the development as proposed.

4.7 GAS SUPPLY

PowerCo is an infrastructure provider for reticulated gas services in the Shelly Bay area. PowerCo has assessed the development proposal and determined their likely requirements. They have determined that the development would require the installation of approximately 2.9km of gas main in Shelly Bay Road. Depending on the uptake and investment required for the infrastructure the installation may utilise trenching from other services and be completed through a competitive tendering process.

Reticulated gas is not considered a core infrastructure requirement for new developments. If required for the Shelly Bay proposal PowerCo has indicated that supply to the development is feasible. Any reticulated gas supply would therefore be provided to sufficiently and appropriately service the development.

4.8 OTHER INFRASTRUCTURE

The Shelly Bay proposal also includes the potential for options such as a cable car and passenger ferry terminal. These options will potentially add to the amenity values of the area, but are not seen as key to supporting the feasibility of any development. The Act requires the consideration of "*sufficient and appropriate infrastructure*", and matters such as cable cars and passenger ferries are considered outside of this definition.

5 PLANNING ASSESSMENT

The above details have been provided to allow the Council to appropriately assess the pending application for resource consents at Shelly Bay. Section 34 (2) of the Act states that the Council must not grant consent *"unless it is satisfied that sufficient and appropriate infrastructure will be provided to support the qualifying development"*. Section 34 (3) details the considerations that the Council must make.

The proposed infrastructure will be designed and constructed so as to be fully compatible with the existing infrastructure - s34(3)(a). As part of the detailed design process the Council's satisfaction as to the proposal's compliance with the applicable Codes and Standards will be obtained – s34(3)(b). Downstream investigations have been undertaken to ensure that the capacity of the proposed and existing infrastructure is sufficient to support the development proposal – s34(3)(c).

APPENDICES

APPENDIX A SCHEMATIC PLANS OF THE PROPOSED DEVELOPMENT OF SHELLY BAY

AERIAL VIEW – SOUTH BAY

AERIAL VIEW – NORTH BAY

APPENDIX B EXCERPT FROM THE HOUSING ACCORDS AND SPECIAL HOUSING AREAS ACT 2013

Decisions on applications and commencement of resource consents

34 Consideration of applications

(1) An authorised agency, when considering an application for a resource consent under this Act and any submissions received on that application, must have regard to the following matters, giving weight to them (greater to lesser) in the order listed:

(a) the purpose of this Act:

(b) the matters in Part 2 of the Resource Management Act 1991:

(c) any relevant proposed plan:

(d) the other matters that would arise for consideration under—

(i) sections 104 to 104F of the Resource Management Act 1991, were the application being assessed under that Act:

(ii) any other relevant enactment (such as the Waitakere Ranges Heritage Area Act 2008):

(e) the key urban design qualities expressed in the Ministry for the Environment's *New Zealand Urban Design Protocol (2005)* and any subsequent editions of that document.

(2) An authorised agency must not grant a resource consent that relates to a qualifying development unless it is satisfied that sufficient and appropriate infrastructure will be provided to support the qualifying development.

(3) For the purposes of subsection (2), in order to be satisfied that sufficient and appropriate infrastructure will be provided to support the qualifying development, the matters that the authorised agency must take into account, without limitation, are—

(a) compatibility of infrastructure proposed as part of the qualifying development with existing infrastructure; and

(b) compliance of the proposed infrastructure with relevant standards for infrastructure published by relevant local authorities and infrastructure companies; and

(c) the capacity for the infrastructure proposed as part of the qualifying development and any existing infrastructure to support that development.

(4) In considering an application for a resource consent under this section, the authorised agency—

(a) may direct an affected infrastructure provider to provide any information that the authorised agency considers to be relevant in the circumstances to its consideration of the application; and

(b) if the authorised agency is the chief executive, may also direct any local authority to provide any information that the authorised agency considers to be relevant in the circumstances to its consideration of the application.

(5) If an authorised agency makes a direction under subsection (4), the infrastructure provider or local authority must provide the information requested as soon as is reasonably practicable.

(6) The Ministry must ensure that a copy of the document referred to in subsection (1)(e), or a link to that document, is on the Ministry's Internet site and that members of the public can easily access the document via that site, free of charge, at all reasonable times.

APPENDIX C SCHEMATIC ACCESS LAYOUTS – CALIBRE 709360 SHEETS C11 – C14

Merge with cycle lane proposal

2m wide path between low wall & kerb

>3m path - some trees & power poles

CONTINUATION BELOW

Cobham Dr

Miramar Ave

Shelly Bay Road

FOR REFER

>3m path - some trees

transition point

3m wide footpath requiring significant sea-wall extension; potentially into MHWS

≒1.5m wide path possible with limited physical works & vegetation impact

CONTINUATION ABOVE

CONTINUATION SHEET 2

Shelly Bay Road

FOR REFER

FOR REFER

SHEET LAYOUTS

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

Revision		App	Date
Surveyed	-		-
Designed	SF		05/16
Drawn	JWW		05/16
Reviewed			
Approved			

Client

Absolutely Positively Wellington City Council

Me Heke Ki Pōneke

Project Title

SHELLY BAY
BULK INFRASTRUCTURE

Sheet Title

PLAN LAYOUT
SHEET 1

Level 13, Kordia House
109-125 Wills Street, Wellington 6011
calibreconsulting.co
+64 4 384 2029

Scale (A3 Original) 1:1000

10 5 0 10 20 30 m

Project No	Sheet	Revision
709360	C11	-

H:\AUC\709360 WCC - Shelly Bay - Bulk Infrastructure Costings\320 Drawings\709360-C11-C15 (Plan Layouts).dwg , Plotted By: Joseph Mitchell at 31/05/2016 12:08:11 p.m., Scale 1:1

≈1.5m wide path possible with limited physical works & vegetation impact. Some expansion to 3m wide possible

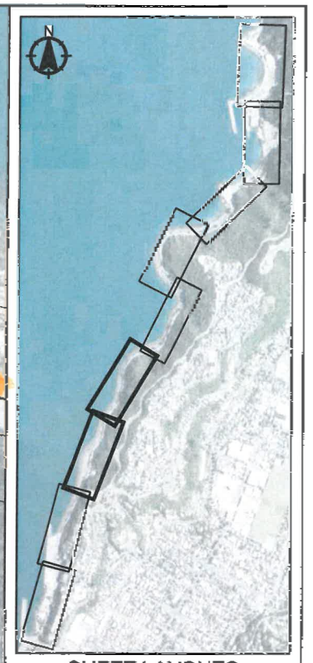
3m wide path requiring significant sea-wall extension and loss of beach amenity

CONTINUATION SHEET 1

CONTINUATION BELOW

FOR REFER

Shelly Bay Road



SHEET LAYOUTS

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

3m wide path requiring significant sea-wall extension (beyond recent remedial works) loss of beach; MHWS

≈1.5m wide path possible. Minimal ability to "easily" expand to 3m width

CONTINUATION ABOVE

CONTINUATION SHEET 3

FOR REFER

Shelly Bay Road

Revision		App	Date
Surveyed	-		-
Designed	SP		05/16
Drawn	JWM		05/16
Reviewed			
Approved			

Verify all dimensions on site before commencing work. Preclude figured dimensions over scaling. Refer all discrepancies to Calibre.

Client

Absolutely Positively Wellington City Council

Me Heke Ki Pōneke

Project Title

SHELLY BAY
BULK INFRASTRUCTURE

Sheet Title

PLAN LAYOUT
SHEET 2

Level 13, Kordia House
139-125 Willis Street, Wellington 6011
calibreconsulting.co
+64 4 384 2029

Scale (A3 Original) 1:1000

10 5 0 10 20 30 m

Project No	Sheet	Revision
709360	C12	-

CONTINUATION SHEET 2

FOR REFER

≈1.5m wide path possible with limited physical works & vegetation impact. Minimal expansion opportunities to 3m width

3m wide path requiring significant sea-wall extension.
- loss of beach amenity,
coverage of recent remedial work

FOR REFER

CONTINUATION BELOW

Shelly Bay Road

steep rock face
- limited expansion opportunity

possible landward side expansion - subject to appropriate alignment design

3m wide path requiring significant sea-wall extension

Shelly Bay Road

1.5m wide path possible with limited works. Some expansion opportunities

Steep sided rock face
- signs of minor slips
- limited expansion opportunities

FOR REFER

CONTINUATION ABOVE

FOR REFER

CONTINUATION SHEET 4

SHEET LAYOUTS

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

Revision		App	Date
Surveyed	-		-
Designed	SP		25/10/25
Drawn	JWM		25/10/25
Reviewed			
Approved			

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Client

Absolutely Positively Wellington City Council
Me Heke Ki Pōneke

Project Title
SHELLY BAY
BULK INFRASTRUCTURE

Sheet Title
PLAN LAYOUT
SHEET 3

Level 13, Kordia House
109-125 Willis Street, Wellington 6011
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calibre CONSULTING

Scale (A3 Original) 1:1000

10 5 0 10 20 30 m

Project No	Sheet	Revision
709360	C13	-

H:\WLG\709360\WCC - Shelly Bay - Bulk Infrastructure-Consings\325 Drawings\709360-C13-C13 (Plan Layouts).dwg Plotted By: Joseph Mitchell at: 31/05/25 12:18:15 p.m. Scale: 1:1

1.5m wide path possible with limited works. Minimal length of expansion possible

3m wide path - significant sea-wall extension, loss of beach amenity

3m width to development "entrance"

Internal layout subject to developer's design

landward expansion potential - subject to alignment and utility relocation

CONTINUATION SHEET 3

FOR REFER

Shelly Bay Road

CONTINUATION BELOW

CONTINUATION ABOVE

CONTINUATION SHEET 5

Shelly Bay Road

Internal layout subject to developer's design

Main Road

SHEET LAYOUTS

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

Revision		App	Date
Surveyed	-		-
Designed	SP		05/16
Drawn	JWM		05/16
Reviewed			
Approved			

Verify all dimensions on site before commencing work. Provided figured dimensions over scaling. Refer all discrepancies to Calibre.

Client

Absolutely Positively Wellington City Council

Me Heke Ki Pōneke

Project Title

SHELLY BAY
BULK INFRASTRUCTURE

Sheet Title

PLAN LAYOUT
SHEET 4

Level 13, Kordia House
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calibre CONSULTING

Scale [A3 Original] 1:1000

10 5 0 10 20 30 m

Project No	Sheet	Revision
709360	C14	-

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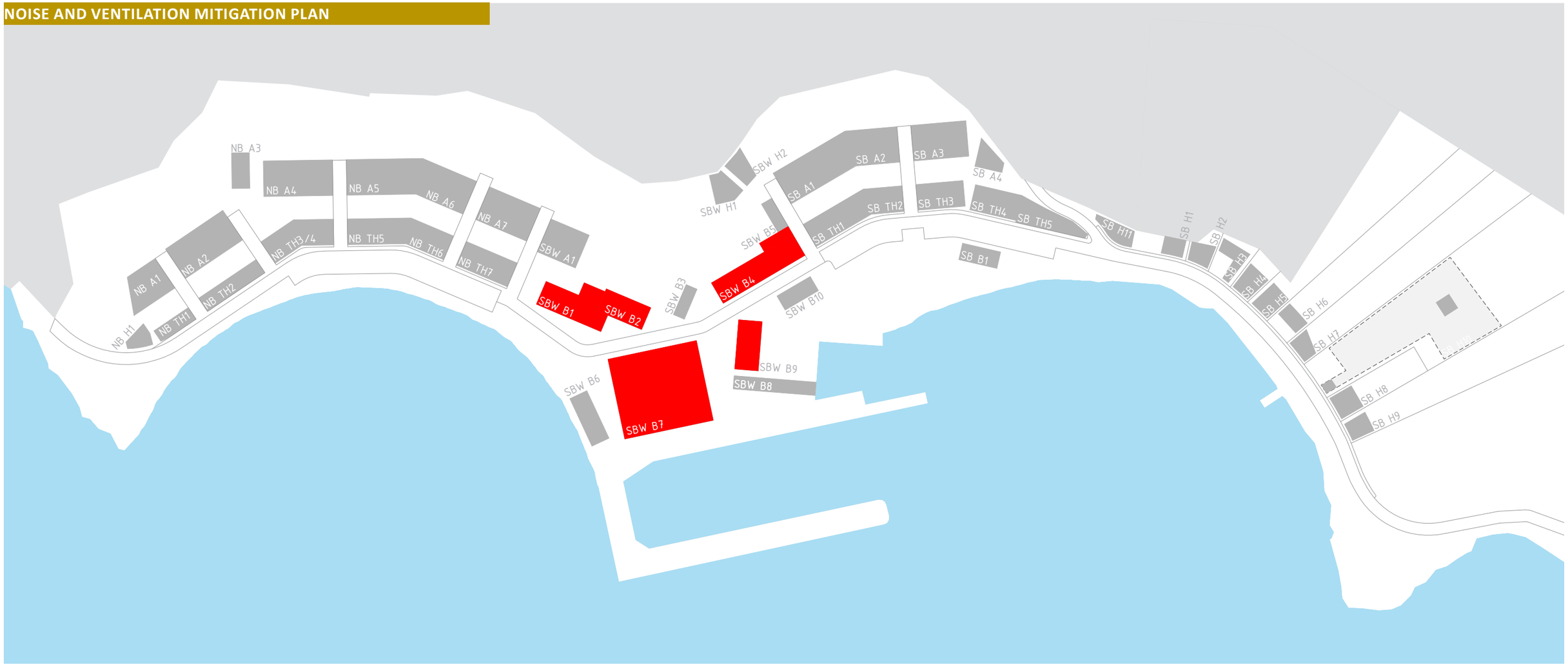
NOISE AND VENTILATION MITIGATION PLAN



N SCALE 1 : 2000 @A3

Sea

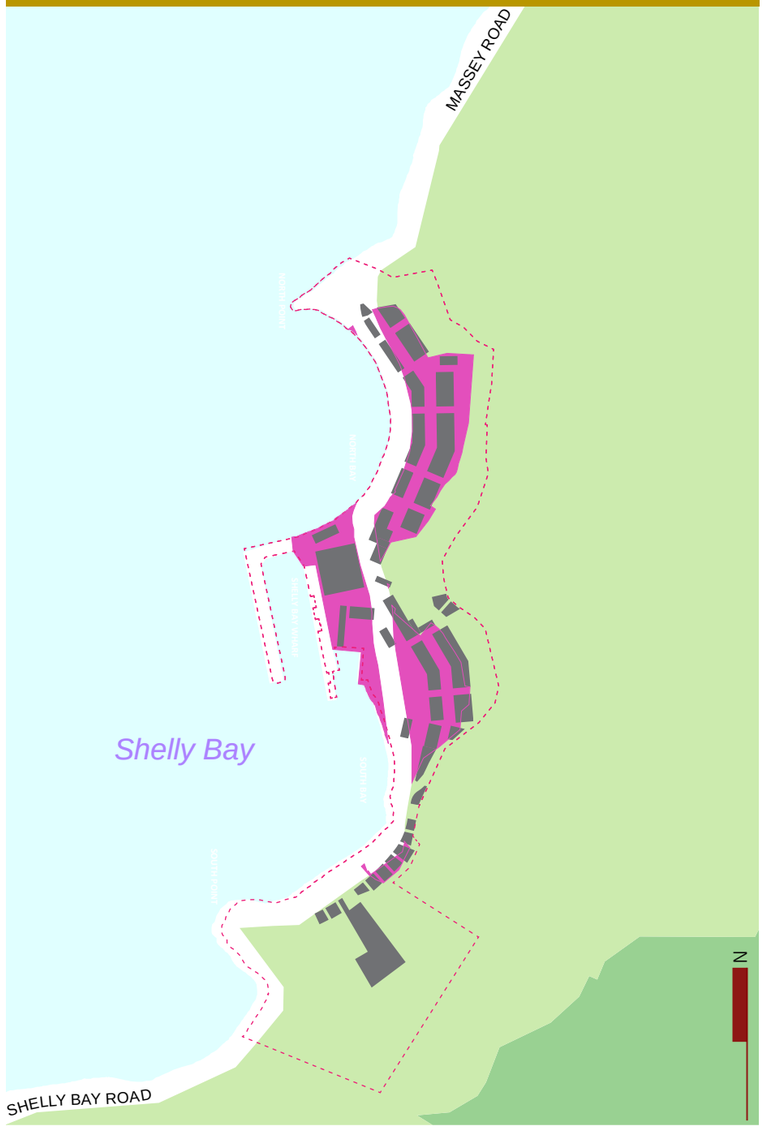
Neighbouring land

Envelope foot print

Buildings subject to noise and ventilation measures

Indicative building footprint within envelope

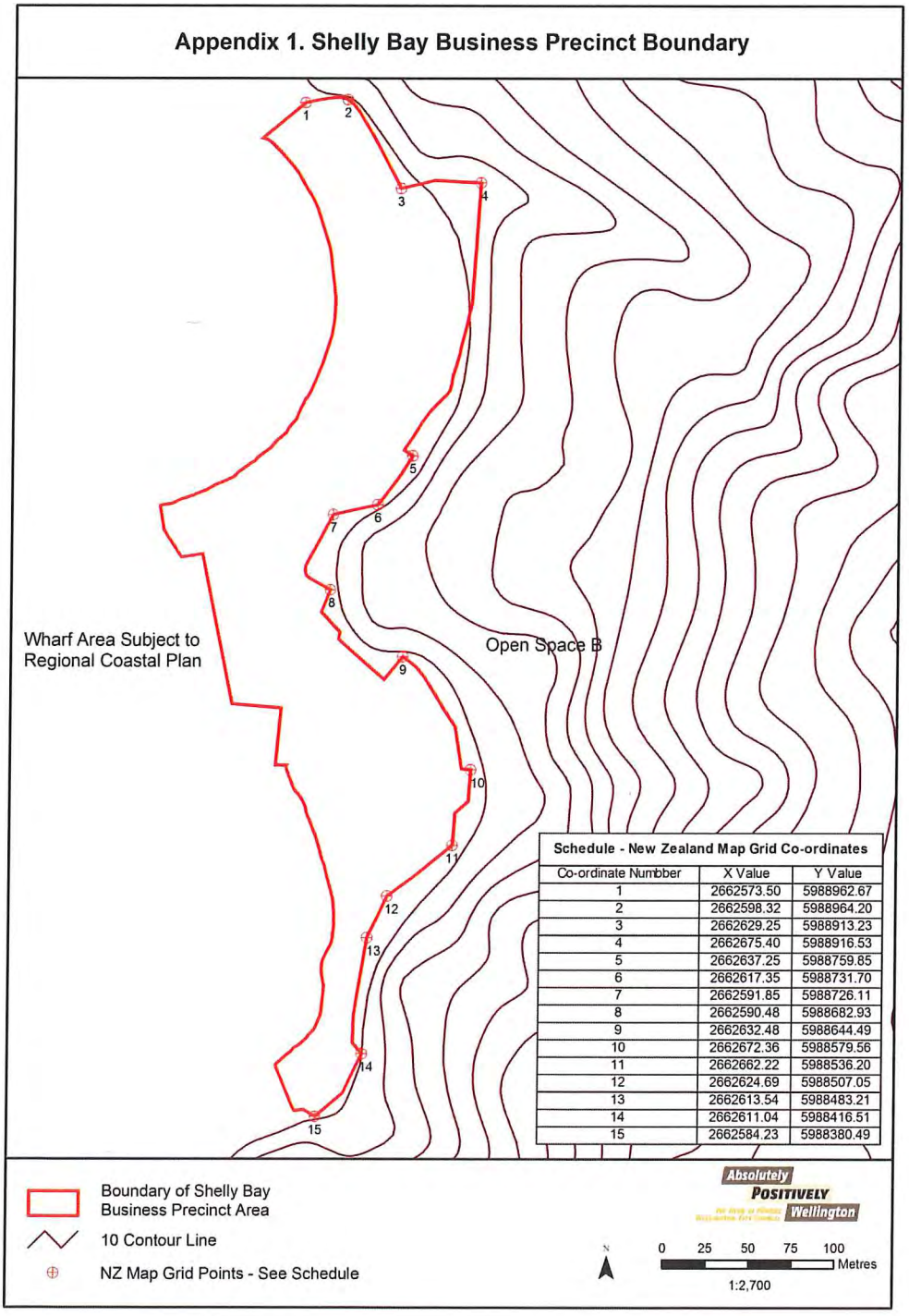
DISTRICT PLAN OVERLAY



NOT TO SCALE

- SHA boundary
- Envelope foot print
- Open space B
- Conservation
- Business 1

Appendix 1. Shelly Bay Business Precinct Area – Boundary Location



5 Spetember 2016

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The Wellington Company
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Wellington
NEW ZEALAND

attention: **Earl Hope-Pearson**

re: **Shelly Bay Master Plan - heritage**

Dear Earl,
You have asked that we consider the proposed development at Shelly Bay and to consider particularly the conservation and adaptive reuse of a number of existing assets (buildings and spaces) of heritage value against the Master Plan developed to describe that work, these being:

1. The Officers' Mess
2. Submarine Mining Barracks (Chocolate Fish Cafe)
3. Shed 8
4. Out Building
5. Officers' Quarters
6. Shipwrights Building
7. Hospital.

We support the overall Shelly Bay Master Plan proposed. We support the proposal to retain, conserve, and adaptively reuse the existing assets identified and the particular qualities they lend to the distinctiveness of Shelly Bay upon which the proposed development responds.

We note that while none of the assets described above and referenced in the existing Wellington City Council Shelly Bay Design Guide are formally identified as historic heritage in the Wellington City Council Operative District Plan[1], appropriate regard in the proposed Master Plan has been made for opportunities to conserve and adapt all but the former hospital building within the Master Plan.

The Master Plan is linked to a proposed Shelly Bay Design Guide which affords a co-ordinated approach to the potential for conservation and adaptive reuse of these existing assets. Accordingly, the proposed Design Guide recognises and has been informed by the existing Wellington City Council Shelly Bay Design Guide to provide specific and particular guidance for opportunities recognised in the Master Plan for each of the existing assets proposed for retention and reuse in a comprehensive manner.

While the proposed Master Plan has not identified an opportunity for repurposing the existing former Hospital Building, its loss within the overall Master Plan vision for

---

1 While the Submariners' Mining Barracks building can be defined as an archaeological site as it is associated with human activity before 1900, that being the definition of an archaeological site in accordance with section 6(a)(i) of the Heritage New Zealand Pouhere Taonga Act 2014 this is a parallel legislative regime to that of the RMA and specifically the protection afforded places of historic heritage value in Part 2 Section 6(f) from "inappropriate subdivision, use, and development".

Shelly Bay is not considered to be a significant adverse effect. In part this is considered so due to the physical separation of the former Hospital Building has relative to the more typical siting of buildings on the flat common ground at the base of the steep topography and open ground between the foot of the hill and the harbour edge.

The proposed Master Plan in hand with the proposed Design Guide together ensure an appropriate regard and response to those existing values and attributes that are particular to Shelly Bay and which lend future development direct references to scale, materiality, and relationship to open space and the harbour.

The Wellington Company's proposed development at Shelly Bay is well composed in the proposed Master Plan and is equally well supported by the proposed Design Guide. Together these documents recognise the existing heritage at Shelly Bay and proposes a design response which is informed and appropriate to these assets and this place.

Yours sincerely
archifact – architecture & conservation limited

Adam Wild fnzia
director

Shelly Bay Masterplan
Urban Design Assessment
of the Wellington Company proposal
relative to the WCC Shelly Bay Design Guide

for
The Wellington Company

1.0 Introduction

This assessment relates to the proposals for Shelly Bay described in both the Masterplan and Shelly Bay Design Guide, all dated 5 August 2016.

The WCC Shelly Bay Design Guide states:

> *"As specified in the District Plan rules, all new building development within the Shelly Bay area is a Controlled Activity or Discretionary Activity (Restricted), in terms of the design and appearance, height, scale and siting of new buildings. The Design Guide provides the criteria against which controlled or discretionary elements are assessed. Applicants will be required to demonstrate that the provisions of this Design Guide have been acknowledged and interpreted in any new development and the objectives satisfied."*

Consent is sought under the HASHAA which seeks to permit much higher and more intensive development than is anticipated by the WCC Design Guide. Where variance exists this is noted in the assessment below.

2.0 Assessment

See also descriptive masterplan images at section 3 of this report.

The general aim of the Design Guide is to encourage development which recognises and respects the distinctive environmental qualities that give the area its character and avoids creating potentially adverse effects on that character.	The unique character of Shelly Bay (as existing) is established by the following key characteristics: • Two bay structure, each with different characteristics; • Two natural, rocky promontory / points; • Continuous public access along the bays and points; • Open space areas between the escarpment and foreshore that allow appreciation of bay and hill together; • Green escarpment, ridge spurs and backdrop; • Existing mature trees to foreshore; • 'Heritage' structures in informal spatial pattern; and, • Central wharf area that connects the two bays. These characteristics feature as fundamental drivers of the proposals and the development recognises these by: • Creating two distinct character areas (North Bay and South Bay) that reinforce the identity of each bay; • Maintaining the promontories as natural open space rocky outcrops that defined the 'gateways' to the bays; • Enhancing continuous public access along the entire length of Shelly Bay; • Creating a new village green within South Bay between the foreshore and the escarpment used as public open space; • Development contained within the HASHA boundary that ensures visibility and expression of the open space escarpment beyond. Gaps and Lanes created between buildings to establish connections to the escarpment. Development stepped down to the bay to allow views across buildings to hills beyond. Significant escarpment

	spurs are expressed by setting development back and masterplanning that ensure visual expression; • Retaining the majority of mature Pohutukawa trees to the foreshore areas; • Assessing the quality of each existing building and retaining/re-purposing the most significant structures within the plan; and, • Providing for retention and adaptive reuse of the wharf area as a new mixed use 'heart' to the area.
The major urban design issues to be considered by new development in Shelly Bay relate to the: • *impact of new development on the natural character of Shelly Bay* • *impact of new development on the public amenity value and recreational potential* • *impact of new development on the historic significance of the area as a whole and any identified heritage buildings.*	• The existing natural characteristics of the bay are mostly expressed by the escarpment while the coastline (bays) have been heavily modified with sea wall, wharf and road infrastructure. The promontories have a more natural form. The existing northern bay has a formal, constructed and regularised structure. Development in this area opens out to and 'fronts' this bay, following its general curvature and creating a built frontage at street level. The impact on the escarpment is to introduce buildings (within HASHA limits) at the 'foot' of the hill, stepped down in height and mass to the foreshore, which restrict views of the escarpment at low level but enable views to the upper slopes. The southern bay has a less formal structure and this is reflected by the creation of a new village green and 'looser' placement of heritage buildings within this space, the enhancement of the beach and informal pedestrian access along the coastal edge. Promontories are retained as open spaces with informal rocky character allowing car parking. Landscape initiatives at the points will enhance their character. • Public amenity and recreational value – most of the existing flat open spaces do not encourage occupation/activity, the exception being the Chocolate Fish forecourt. Access through the wharf area is not possible and physical engagement with the water's edge is poor. Open space character is enhanced with the new Village Green that establishes an active space and setback for development away from the coastal edge. The realigned road here is closer to the original, pre-reclamation coastline alignment and creates a generosity of recreational amenity within the bay. The northern bay promenade significantly enhances amenity value as do the beach and access upgrades to the southern bay. Access to the escarpment is encouraged by new lanes and stair accessways up the slopes. Landscaping of the promontories unobtrusively provide for car parking and increase access for fishing/diving/boating. • Historic significance – The area has significance both for Maori and as part of the former armed forces history of Wellington. The latter is more obviously expressed through various air force base structures of varying degrees of importance and quality. The proposal retains

	and re-purposes the identified key/valued structures (note none have heritage listing) and locates them authentically respecting their alignments and open space settings. As a whole the most significant aspects retained that positively respond to the history of the area include: o the central wharf area with its collection of larger buildings, spaces and wharfs; o the distinctiveness (differences) between the two bays that terminate at the promontory points; o the public access along the bays; and, o the visual connections to the escarpment beyond, enhanced with new physical links.
5. 0 OBJECTIVES	
O1 *To manage new development in a way that enhances Shelly Bay as a public destination and a point of interest along the scenic marine drive and protects its unique public amenity value of open texture and foreshore accessibility.*	The area's status as a public destination and point of interest for Wellington is enhanced by new activity and 'lease of life' for heritage and character buildings that surpass the current offering, and retention and celebration of authentic wharf character (structures and spaces). A central mixed use area largely comprised of heritage buildings and new character buildings and wharf that creates a focus and point of arrival for visitors. Promontory point parks (and area 'gateways') with both parking and access to the water including for fishing, diving, boating contribute to accessibility. While accommodating considerable development at the rear (escarpment foot) of the bays, road setback of the southern bay allows the coastal edge here to be generously open establishing a new Village Green as an active, public open space supported by re-purposed heritage buildings as destinations.
O2 *To manage new development in a way that respects the distinctive natural character of Shelly Bay, through its form, scale and siting, and which is visually related to the surrounding buildings.*	See assessments at Rows 1 and 2 of the table. Natural character that exists along the shoreline is maintained and enhanced by creating wide promenade public access along the foreshore that allows the coast to be expressed and supported. Planting around the North and South points, along the bays and enhancement of the beach area in South Bay. Building form steps up in height and mass from the street edge, in both plan and section relating to the contours of the escarpment behind. Lower flat platforms are optimised to reduce impact on the hill beyond and lanes and gaps are created to avoid separation of the bush clad slopes from the foreshore. Overall the plan integrates the considerable development intended by the HASHA regulations in a way that reinforces the two-bay and promontory spatial patterns of the area reduces visual dominance by stepping and scaling down built forms.

O3 *To promote the historic significance of Shelly Bay and encourage development that respects any identified heritage buildings.*	See assessments at Row 2 of the table (third bullet). Retention and adaptive reuse of character/heritage buildings has been actively pursued and included in the masterplan. A number of heritage buildings are relocated (see Design Guide) to where they are best sited to contribute to the amenity and success of the development, to activate spaces, to act as iconic memorable elements and to be expressed as publicly accessible assets. Retention of the slipway as a defining and authentic waterfront/industrial character element is supported by a re-purposed Shipwrights building.
6. 0 GUIDELINES	
Siting and Massing ***G1*** *Building development immediately abutting the spur separating the two bays should generally be avoided to provide a visual break enhancing the two-bay form of the area.*	The spur has been respected as an important visual punctuation between the North and South Bays. See images at section 3 (Figure 1) of this report that highlight how the spur is retained as a powerful visual element that is part of a series of spurs that include those at northern and southern promontories.
G2 *New development within the wharf area should be located in a way so as to provide continuous pedestrian access and recreational opportunities along the water's edge*.	Continuous pedestrian access is provided for along the entire length of the Shelly Bay foreshore including the central wharf area. In addition, spaces in the wharf area are created around heritage buildings and at the wharf edges that create opportunities for public occupation and recreation. To the northern side of the wharf area new small scale kiosk structures and public amenities are provided to assist and support use of the water's edge.
G3 *New development along Shelly Bay Road should generally be built up to the road edge or setback at intervals to provide usable public open space adjacent to the road. This is to enhance the public quality of Shelly Bay Road*.	Development along Shelly Bay Road (South Bay) has been designed to support this guideline where built form is built up to the (re-aligned) road edge while the new Village Green creates open space adjacent to the road enhancing the "public quality of Shelly Bay Road". Where existing Pohutukawa trees of quality have been identified for retention, individual house sites are set back or located around these trees.
G4 *New building development will be expected to comply with the site-specific height provisions and guidelines as follows (refer to the indicative diagram on this page):* • *new development within the wharf area could rise up to 8 metres above ground level* • *new development along Shelly Bay Road should generally be no higher*	Height limits have been breached to fully utilise the potential of the site to provide housing to give effect to the purpose of the HASHAA. The masterplan approach is to step building heights down towards the street edge and bay with townhouses up to three storeys at the street edge being around half the height of apartments to six storeys behind. (Creating six storey/27m high buildings along the street edge would result in a poor

than 8 metres above ground level, except that it may rise up to 11 metres over one third of the frontage of any building • *new development at the rear of the existing flat area of the two bays should not exceed 11 metres above ground level, except that approximately 10% of the building footprint area may rise to 12.5 metres* • *the height of any new development within the terraced area of the northern bay (around the existing Hospital building) should not exceed 7 metres above ground level.*	urban design outcome for Shelly Bay and height reduction and stepping has been an important principle adopted by the masterplan from the outset.)
Scale ***G1*** *New development should consist of individual buildings with linear character, separated by open space, and with scale comparable to that of the existing buildings.*	Rows of townhouses along the street edges to Massey and Shelly Bay Roads combine to create the linear character anticipated by this guideline. This is also provided within the central wharf area in the new mixed use character building that can be seen in Figure 3 (section 3). Gaps are provided for with lanes between these linear blocks, and gaps and setdowns are proposed within the massing of the blocks to ensure a crenellated and varied skyline with individual townhouse expression. The lower scale townhouses at the street edges create the compatibility with the lower scale heritage buildings sought by this guideline.
G2 *Where the footprint of a new development is significantly larger than that of the surrounding buildings, its bulk should be broken down into smaller elements to reflect the scale of the existing buildings.*	Breakdown of the larger apartment forms and linear townhouse blocks - This is shown with indicative images throughout the Masterplan and is specifically addressed in the proposed Design Guide where guidelines are framed to ensure high levels of townhouse articulation of façade and roof, and to reduce the bulk and mass of the apartments (e.g. frontage widths of greater than 21m are subject to vertical recesses or steps and protrusions in front, side façades are described).
Circulation ***G1*** *The existing pedestrian walkway along the water's edge should be generally retained and improved in such a way as to enhance its pedestrian character and amenity as a public promenade.*	As noted above, continuous public access (streets, promenades, footpaths, open spaces etc.) are provided along the entire Shelly Bay foreshore. These are significantly upgraded as described in the Masterplan to provide high quality landscape routes and spaces that are well-surveilled, detailed and aligned to encourage successful public access, and supported by public amenities at various points.
G2 *Future development within Shelly Bay should allow for cross-site pedestrian links*	Nine east-west cross site pedestrian links are provided for with the lanes between urban blocks. These provide for resident and public access to the proposed apartments at the

to connect the rear of the area to the water's edge	rear of each bay as well as spatial and visual links from the foreshore to the escarpment behind.
Elevational Modeling ***G1*** *The modeling of new building elevations should relate to the scale, character and elevational modeling of adjacent buildings.*	Where new buildings are proposed in close visual proximity to existing heritage buildings these have been designed (see Masterplan illustrations) to reflect the language and aesthetic of the former air force base structures (e.g. the new mixed use character building in Figure 3 of this report). The guidelines in the Design Guide have been drafted to ensure a fineness of grain will emerge as evident in the wharf area – e.g. Townhouse guidelines for width variation, rooftop articulation, individuality, front façade design etc. The larger scale heritage buildings (e.g. Shed 8) allow for compatibility with larger new buildings and where these occur attention has been paid to key features such as roof form. Relocated character buildings stand alone at the Village Green providing an authentic reference to how they originally related to open space.
G2 *The design of new building elevations along Shelly Bay Road should include human scale elements, such as windows, balconies and building entries with entry canopies and verandahs to enhance the public quality of Shelly Bay Road. In this respect large blank expanses of wall that are out of scale with adjacent buildings, or form the edge of primary spaces used by the public are undesirable.*	Elevational modelling is described in the indicative illustrations, and is a key requirement in the design guidelines for all buildings fronting Shelly Bay Road. For example: Recessed entrance porches are required for all townhouses/houses, façade transparency requires fenestration, and generic public-private interface guidelines address visual permeability of ground level fences, walls and balconies. At the Wharf area the large industrial shed buildings are to be re-purposed with some new openings (subject to specific heritage guidelines) however the authenticity of these buildings is key. Here the response is to introduce some larger scale buildings that relate to this large scale character and contribute to intensity at the centre of the bay. Nevertheless the new buildings have active, human scale edges (e.g the colonnade for the mixed use building) and open out to address streets, avoiding blank walls onto public realm.
G3 *Locating vehicle entrances and service areas along Shelly Bay Road should be generally avoided. These should be sited to the rear of the building or integrated into the building in a way that does not dominate its public frontage.*	Vehicle and parking access is through the parking mews, allowing for visually contained parking and service areas away from Shelly Bay and Massey Roads as required by the guideline. The exception is at the detached houses within the southern bay, where topography dictates that there is no practicable possibility of entrance from the side or behind sites. In this instance the width of ground floor garage doors is limited to 60% of the width of the ground floor frontage.

Design of Building Tops ***G1*** *New building tops should be designed in a way that helps to express the individual presence of each building development while contributing to the area's collective silhouette line.*	Building tops are addressed by guidelines located within the development typologies in the Design Guide and also illustrated in the Masterplan. The guidelines require that townhouse and houses are individually expressed and do not share a roof with its neighbours. The collective silhouette has been designed to ensure the backdrop of larger apartment buildings is recessive (flat) while the foreground of houses/townhouses is articulated.
Heritage ***G1*** *The location and design of new building development should respect the character and location of any identified heritage buildings within Shelly Bay, with specific reference to the Submarine Mining Depot Barracks, including a possibility of its relocation closer to the water's edge so its original connection to the harbour is recognised.*	The Submarine Mining building (No. 18) aka the Chocolate Fish café is relocated in the Masterplan to be closer to the water yet retains its alignment and frontage orientation to the sea (it is 'translated' not rotated). Heritage building re-use generally clusters these structures around the central wharf area to strengthen their impact and setting, retain the larger building locations (e.g. Shed 8, and the Shipwrights building) and to activate the mixed use heart to Shelly Bay. New buildings in this area are designed as new 'character' buildings that respond directly to the heritage structures and are illustrated in the Masterplan while specific guidelines are prepared (see Type 5 – Special Buildings) to ensure they fit in appropriately.

Summary

The Shelly Bay Masterplan and Design Guide create a Shelly Bay-specific place in Wellington that captures and protects the natural and built characteristics of the local area. The waterfront, the escarpment, the prominent spurs, the heritage buildings, the wharf, the existing Pohutukawa trees and the rocky promontories all feature in the plan and come together to address the WCC Shelly Bay Design Guide 'in the round' while reconciling the more permissive development aspirations of the SHA.

The detailed assessment tabled above indicates a high level of support for the WCC Guide and successfully meets the aspirations to enhance the important qualities of Shelly Bay. As such the proposed plan provides a positive urban design outcome in respect to the WCC Guide.

3.0 Images

Note that these images show ground level/contours and not the trees which cover the landscape of the escarpment. The treed landforms including the spur by the wharf therefore have considerably greater visual prominence than is shown by these images.

Figure 1: Aerial perspective showing plan setback of buildings from the spur.

Figure 2: View across Evans Bay from a vantage point 1.44km away on Evans Bay Parade. Reduction in building height at the centre can just be seen.

Figure 3: Spur is largely screened in medium range views from the south, but its upper parts will remain in view.

Figure 4: Base of the spur is in full view from the street edge. Again, the landform is seen here. In reality the existing trees extend considerably above this.

Figure 5: Spur is visible in gap between buildings in the view from the north point

calibre
CONSULTING

PREPARED FOR THE WELLINGTON COMPANY LTD
9 SEPTEMBER 2016

Shelly Bay – Proposed Subdivision

COMMERCIAL IN CONFIDENCE

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708977 RE 20160909 BRG Proposed Subdivision

QUALITY ASSURANCE STATEMENT

Task	Name	Signature
Project Manager	Brett Gawn	
Prepared by	Brett Gawn	
Reviewed by	Scot Plunkett	
Approved for Issue by	Brett Gawn	

DOCUMENT CONTROL

Issue	Date	Issue Details	Author	Checked	Approved
1	12/09/16		BRG		

TABLE OF CONTENTS

APPENDICES

1 INTRODUCTION

Shelly Bay Limited are proposing an intensive land use development at Shelly Bay on former Defence land. Resource consent applications under the Special Housing Area legislation have been prepared by Angela Jones of The Property Group on behalf of Shelly Bay Limited.

The land in the SHA area is currently owned by Wellington City Council, Shelly Bay Ltd or is public land of various status.

A subdivision resource consent application for part of the overall site is being lodged with the of overall land use application documentation.

Calibre Consulting has been asked to prepare the subdivision scheme plan and this subdivision report to accompany the application.

2 PLANS

We attach the Scheme Plan (Calibre reference 708977 sheet V211). When approved, this scheme plan will become the basis of the legal survey plans that will give effect to the subdivision consent.

The subdivision scheme plan needs to be read in conjunction with the information lodged with the Land Use Consent.

3 PURPOSE OF SUBDIVISION

The reason for seeking this subdivision consent is to allow Shelly Bay Ltd to obtain separate Computer Freehold Register titles for lots 1 – 11 so that they can be further developed independently of each other in accordance with the Land Use Consent when granted.

Only land currently owned by Shelly Bay Ltd is included in proposed lots 1 – 11. Land currently owned by Wellington City Council will remain in Wellington City Council ownership (lots 902 and 903) or become road to vest on deposit of the subdivision survey plan (lots 900 and 901).

No legal road is included in the subdivision application, so implementation and obtaining Computer Freehold Register titles for lots 1 – 11 does not rely on any Road Stopping process.

4 LEGAL ACCESS TO NEW ALLOTMENTS

Proposed lots 1 – 3 already have frontage to Legal Road. Lots 4 – 6 and part of 7 will obtain legal access when proposed lot 900, which is land currently owned by Shelly Bay Ltd, vests on deposit of the legal survey plan.

Proposed lots 8 – 11 rely on vesting of land (lot 901) currently owned by Wellington City Council, so will rely on land owner approval from Wellington City Council.

Proposed lots 9, 10 and 11 also rely on obtaining Rights of Way over existing Wellington City Council land (lot 903) for legal access. These Rights of Way will need to be constructed prior to the s224 certificate issuing for lots 9 – 11.

5 MATTERS TO BE CONSIDERED

The proposed buildings on proposed lots 7, 8 and 9 encroach slightly into proposed road to vest lot 901. The building locations shown are indicative only. They can be relocated to be clear of the proposed road when detail design is carried out. Should the buildings remain as currently proposed, there will need to be a licence to occupy consent obtained to allow the buildings to encroach on legal road.

We note that lot 901 Road to Vest is relatively narrow and does not comply with Wellington City Council Code of Practice for Land Development, so this matter will need to be addressed in the Land Use Consent application. Conditions of consent for the subdivision application will need to allow dispensations from compliance with that Code of Practice as allowed by the Land Use Consent.

There is an existing ROW – shown A on SO 339948 - that provides legal access to the adjacent land: Pt Sec 3 Watts Peninsula District, and to Section 1 SO 37849. This existing easement is to be extinguished and a new ROW A created as shown on the scheme plan to maintain access to Pt Sec 3 Watts Peninsula District.

6 STAGING OF SUBDIVISION

Shelly Bay Ltd wishes to stage the completion of the subdivision (separate legal survey plans and s223 and s224c applications). The staging will depend on when drainage, water, roads and other services are available to the lots, and agreements with Wellington City Council as landowner.

7 FUTURE SUBDIVISION

To fully implement the overall development proposed by the Land Use Consent application there will be a number of further subdivision applications, both in the area covered by this scheme plan and in South Bay. These further subdivisions will rely on a combination of:

- Road to be stopped
- Provision of new drainage, water, power, telecoms services
- Upgrade of existing roads, and construction of new roads and rights of way
- Land owner agreements with Wellington City Council
- Construction of buildings to allow new boundaries – both freehold and Unit Title – to reflect the actual position of the constructed buildings

Lot 903 will likely need to be further subdivided with parts attached to proposed lots 9, 10 and 11.

8 SUMMARY

The proposed subdivision will allow rationalisation of the current fragmented ownership of the area included in the application, and so allow Shelly Bay Ltd and Wellington City Council to develop the land they currently own in a logical and staged way. It creates the legal road framework and will allow the provision of services.

APPENDIX A SCHEME PLAN

NOTES

1. All Areas and Dimensions are subject to approval and formal LT Survey.
2. Easements for Services and ROW are to be created as necessary.
3. Lots 900 and 901 are to Vest as Road.

Legend

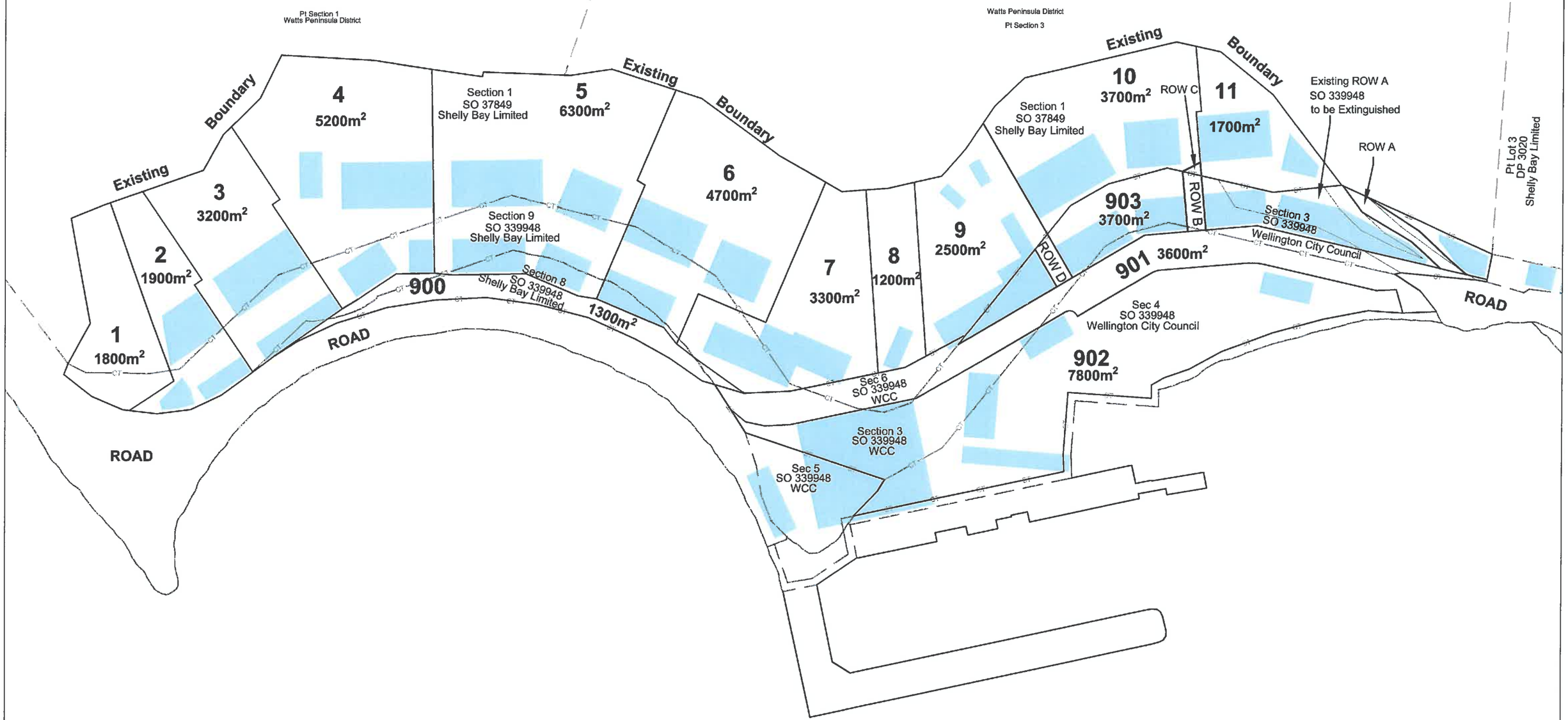
- Existing Property Boundary
- New Lot Boundary
- Proposed Building Outline

Schedule of Existing Easements to Extinguish

Shown	Purpose	Servient Tenement	Dominant Tenement
Marked A SO 339948	ROW	Sec 3 SO 339948	Sec 1 SO 37849 & Pt Sec 3 Watts Peninsula District

Memorandum of Proposed Easements

Shown	Purpose	Servient Tenement	Dominant Tenement
A	ROW	Lot 903	Pt Sec 3 Watts Peninsula District
B	ROW	Lot 903	Lot 10 & 11
C	ROW	Lot 10	Lot 11
D	ROW	Lot 903	Lot 9



Revision	App	Date

Surveyed	TH/EP	
Designed	BG	
Drawn	EP	09/16
Reviewed	BG	09/16
Approved	BG	09/16

Client: THE WELLINGTON COMPANY

Project Title: SHELLY BAY REDEVELOPMENT STAGE ONE SCHEME PLAN

Sheet Title: Lots 1 to 11 and 900 to 903 Being a Proposed Subdivision of Section 1 SO 37849 and Sections 3, 4, 6, 8 and 9 SO 339948

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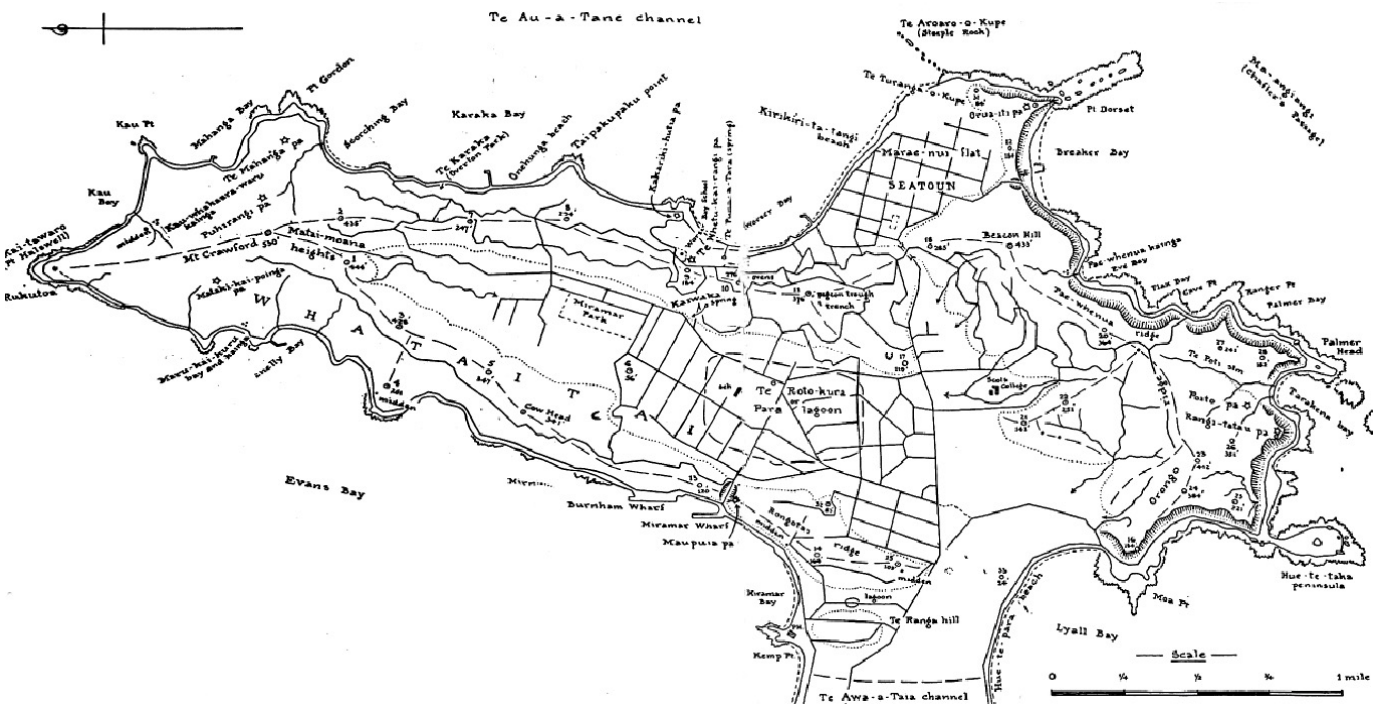
CULTURAL IMPACT ASSESSMENT

WHĀTAITAI, MARUKAIKURU, SHELLY BAY

Taikuru



Prepared by Kura Moeahu, Peter Adds and Lee Rauhina-August

on behalf of Taranaki Whānui Ki Te Upoko o Te Ika and

The Port Nicholson Block Settlement Trust, September 2016

STATUS: FINAL

Executive Summary

This is a Cultural Impact Assessment Report for Shelly Bay/Marukaikuru commissioned by the Wellington Company Limited. It assesses the Māori cultural values of Marukaikuru Bay from the perspective of the tangata whenua, namely the iwi of Taranaki Whānui represented by the PNBST. The main findings of this cultural impact assessment are:

- Marukaikuru Bay has high cultural significance to the iwi of Taranaki whanui
- Taranaki Whānui people actually lived in the Bay until 1835
- We have found no evidence of other iwi connections to Marukaikuru Bay
- Taranaki Whānui mana whenua status in relation to Marukaikuru and the Wellington Harbour is strongly supported in the literature, including the Waitangi Tribunal report (2003)
- The purchase of Shelly Bay by PNBST from the Crown was a highly significant Treaty settlement transaction specifically for the purpose of future development
- Any development of Marukaikuru must adequately take account of and reflect Taranaki Whānui cultural links, history and tangata whenua status in Wellington.
- Taranaki Whānui have kaitiakitanga (guardianship) responsibilities to ensure the protection of the natural, historical and cultural dimensions of Marukaikuru.
- The resource consent application submitted by the Wellington Company Limited is supported by the Port Nicholson Block Settlement Trust.

WHĀTAITAI, MARUKAIKURU, SHELLY BAY

Taikuru

Kapakapa kau ana te manu muramura ki te tai whakarunga
Māwewe tonu ana te motu whāriki o te tai whakararo
Makuru tini e hua ki whakatupua-nuku
Matuatua rahi e hua ki whakatupua-ruheruhe
Pukahu mano e hua ki whakatupua-rangi
Inā te tai hekenga ki runga o Tai Kuru e...
Tihei mouri ora

Introduction

This cultural impact assessment was commissioned by The Wellington Company Limited. The Port Nicholson Block Settlement Trust (PNBST) was established in August 2008 as the post-settlement governance entity to receive and manage the settlement package for Taranaki Whānui ki Te Ūpoko o Te Ika resulting from the WAI 145 Waitangi Tribunal claim. The Port Nicholson Block (Taranaki Whānui ki Te Ūpoko o Te Ika) Claims Settlement Act 2009 came into force on 2 September 2009.

We provide information about Taranaki Whānui history, cultural perspectives and environmental considerations, of which Marukaikuru/Shelly Bay is an integral part. Marukaikuru/Shelly Bay is an important land and marine resource and this cultural impact assessment considers the past and present usage and values associated with this area. It also considers the possible impact that future development of the area may have on Taranaki Whānui.

A proposed development of Marukaikuru/Shelly Bay, for which PNBST has proposed the name 'Taikuru', has triggered this assessment. This assessment should be read alongside the accompanying cultural overlay document.

This document considers and assesses the possible effects of the Taikuru development, in relation to:

- Historical Taranaki Whānui connections to Marukaikuru
- Taranaki Whānui mana whenua status in Wellington and Marukaikuru
- The kaitiaki responsibilities Taranaki Whānui have in relation to the physical environment of Marukaikuru and the protection of waahi tapu.
- The current and future management of Taikuru.

Taikuru

In considering an appropriate name for any development of the site currently known as Shelly Bay, members of Taranaki Whānui discussed at length what was known about the names that had been used before us. We considered the name Whātaitai, which denotes the resting place of the legendary taniwha, but that has already been mistakenly used across the water in the suburb of Hataitai. We considered the Māori name for the ridges around Shelly Bay, Rongotai, but, once again, that name has already been used in a nearby suburb. There are a number of other traditional names relating to Shelly Bay, such as Mataki-kai-poinga and Kauwhakaara-waru, however currently understanding of the meanings of those names is limited.

More is known about one traditional name for the area. According to the literature (Adkin 1959), the name Marukaikuru was used for Shelly Bay in the past. It refers to "Maru, the great breadfruit eater". Two places in Wellington Harbour share this name, Shelly Bay and Port Jerningham, although in the case of Port Jerningham an 'O' was added to the front of it, so it is Omarukaikuru. The reference to breadfruit in the name Marukaikuru is believed to represent something that is in abundance. We know that the harbour was a considerable kaimoana resource, along with other native land species that early Māori relied on for food and trade.

A decision, therefore, was taken to create a new name that both encompasses and acknowledges the history of the area but also creates a new future and association with the land. That name, Taikuru, is composed of:

Tai Channels and passage ways by air, land and sea
Kuru A name for breadfruit, which has come to represent things that are plentiful and abundant.

The remainder of this report explains the significance of the proposed Taikuru development site to the people of Taranaki Whānui.

Intellectual property

This cultural impact assessment remains the property of Taranaki Whānui, as represented by the PNBST. However, the Wellington Company Limited may use the report for the purposes of developing Taikuru. Use of this report in other circumstances (for example, subsequent resource consent applications) will be subject to the following conditions:

- PNBST must be consulted and must provide written approval for any additional uses of this material

- Taranaki Whānui and PNBST must be appropriately acknowledged where the material is used.

Sources of information

This cultural impact assessment was prepared using a variety of sources including a review of books and journal articles, online material and a site visit to the proposed area for development. More specifically, it draws on:

- The Port Nicholson Block (Taranaki Whanui ki Te Upoko o Te Ika) Claims Settlement Act 2009
- Heritage New Zealand, New Zealand Archaeological Association maps
- Published books about the history of the Wellington region (refer to bibliography)
- The Resource Management Act 1991 and other relevant statutes and regulations Other traditional and oral sources relating to Marukaikuru.

Taranaki Whānui

'Healing the past, building the future'

Taranaki Whānui are the tangata whenua with mana whenua of the Port Nicholson or greater Wellington area. The iwi that comprise Taranaki Whānui migrated to the Wellington area in the 1820's and 1830s and have maintained ahi kā (continuous occupation) in Wellington ever since. Our kāinga, our pā, our gardens have now been largely subsumed by urban development. Yet, we remain. Māori urban migration has meant that we are now a minority tribal grouping within our rohe (tribal area). Yet, we are still the mana whenua. Taranaki Whānui are those people who descend from one or more of the recognised tīpuna of Te Ati Awa, Taranaki, Ngāti Ruanui, Ngāti Tama, Ngāti Mutunga and other iwi from the Taranaki area.

As the authorised governance entity of the mana whenua of the capital city of Aotearoa/New Zealand, our vision is to ensure that our members assume their rightful place within the rohe that their tīpuna (ancestors) occupied in 1840. The loss of years and the fragmentation of iwi and whānau over the decades challenges us to restore the rightful place of our people within the Port Nicholson Block rohe. PNBST recognises its purpose of building a future for its people through its moemōea (vision):

Ki te whakahou, whakapakari me te whakanikiniko i te ahurea, papori, rangatiratanga o Taranaki Whānui ki te Upoko o Te Ika

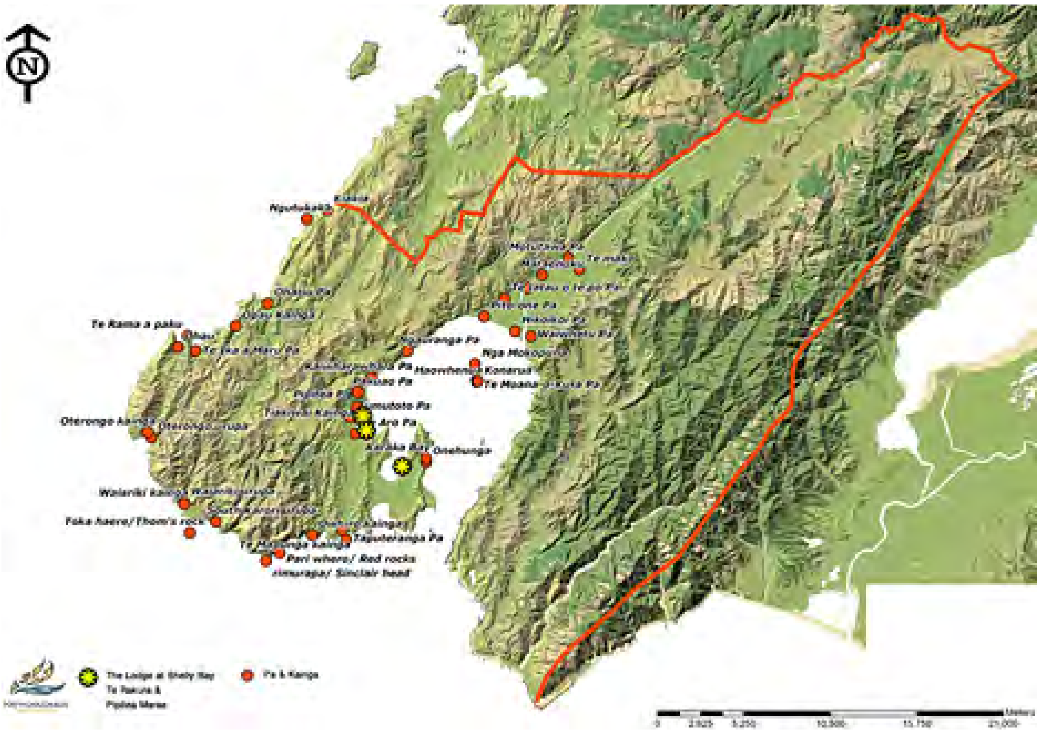
To restore, revitalise, strengthen and enhance the cultural, social and economic well-being of Taranaki Whānui ki Te Upoko o Te Ika

The Port Nicholson Block Settlement Trust Board consists of 11 Trustees. The current Chairman is Neville Baker and the Deputy is Toa Pomare. The Board confirms their positions annually. The commercial arm of the Trust is Taranaki Whānui Ltd (TWL). The current Chairman of TWL is Toa Pomare. The Trust Management team is led by the Chief Executive, Jason Fox, who oversees a team of staff that is committed to offering business services, cultural, educational and environmental initiatives for its members.

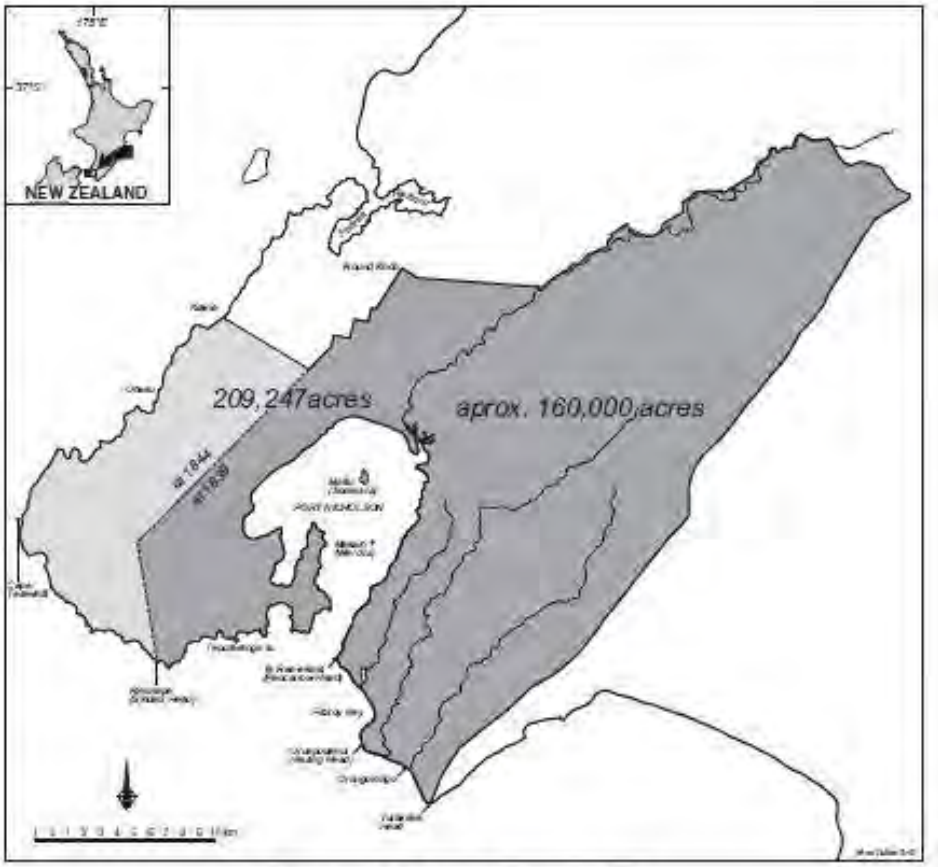
The takiwā (territory) for Taranaki Whānui was recounted to the New Zealand Company by the rangatira, Te Wharepouri, in 1839 and followed the Māori tradition of marking a takiwā by tracing from headland to headland.

The eastern boundary was established by the kāinga at Mukamuka on the stream of the same name. The takiwā included the catchments of the Ōrongorongo, Wainuiomata, Te Awakairangi (Hutt) Rivers and Makara Stream along with Te Whanganui ā Tara and the three islands in the harbour. The western boundary was established at Pipinui Point and included the pā of Ngutu Kaka on the North Western side.

The rohe covered by the claims of this grouping is shown in the maps below.



The red line in the above map demarcates the area that was the focus of the Port Nicholson Block (Taranaki Whānui ki Te Ūpoko o Te Ika) Claim.



Map 1: Boundaries of the Port Nicholson block –
1839 deed of purchase area, and 1844 extension to the south-west coast

The shading in the above map denotes the land that was subject to the original Deed of Purchase 1839, and the subsequent extension in 1844.

Historical overview

The history of the tribal settlement of Marukaikuru Bay has always been well known to the tangata whenua as part of the larger history of Motukairangi and the greater Wellington region. It is a history dominated by the arrival, settlement and displacement of different tribal groups culminating in the establishment of the iwi of Taranaki Whānui as the present day mana whenua grouping for the peninsula, including Marukaikuru Bay. In addition to the traditional history, there are also several authoritative books and articles on the history of the Wellington Harbour that include narratives and landscape details, although most relate generally to Motukairangi rather than Marukaikuru Bay per se. They include publications by authors such as Elsdon Best, who produced several articles on Wellington's Māori history in the early 20th century for the *Journal of the Polynesian Society*; S. Percy Smith (1910), whose history of the Māori of the West Coast of the North Island includes sections on the history of the Wellington Harbour; Leslie Adkin (1959), whose iconic book

The Great Harbour of Tara stands as perhaps the most well-known popular work on the history and traditional placenames of the harbour; and, more recently, articles by Ballara (1990) and Struthers (1975). Struthers' self-published book focuses specifically on the history of Miramar Peninsula. In addition, there are also several cultural impact assessments and reports commissioned for various organisations, including relevant territorial authorities that include sections on the Māori history of the harbour and the peninsula. However, in its 2003 report on the WAI 145 Port Nicholson claim entitled 'Te Whanganui a Tara me ona Tikanga', the Waitangi Tribunal produced probably the best and most authoritative publication on the Māori history of the Harbour, which synthesised and considered the work of most of the authors above, as well as submissions from iwi and other interested parties. The following brief history is drawn from of all the sources mentioned above but a more detailed account can be accessed from the Tribunal report available online.

Natural history

The recent natural history of the Miramar Peninsula, and earthquakes in particular, undoubtedly had a significant impact on its inhabitants, as indeed it must have for the inhabitants of the whole harbour. When people first arrived, the peninsula was in fact not a peninsula at all; it was an island. This is referenced in the name of the peninsula - "Motukairangi", the first part of which, *motu,* is the Māori word for island. According to Adkin (1959:19) the island, as it was then, was separated from what is now the Lyall Bay/Evans Bay isthmus by a channel out to Cook Strait called Te Awa a Taia. The island and the channel are depicted on Adkin's (1959:18) map. He described the island as roughly "horse shoe" shaped with the open part of the shoe facing Cook Strait. The internal part of the island would likely have been submerged in quite shallow water that probably provided, at that time, good estuarine fishing opportunities.

All this changed however following a significant earthquake event in approximately 1460 AD that had the effect of uplifting the island, along with several other parts of the Wellington Harbour. Over several years following this event, according to Adkin (1959:18), at least three gravels bars formed at different times in what had been the estuary, preventing the sea from encroaching further inland. This allowed the centre to dry out as raised land and swamp. The last of the three bars appears to be quite near what is now the Wellington Airport and Lyall Bay. The isthmus between Motukairangi and the mainland, now known as Evans Bay, Kilbirnie and Lyall Bay, would have provided easy accessibility to the peninsula. These dramatic landscape changes were compounded in the 1855 Wellington earthquake that elevated the peninsula even further, possibly by as much as 1.5 meters. It is impossible to know what the impact of these events would have been on the inhabitants of Motukairangi at that time, but is likely that its connection to the

mainland changed the strategic value of the island as a possible refuge due to its easier accessibility.

As well, it is likely that Motukaikura Bay did not exist as a bay in its present form at all prior to the 1460 earthquake event. As an island, the sea likely met the land at the base of the hills now behind the coastal flat in the present bay. Subsequent uplifting in the two earthquakes likely produced the flat that the present buildings are established on today.

One vestige of the earlier submerged environment of Motukairangi prior to the earthquakes was that until 1847 there was a lake in Miramar, quite near the area known today as Miramar Park. It was originally called Rotokura, later named Para by Taranaki Māori. After European settlement in the area it became known as Burnham Water. The lake was over 200 acres in size, with swamps to the north and south. It is said that Māori brought eels from Te Awakairangi ki Heretaunga (the Hutt River at Upper Hutt) and kept them stored in the lake for later use. This also speaks of conservative sustainable practices and the provision of food for the iwi. An early settler, James Crawford, drained the lake. The lakebed formed the base for one of New Zealand's first racecourses, Burnham Water, and would be used in the late 1840s, albeit unsuccessfully due to sand and wind conditions. In the process, Crawford tunnelled through Rongotai Ridge and built what is thought to be New Zealand's first tunnel. The remains of the tunnel can still be seen today, north of the present Miramar cutting. Crawford purported to 'own' much land and renamed places as he saw fit, with no consultation with Māori.

Tribal history

The Māori tribal history of the Wellington harbour and the area in question has connections to the great Māori demigod, Māui Tikitiki-a-Taranga and Te Kāhui Maunga. It begins after Māui hauled his great catch to the surface, later to be named Te Ika a Māui (the North Island of New Zealand), and the completion of the creation of the mountains. After the creation of the mountains, the mountain clan people were summoned to the head of the fish. The mountain clam assembled at the summit of the gods where they were given the appropriate incantations to prise open the mouth of the fish to enable it to breath once again. After the recitation of the incantations, from the very depths of the fresh water lake the water phenomenon came to being tasked with breathing life back into the great catch of Māui. These two phenomena were to become known as Ngake and Whātaitai. Both Ngake and Whātaitai complemented each other, Ngake being the more energetic but impatient one of the two, whilst Whātaitai was more the wiser one of them, taking time to think matters through. After aeons passed, both Ngake and Whātaitai outgrew the fresh water lake that was limiting their movements. Ngake, hearing the breakers from the southern side of the lake, yearned to break free from his water catchment and Whātaitai had similar thoughts. Being restricted within the fresh water lake

confinement, their resentment towards one another rose. Ngake's impatience made him move towards the east side whilst Whātaitai moved to the west side. Not wanting to wait for Whātaitai, Ngake coiled himself up at Whiorau, at the same time churning the land within the vicinity. In doing so, he carved the Hutt River as he thrust himself fiercely at the breakers, smashing his way through. Although injured, Ngake broke free out into the waters of Hinemoana, never to be seen again.

While all this activity was taking place in the east, Whātaitai, on the west, threw himself off, creating Ngauranga in his wake. No sooner did Ngake break free, the fresh water followed in his escape from the catchment into the salt water.

Whātaitai tried to follow the water that was exiting at speed but was unable to keep up. He became stranded on the isthmus. Unable to free himself, he lay under the water for a period of time until a mass land movement lifted him up and out of the water, exposing him to the elements and, thus, ending his life. The spirit of Whātaitai took the form of a spiritual bird. The old people would often say that at night you can hear the bird crying at various parts of the summit. Whātaitai continues to maintain a very strong and prominent presence where it currently stands today.

According to oral tradition and the various written sources mentioned earlier, the first human associated with the Wellington Harbour was the famous Polynesian explorer, Kupe. Although Kupe's arrival is not verifiable in any scientific sense today, it stands to reason that someone had to be the initial discoverer of the harbour and there is no particular reason to doubt the integrity of the Kupe tradition. Kupe's name is memorialised in several parts of the harbour, such as Te Tangihanga a Kupe (Barrett Reef) and Te Aroaro a Kupe (Steeple Rock) and Kupe is also credited with naming several places around the harbour, such as Matiu and Makaro Islands, reputedly named after either his daughters or nieces. It is said that, aeons after Whātaitai's failed escape and after pursuing and killing the great octopus of Muturangi in Raukawa moana, Kupe came into Wellington Harbour and uttered his famous exclamation, "Kua kā kē ngā ahi" (The fires of occupation were already alight). This phrase acknowledges the existence of Te Kāhui Maunga well before the arrival of Kupe to these parts. Taranaki Whānui has strong genealogical connection to Te Kāhui Maunga.

Following Kupe's arrival and departure, Whatonga, another famous tupuna (ancestor) arrived in Wellington and, according to tradition, named the whole of the harbour after his son, Tara. From this, of course, we get the present name Te Whanganui-a-Tara, or the 'Great Harbour of Tara'. Tara is well known in the traditions as the occupier of Te Whetu-kai-rangi pā located on the eastern side of the Motukairangi peninsula.

According to most of the sources, including the Waitangi Tribunal (2003:18), the dominant tribal groups of the Wellingon harbour region were of Kurahaupo waka descent. These included the iwi of Ngāi Tara, Rangitane, Muaūpoko and Ngāti Apa. All of these groups connect with Whatonga as their ancestor and the Tribunal, like others, even went as far as

referring to them generally in its report as the “Whatonga descent peoples” (18). These also include Ngāti Ira, who are generally accepted as the dominant group in the Wellington region until the present configuration of Taranaki Whānui arrived in the 1820s and 1830s. Ngāti Ira had arrived from the east coast of the North Island and, evidently on their way south, married into the whānau of Tara and his brother, Tautoki.

By 1819, the period of warfare generally referred to as the musket wars had started. One of the first events in this period was the arrival of a Ngāpuhi led taua (war party) in the greater Wellington region. On their way south, they had picked up allies in the Waikato including the young Ngāti Toa rangatira, Te Rauparaha and Te Rangihaeata. These raiders fought with Ngāti Ira in Wellington, and while there, Te Rauparaha is reputed to have made a mental note about the flax trade operating through Cook Strait and the suitability of Kapiti Island as a potential future stronghold. Te Rauparaha also organised the marriage of his nephew, Te Rangihaeata, to Te Pikinga of Ngāti Apa, which according to the Waitangi Tribunal ensured a safe later return for Ngāti Toa to the area. The Wellington ‘Whatonga’ people were also rocked by another incursion from the north in the form of Ngāti Whātua in 1821, but apparently Te Rauparaha and Te Rangihaeata did not accompany this taua.

Te Rauparaha was to become a dominant figure in the Wellington region shortly after his return to the Waikato. It followed aggression in Kawhia from Waikato people against Ngāti Toa who, as a consequence, migrated south to be with whanaunga (relatives) at Kaweka in north Taranaki. This movement south by Ngāti Toa was significant enough to be memorialised in the name ‘Te Heke Tahutahuahi’. A characteristic of future migrations to the south was the naming of the significant movements, which no doubt reflected the momentousness for the people concerned. In Taranaki, Te Rauparaha strategised with his whanaunga in Ngāti Mutunga, Ngāti Tama and Te Āti Awa to accompany him in a further move south to the Kapiti Coast and Wellington. This much larger party left Taranaki in 1822 in a migration that was called ‘Tataramoa’. The Tribunal notes that it is difficult to know who actually led the ope (group) south, Te Rauaparaha or the rangatira and people of the numerically stronger Taranaki tribes at that time. For the Taranaki iwi, there is little doubt that this migration was timely, in that Waikato people who had by then acquired muskets were threatening to use them against their Taranaki enemies to the south. The arrival of Te Rauparaha, with a plan to move to the Kapiti Coast and Wellington, afforded the opportunity to escape the northern raiders as well as expand their own tribal empires. The heke (migration) south was escorted by Ngāti Apa, due to the earlier marriage of Te Rangihaeata and Te Pikinga but, unfortunately, this relationship soured after Te Rauparaha attacked Ngāti Apa’s relations in Muaūpoko around Levin, killing at least one highly esteemed woman. Muaūpoko retaliated by ambushing and killing several Ngāti Toa people, including Te Rauparaha’s own children. Te Rauaparaha managed to escape but, according to the Waitangi Tribunal, Muaūpoko and Ngāti Toa remained bitter enemies thereafter. Te Rauaparaha and his people sought refuge from the Whatonga people on Kapiti Island but the antagonism towards Te Rauparaha and his allies continued for some

time afterwards. By 1824, the Whatonga iwi assembled *en masse* in Waikanae with a plan to attack Te Rauparaha and his allies on Kapiti Island. The attack occurred at Waiorua at the northern end of Kapiti but the attackers were soundly defeated in the ensuing battle. The Tribunal notes that it was mainly the Taranaki tribes living at Waiorua at this time as Te Rauparaha was living at the southern end of the island. Te Rauparaha, however, often seems to be credited with the success of winning the battle. Despite their loss, the Whatonga people continued to live in various places in and around Wellington, including Porirua, but according to the Tribunal (2003:22), who accepted Ballara's expertise in this area, they were by then a defeated people.

Shortly after the battle on Kapiti Island another migration out of Taranaki occurred; the 'Nihoputa' migration. It consisted of more people from Ngāti Tama, Ngāti Mutunga and Te Āti Awa. Ngāti Tama settled at Ohariu while Ngāti Mutunga and Te Āti Awa settled at Waikanae. According to the Tribunal, some Ngāti Tama also settled in Thorndon near the bottom of Tinakori Road. Ngāti Mutunga followed them shortly afterwards, settling in the Wellington Harbour area, likely including Motukairangi at that time. With the exception of Ngatata i te Rangi, a Ngāti Te Whiti Te Āti Awa hapū (sub-tribe) rangatira who accompanied Ngāti Mutunga, Te Āti Awa remained in Waikanae for the time being.

Although Taranaki Whānui iwi had now settled parts of the Wellington Harbour, Ngāti Ira remained resident in its eastern and southern shores. The two groups co-existed peacefully for some time. The relationship came to an end in the late 1820s when Ngāti Mutunga, for reasons that are not clear, attacked Ngāti Ira, driving them out of their eastern harbour settlements between Waiwhetu and Turakirae. A part of this involved Tamairangi, a female Ngāti Ira rangatira who escaped and took refuge on Tapu te Ranga Island in Island Bay. She eventually escaped from there as well, and was eventually captured in Ohariu, but was spared due to the intervention of Te Rangihaeata. Along with many other Ngāti Ira people, Tamairangi was later killed in the South Island, an act that was considered to have brought an end to any vestige of Ngāti Ira resistance. The net result of this rather haphazard set of movements was that by the late 1820s, "Ngati Ira and most of the related Whatonga-descent peoples, were no longer in occupation of what became Port Nicholson".

Other groups from Taranaki and elsewhere continued to arrive in the Wellington region, including Ngāti Raukawa from Maungatautari in the Waikato in the late 1820s. They settled in the Levin area north to Bulls and made peace with the Muaūpoko people. In 1832, another large migration from Taranaki, known as 'Tama te Uaua' arrived after on-going conflict with Waikato had resulted in the decimation of many Te Āti Awa people. The migrants comprised several Te Āti Awa hapū, including Ngāti Te Whiti, Ngāti Tawhirikura, Te Matehou and others. These people became known collectively as the Ngāmotu people. Most of the approximately 2000 people in that migration arrived and stayed in Waikanae but some moved into the Wellington Harbour area around what is now known as Petone. Yet another migration occurred after Tama te Uaua. It was called 'Te Heke Paukena' and it

comprised people from Taranaki iwi and Ngāti Ruanui mainly, but also included some Te Āti Awa people, including Te Rangitāke whose father Reretawhangawhanga was acknowledged as the most senior ariki (paramount chief) of the tribe. They settled in Waikanae, although later Te Rangitāke was to become embroiled as a leader in the land conflicts back in Taranaki in 1860.

According to the Waitangi Tribunal report (2003:26), the influence that Te Rauparaha exerted up until the time of the Tama te Uaua migration started to wane as the various iwi settled into their respective newly acquired lands. The alliances they had forged in opposition to the Whatonga people started to dissolve to their pre-migration states. This led, in 1834, to the battle of Haowhenua between Ngāti Raukawa, Rangitane, Ngāti Apa, Muaūpoko, Tuwharetoa, Ngāti Maru and Ngāti Maniapoto against Te Āti Awa, Ngāti Mutunga, the recently arrived Heke Paukena people and the Ngāti Maunu hapū of Ngāti Toa. The battle was inconclusive but resulted in a slight shifting of some groups to other areas. Te Āti Awa pulled out of Porirua, the small groups of Whatonga descent peoples left the Kapiti coast and Ngāti Raukawa retired, albeit temporarily to the Rangitikei. The battle also gave cause to Ngāti Mutunga to reconsider their position as residents in the Wellington region. In 1835 they seized a sailing ship, the *Rodney*, along with its crew and sailed to the Chatham Islands. There were approximately 500 Ngāti Mutunga, Ngāti Tama and Taranaki iwi that left for the Chathams on the first trip. The remaining Ngāti Mutunga people kept the second mate of the *Rodney* hostage on Matiu/Somes Island so as to ensure the return of the boat for a second voyage to the Chathams. While waiting on the island between the first and second voyages,the Ngāmotu Āti Awa people returned from the Wairarapa, having been forced out by the returning Whatonga people from Hawke's Bay. The Te Āti Awa rangatira, Te Wharepouri had heard of the imminent Ngāti Mutunga departure and organised a hui (meeting) on Matiu/Somes Island, at which Ngāti Mutunga formally handed over their land entitlements in Wellington harbour to the Ngāmotu people. Interestingly, Te Rauparaha does not seem to have been involved or even interested, according to the Waitangi Tribunal, in these events. Ngāti Mutunga are said to have burnt their whare and the bones of their dead prior to leaving for the Chathams. The Tribunal interpreted this as intent to leave Wellington permanently.

By 1839, tribal relationships on the Kapiti Coast were deteriorating again and in that year Ngāti Raukawa attacked Te Āti Awa at Waikanae in a battle that has become known as 'Te Kuititanga'. Ngāti Raukawa comprehensively lost the battle, at which Te Rauparaha had arrived late in support of his Ngāti Raukawa relations. The Tribunal (2003:29) reports that, "Te Atiawa saw Te Kuititanga as a victory over Te Rauparaha and as a final severing of their obligations to him". When William Wakefield arrived on behalf of the New Zealand Company in that same year the tribal land holdings in Wellington had been well and truly set. In the Tribunal's words (2003:44):

…. at 1840, Maori groups with ahi ka rights within the Port Nicholson block (as extended in 1844 to the south-west coast) were:

- Te Atiawa at Te Whanganui a Tara and parts of the south-west coast.
- Taranaki and Ngāti Ruanui at Te Aro.
- Ngāti Tama at Kaiwharawhara and environs, and parts of the south-westcoast. .
- Ngāti Toa at Heretaunga and parts of the south-west coast.

One interesting perceived omission in the Waitangi Tribunal report, compared to some of the other historical sources on the tribal history of Te Whanganui a Tara, concerns Ngāi Tahu and Ngāti Mamoe. Some of the literature mentions the presence of both of these iwi, along with Waitaha in the case of Adkin (1959:8), in Te Whanganui a Tara at the time Ngāti Ira were in residence. They are presumed to have left the region in the sixteenth or seventeenth centuries for the South Island. However, Ballara (1990:12), who is relied on heavily in the Tribunal report, explains that there appears to be some confusion between Ngāi Tahu of Wairoa and Wairarapa and Ngāi Tahu of the South Island. It seems that these two groups, though related distantly through whakapapa, are descended from two different tupuna called Tahu. The Ngāi Tahu of Wellington appear simply to be one of the Whatonga descent groups related to Ngāti Ira and Ngāti Kahungunu. No such explanation is provided for Waitaha and Ngāti Mamoe however.

Archaeology

There are no recorded archaeological sites in the immediate vicinity of Marukaikuru Bay but Adkin's (1959:114) map of the peninsula shows the presence of a 'kāinga' just behind Shelley Bay Road at the southern end of the Bay. The kāinga is not registered on the New Zealand Archaeological Association's 'Archsite' register, however. This likely means that whatever might have remained of the kāinga, if anything, has been destroyed by development activity. Adkin (1959:38) claims that the kāinga was occupied by Ngāti Mutunga people, who presumably abandoned the site in 1835 when Ngāti Mutunga sailed to the Chatham Islands.

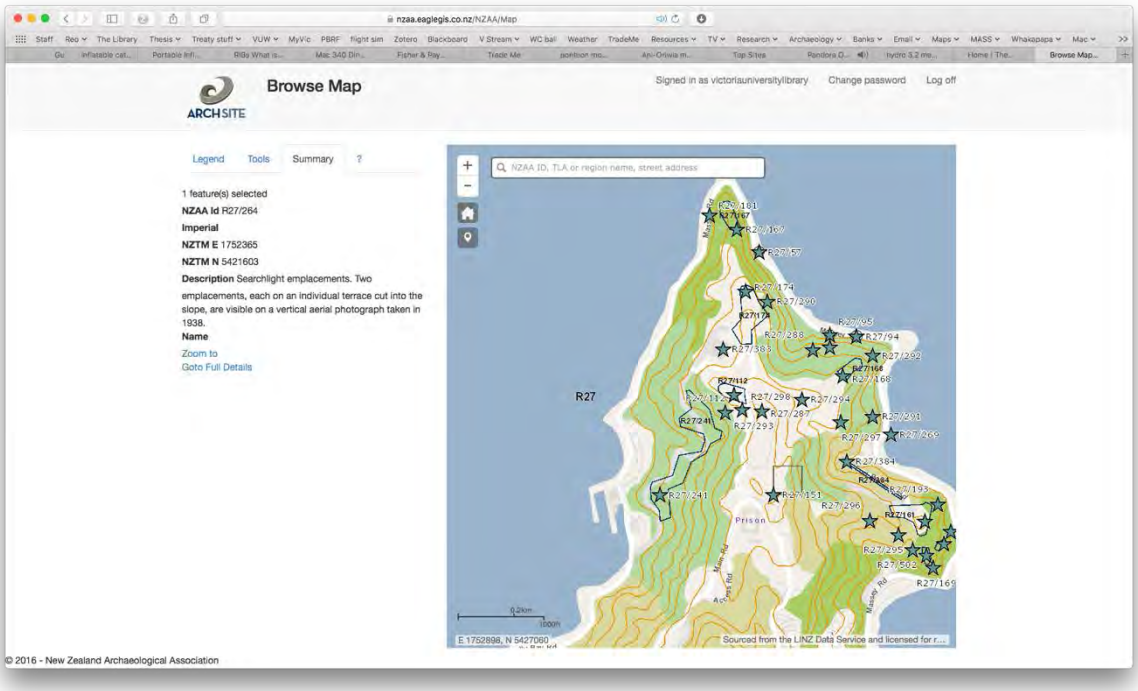
The closest recorded archaeological site to the Bay is a World War II magazine located on the hill directly behind the Bay. Strictly speaking though, this site does not meet the legal requirements for the definition of an archaeological site in the Heritage New Zealand Pouhere Taonga Act 2014, which is:

> … any place in New Zealand, including any building or structure (or part of a building or structure), that—

(i) was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and

(ii) provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand.

There is however a small cluster of five legitimate archaeological sites on top of the hill at the north end of the Bay. They include a terrace (R27/293), a stone wall (R27/298), a single cluster of nine small terraces (R27/287), a terrace and possible small pit (R27/294), and most significantly Mataki-kai-poinga pā (R27/112). With the exception of the 150m long European stone wall, it is likely that the terraces and pits are associated with Mataki-kai-poinga pā, although this could only be positively determined through archaeological excavation. Little, if anything, is known about the history of Mataki-kai-poinga pā except to say that it is one of several pā recorded archaeologically on the peninsula and possibly even relates to the period when the peninsula was an island that afforded better protection from hostile neighbours. Other pā on the peninsula include Whetukairangi, (R27/574) mentioned earlier, for which no visible remains can be found today but is located on the southern edge of Worser Bay School and Rangitatau pā (R27/55) at the southern end of the peninsula above Moa Point. Rangitatau is well known traditionally as the pā of the Ngāi Tara rangatira, Tuteremoana who married Moeteao of Ngāti Ira. The archaeological features of Rangitatau are well preserved and easily seen as surface features on the ground today.



This map is taken from New Zealand Archaeological Association Archsite databse. It shows the location of the archaeological sites at the north end of the peninsula above Marukaikuru Bay.

Recent History

Marukaikuru Bay was 'sold' as part of the Wellington purchase to the New Zealand Company in 1839. It was part of the Port Nicholson block 'purchased' from the rangatira of Te Whanganui a Tara, most of whom were relatively recent migrants from Taranaki who had acquired the Wellington Harbour through a process of raupatu (conquest).

The bulk of Motukairangi later became the private property of one Mr James Coutts Crawford (Adkin 1959:41). It was his sister, who had arrived from England for a visit, who named the Crawford homestead as 'Miramar', a name that was later applied to the whole of the peninsula. Crawford's name, of course, was later applied to the prison at Mt Crawford.

In 1885, Marukaikuru Bay was selected by the Government as a site for an anti-submarine mining base because of a perceived fear that New Zealand might be attacked by the Russian navy. A depot for these purposes was built in 1887. By 1898, other submarine facilities were being constructed in the Bay and according to a report in the Star Newspaper in that year Māori prisoners from Taranaki, presumably from Parihaka, were used in the construction of the new slipway that still stands in the Bay today. In 1907, the submarine mining base became the property of the New Zealand navy and it remained in their custodianship until 1946. In that year the property transferred to the New Zealand Air Force, who used it primarily as a holiday retreat facility.

The most recent development is its purchase by the Port Nicholson Block Settlement Trust as part of the settlement package in 2009. The PNBST paid some $13.7m for the buildings and the land beneath them.

Waahi tapu and archaeological sites on the peninsula

The following list is of places of cultural significance in or around Taikuru.

Kaitawaro

Kai Tawaro was located on the headland/ridgeline leading down to Point Halswell (Rukutoa). This is probably around where the Massey Memorial is now located. These places were associated with the kainga in Kau Bay.

Mahanga pā

Mahanga pā above Mahanga Bay.

Rukutoa

Rukutoa was a fishing ground and shellfish gathering area off Point Halswell (Kai Tawharo on Watts Peninsula). The whole Peninsula has many sites of importance to Māori. Many of these were associated with fishing and shellfish gathering.

Marukaikuru bay

Located on the eastern side of Evans Bay, three quarters of a mile south of Kai-tawaro (Point Halswall), the Ngāti Mutunga section of Te Āti Awa had a kāinga at Maro-kai-kura (also spelt Marukaikuru). The site, as indicated by Smith, is a likely position for a former village.

Kauwhakaara pa

This site in Kau Bay is beside the small stream flowing into Kau Bay near Kau Point. This is on the southeast side of Point Halswell but further east than the archaeological site.

Mataki-kai poinga kainga

This is an ancient site that is said to be connected to Ngāti Kaitangata of Ngāti Ira. The site is likely to be where the Point Halswell Women's Reformatory was located. This was also near the route of the military road.

Mahanga Pa

Little is known about Te Mahanga pā, although it commanded a strategic place on the peninsula with visual contact with Orua-iti pā. Mahanga Bay, as it is known today, is an important fishing area. The proximity to Fort Ballance is understandable as both would have served a similar military purpose. It is likely that later military work would have removed any archaeological material.

Mataimoana

A name, Mataimoana, means "view of the ocean". It refers to an old Māori lookout place on the ridge top at Mt Crawford, Miramar peninsula. Mt Crawford, at the northern end of Miramar peninsula, rises 530ft and is its highest point. The view from there is extensive and the older name very appropriate.

Maupuia Pa

This site is located by the Miramar cutting. The pā was said to be located on the narrow part of the Rongotai Ridge, immediately south of the Miramar cutting. It was built and occupied by the Ngāti Hinepari hapu of Ngāi Tara.

Environmental Overview

Flora

There is much written about Te Motu Kairangi and its abundance of trees for building whare (houses) and fertile soil for plants, rongoa (traditional medicine), flax for weaving and food gardens.

In 1872, botanist John Buchanan (1872) researched and published a list of the plants of the Miramar peninsula, including the following. Note with interest that Buchanan claimed the karaka does not naturally occur in the Wellington ecological district.

BOTANICAL NAME	MĀORI NAME	COMMON NAME
# Corynocarpus laevigatus	karaka	karaka
Discaria toumatou	tūmatakuru	matagouri
Dysoxylum spectabile	kohekohe	kohekohe
Elaeocarpus dentatus agg.	hīnau	hīnau
Fuchsia excorticata	kōtukutuku	tree fuchsia
Gaultheria antipoda	tāwiniwini	bush snowberry
Knightia excelsa	rewarewa	rewarewa
Kunzea robusta.	kānuka	kānuka
Leptecophylla juniperina	mingimingi	prickly mingimingi
Leptospermum scoparium agg.	mānuka	mānuka
Lophomyrtus bullata	ramarama	ramarama

In contrast to the situation today, Buchanan (1872) also noted that, “No pines are present, they having been cut down for building purposes, as the stumps of tōtara piles may still be seen in what have been the defence works of Maupui (sic) Pā, and it is unlikely the timber was brought from a distance”.

Buchanan (1872) also recorded a number of trailing plants, ferns and herbaceous plants. They included:

BOTANICAL NAME	MĀORI NAME	COMMON NAME
Calystegia sepium	pōhue	NZ bindweed
Clematis forsteri	pikiarero	small white clematis
Clematis paniculata	puawānanga	white clematis
Disphyma australe	horokaka	NZ ice plant
Metrosideros fulgens	akakura	scarlet rātā
Cyathea dealbata	ponga	silver fern
Cyathea medullaris	mamaku	mamaku
Hymenophyllum sanguinolentum	piripiri	a filmy fern

Lastreopsis hispida	pongaweka	hairy fern
Phormium cookianum subsp. cookianum	whararikiki	coastal flax
Phormium tenax	harakeke	swamp flax
Potamogeton suboblongus	rērēwai	pondweed

Buchanan's work, not unexpectedly, showed there are hundreds of species on the peninsula, many of which remain today. It is the recommendation of Taranaki Whānui that the indigenous species be returned to the area and that the pine and Pohutukawa trees are more managed than they currently are.

Ecological assessment

There is on-going study and research on the ecological health of the Wellington harbour. The PNBST expects that as, part of any Marukaikuru development project, a full ecological assessment will be undertaken and a monitoring regime implemented to ensure the health and wellbeing of the Marukaikuru area of the harbour. An evaluation of the habitat in and around the wharves will be required to understand the ecosystems that have developed and survived. Assessment and monitoring is also needed to ascertain whether any environmental or health hazards have occurred within the environs of the wharves. It is also considered important that baseline information will be established and built on annually through a robust monitoring program.

Environmental considerations

Taranaki Whānui believe that best practice environmental methods should be used in the Taikuru development that can lead the way to sustainable land and waste management practices, including community recycling initiatives and alternative energy and storm water reallocation. Water should ideally be treated for food based gardens and discharge to the sea. State of the environment monitoring will set baselines and visible incentives for change.

Cultural landscapes

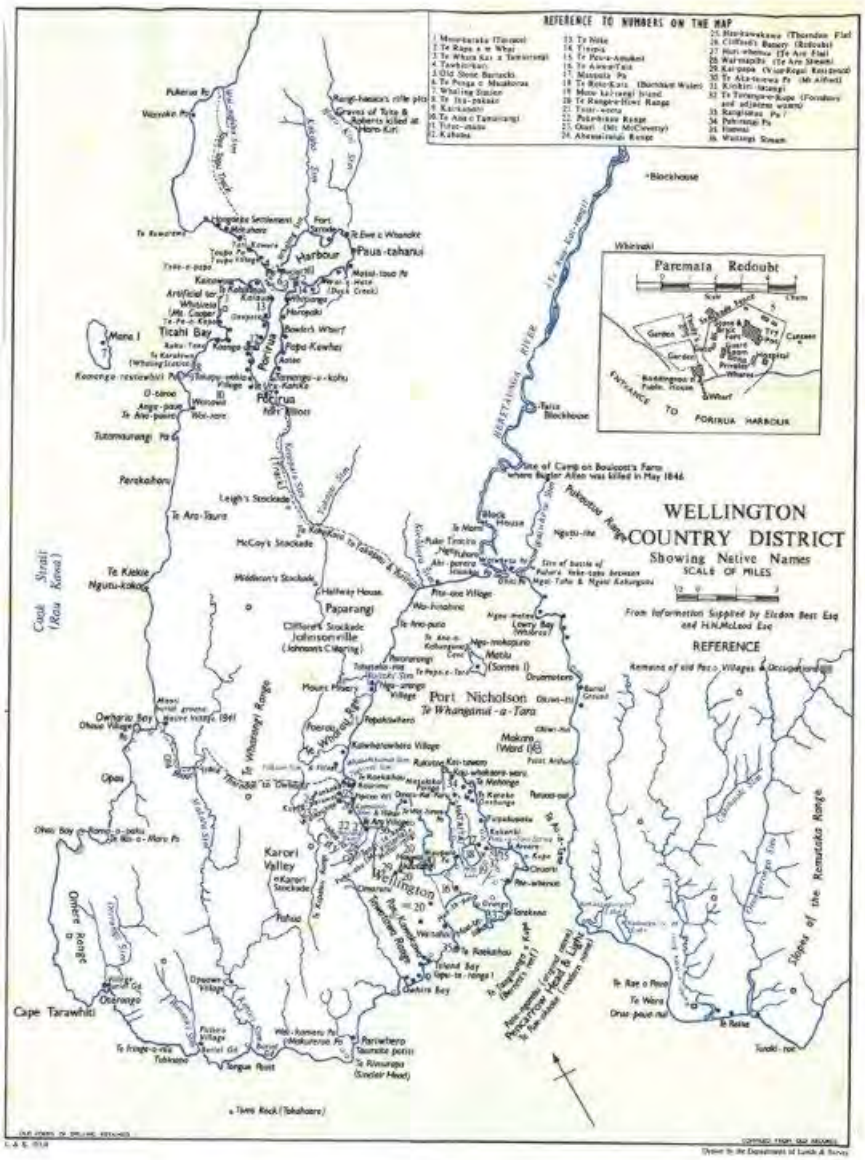
The cultural landscape in Wellington as a whole is rich in features and history. The future development of Taikuru will contribute significantly to Wellington's identity and enhance the elements that add value to Wellington's key characteristics and attributes. This cultural impact assessment proposes the following to enhance the Taikuru development:

- The design of buildings that incorporate Taranaki Whānui in meaningful ways to reflect their mana whenua and partner status
- The advice and assistance of mana whenua is sought for planting to enhance the cultural landscape
- Parks and play areas are included in the development
- Building and street names will be based on original names from the area, in consultation with Taranaki Whānui.

Appendices

Traditional Settlements – Pā, Kainga

i. Kainga – Kauwhakaarawaru
ii. Pā – Matakikaipoinga, Te Mahanga, Te Whetukairangi, Kakarikihutia
iii. Ngā Kotihitihi (Peaks, Summits) - Mataimoana, Whātaitai
iv. Ngā Hiwi (Ridges) – Rongotai



b. Cultivation Areas – Rukutoa, Kaitawharo, Te Karaka

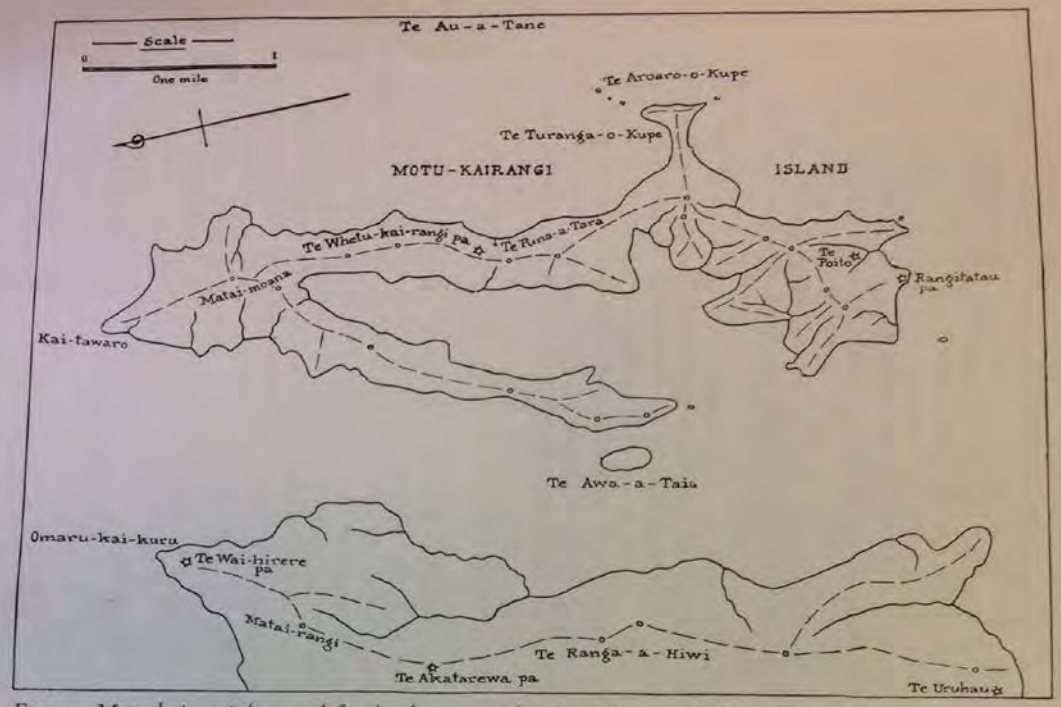


FIG. 1. *Motu-kairangi (restored form), the geographical predecessor of Whataitai or Miramar peninsula.*

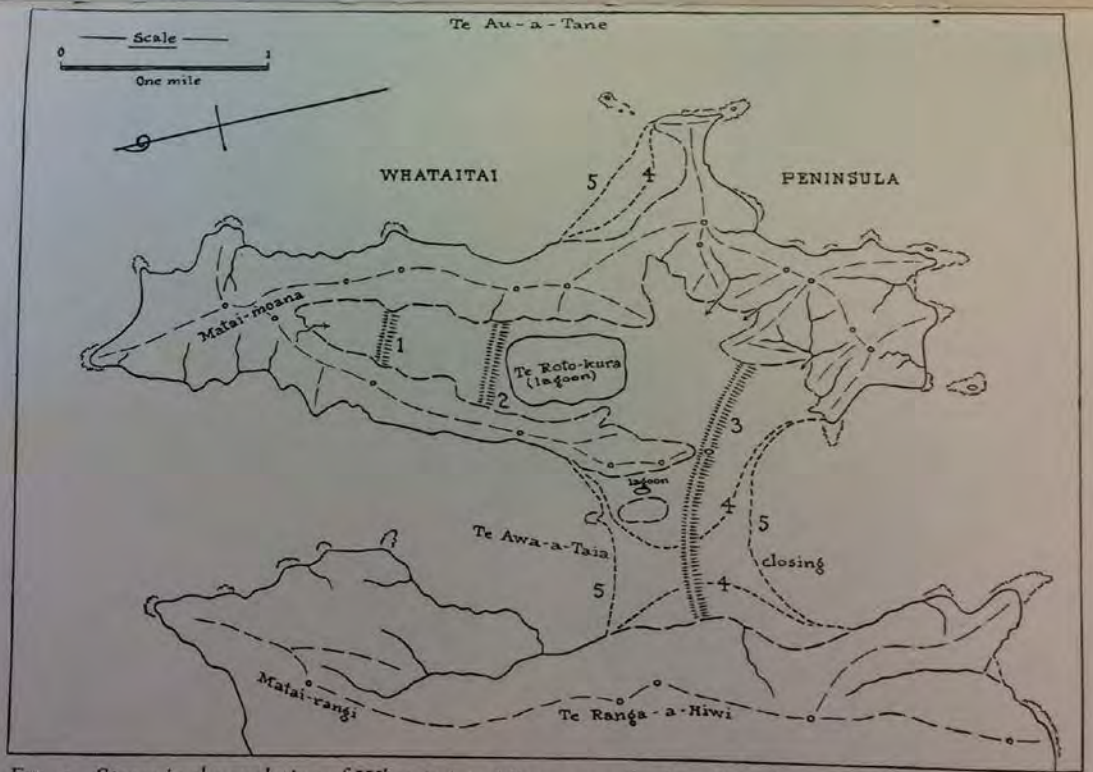


FIG. 2. *Stages in the evolution of Whataitai or Miramar peninsula within the period of human occupation by the process of island-tying: 1, 2, and 3, formation of successive gravel bars; 4,4,4, formation of sand spits, (incipient tombolo) at Kilbirnie and (bay-head sand flat) at Seatoun; 5, 5, 5, final shoreline of Kilbernie isthmus and of Seatoun flat after uplift of c. A.D. 1460, but prior to uplift of A.D. 1855 and eventual development of the shore-platforms.*

Adkin (1959)

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shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**TOTALS**			
description				
carparking				
site area				
building footprint	19312			
		# units	total area	
residential				
apt 1 bd 1 bath	30			
apt 2 bd 1 bath 1 WC	64			
apt 2.5 bd 1 bath 1 ES	106			
apt 3 bd 2 bath	80			
terrace houses 3 bd private carpark	58			
stand alone houses private carpark	14			
total		**352**	33100	
15% circulation etc			5037	
balconies 10m2 per apt			3710	
carparking in garages		**213**	6280	
total building area				**48127**
carparking				
residential uncovered	118			
hotel uncovered	8			
vistor / public uncovered	128			
carstacker	60			
total		**314**		
hospitality				
brewery / shipwrights			250	
restaurant / shed 8			250	
cafe 1 / building SBW.B10			180	
cafe 2 / hotel			100	
cafe 3 / shed 8			170	
cafe 4 / building NB.TH4			0	
total				**950**
hotel				
boutique hotel in officers mess			702	
boutique hotel / studios			840	
total				**1542**
commercial / retail				
boutique office / artist's studios / retail			2072	
total				**2072**
community				
ferry terminal			100	
community hall / childcare			200	
public toilets			50	
guardhouse			50	
total				**400**

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NP.B1**			
description	North Point vacant site / carparking / public open space / shelter			
carparking				
site area				
building footprint	20			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		250	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered	28	15	420	
carstacker				
total	**28**		**420**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				
guardhouse	1	20	20	
total			**20**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NB.H1**			
description	house			
carparking	at grade garage			
site area				
building footprint	101			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				
guardhouse				
total			0	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NB.TH1**			
description	terrace houses on three levels			
carparking	at grade garage			
site area				
building footprint	145			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	2	135	270	
stand alone houses private carpark		250	0	
total	**2**		**270**	
15% circulation etc			40.5	
balconies 10m2 per apt	2	20	40	
carparking in garages	2	30	60	a single garage per house
total building area			**410.5**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				
guardhouse				
total			0	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NB.A1**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	378			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath	6	50	300	
apt 2 bd 1 bath 1 WC	8	70	560	
apt 2.5 bd 1 bath 1 ES	6	80	480	
apt 3 bd 2 bath	5	100	500	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**25**		**1840**	
15% circulation etc			276	
balconies 10m2 per apt	25	10	250	
carparking in garages	13	30	390	a single park in a shared garage
total building area			**2756**	
carparking				
residential uncovered	12	15	180	a single park in a shared mews
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**12**		**180**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NB.TH2**			
description	terrace houses on three levels			
carparking	at grade garage			
site area				
building footprint	280			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	3	160	480	
stand alone houses private carpark		250	0	
total	**3**		**480**	
15% circulation etc			72	
balconies 10m2 per apt	3	20	60	
carparking in garages	3	30	90	a single garage per house
total building area			**702**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NB.A2**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	630			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC	5	70	350	
apt 2.5 bd 1 bath 1 ES	15	80	1200	
apt 3 bd 2 bath	10	100	1000	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**30**		**2550**	
15% circulation etc			382.5	
balconies 10m2 per apt	30	10	300	
carparking in garages	17	30	510	a single park in a shared garage
total building area			**3742.5**	
carparking				
residential uncovered	13	15	195	a single park in a shared mews
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**13**		**195**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NB.TH3/4**			
description	terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	360	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	6	130	780	
stand alone houses private carpark		160	0	
total	**6**		**780**	
15% circulation etc			117	
balconies 10m2 per apt	6	10	60	
carparking in garages	6	20	120	a single garage per house
total building area			**1077**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NB.A3**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	162			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC	5	70	350	
apt 2.5 bd 1 bath 1 ES	5	80	400	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**10**		**750**	
15% circulation etc			112.5	
balconies 10m2 per apt	10	10	100	
carparking in garages	5	30	150	a single park in a shared garage
total building area			**1112.5**	
carparking				
residential uncovered	5	15	75	a single park in a shared mews
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**5**		**75**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NB.A4**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	630			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC	5	70	350	
apt 2.5 bd 1 bath 1 ES	15	80	1200	
apt 3 bd 2 bath	10	100	1000	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**30**		**2550**	
15% circulation etc			382.5	
balconies 10m2 per apt	30	10	300	
carparking in garages	17	30	510	a single park in a shared garage
total building area			**3742.5**	
carparking				
residential uncovered	13	15	195	a single park in a shared mews
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**13**		**195**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NB.TH5/6**			
description	terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	540	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	9	130	1170	
stand alone houses private carpark		160	0	
total	**9**		**1170**	
15% circulation etc			175.5	
balconies 10m2 per apt	9	10	90	
carparking in garages	9	30	270	a single garage per house
total building area			**1705.5**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NB.A5/6**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	1010	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath	5	50	250	
apt 2 bd 1 bath 1 WC	5	70	350	
apt 2.5 bd 1 bath 1 ES	25	80	2000	
apt 3 bd 2 bath	15	100	1500	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**50**		**4100**	
15% circulation etc			615	
balconies 10m2 per apt	50	10	500	
carparking in garages	29	30	870	a single park in a shared garage
total building area			**6085**	
carparking				
residential uncovered	21	15	315	a single park in a shared mews
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**21**		**315**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NB.TH7**			
description	terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	364			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	5	130	650	
stand alone houses private carpark		160	0	
total	**5**		**650**	
15% circulation etc			97.5	
balconies 10m2 per apt	5	10	50	
carparking in garages	5	20	100	a single garage per house
total building area			**897.5**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**NB.A7**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	504			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC	7	70	490	
apt 2.5 bd 1 bath 1 ES	8	80	640	
apt 3 bd 2 bath	10	100	1000	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**25**		**2130**	
15% circulation etc			319.5	
balconies 10m2 per apt	25	10	250	
carparking in garages	15	30	450	a single park in a shared garage
total building area			**3149.5**	
carparking				
residential uncovered	10	15	150	a single park in a shared mews
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**10**		**150**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel		100		
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SBW.B1 and SBW.B2**			
description	boutique hotel in relocated officer's mess building and new six level tower			
carparking	at grade			
site area				
building footprint	799			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
carparking				
residential uncovered		15	0	
hotel uncovered	8	15	120	
vistor / public uncovered		15	0	
carstacker				
total	**8**		**120**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel	1	100	100	
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**100**	
hotel				
boutique hotel in officers mess	1	700	700	
boutique hotel / studios	30	28	840	
total			**1540**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SBW.A1**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	378			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath	4	50	200	
apt 2 bd 1 bath 1 WC	6	70	420	
apt 2.5 bd 1 bath 1 ES	6	80	480	
apt 3 bd 2 bath	5	100	500	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**21**		**1600**	
15% circulation etc			240	
balconies 10m2 per apt	21	10	210	
carparking in garages	13	30	390	a single park in a shared garage
total building area			**2440**	
carparking				
residential uncovered	8	15	120	a single park in a shared mews
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**8**		**120**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SBW.B3**			
description	carstacker / future cable car terminal			
carparking				
site area				
building footprint	99			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		250	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker	30	20	600	in carstacker building
total	**30**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SBW.B4**			
description	apartments above tenancies on three levels			
carparking	in carparking stacker in SBW.B5			
site area				
building footprint	661			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	10	130	1300	
stand alone houses private carpark		160	0	
total	**10**		**1300**	
15% circulation etc			195	
balconies 10m2 per apt	10	10	100	
carparking in garages			0	
total building area			**1595**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail	10	50	500	
total			**500**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SBW.B5**			
description	carstacker			
carparking				
site area				
building footprint	125			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		250	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker	30	20	600	in carstacker building
total	**30**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SBW.B6**			
description	kiosks and public toilets			
carparking	in carparking stacker in SBW.B3			
site area				
building footprint	252			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail	2	50	100	
total			**100**	
community				
ferry terminal	1	100	100	
community hall / childcare				
public toilets	1	50	50	
guardhouse				
total			**150**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SBW.B7**			
description	shed 8			
carparking	in carparking stacker in SBW.B3			
site area				
building footprint	1892			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8	1	250	250	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8	1	170	170	
cafe 4 / building NB.TH4				
total			**420**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail	1	1472	1472	
total			**1472**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SBW.B8**			
description	micro brewery in Shipwrights building			
carparking	in carparking stacker in SBW.B3			
site area				
building footprint	279			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights	1	250	250	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**250**	
hotel				
boutique hotel in officers mess		800	1	
boutique hotel / studios		28	0	
total			**1**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SBW.B9**			
description	serviced apartments on three levels above slipway			
carparking	in carparking stacker in SBW.B5			
site area				
building footprint	300			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC	9	70	630	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**9**		**630**	
15% circulation etc			94.5	
balconies 10m2 per apt	9	10	90	
carparking in garages		25	0	
total building area			**814.5**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		50	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SBW.B10**			
description	Chocolate Fish cafe in relocated heritage building			
carparking	in carparking stacker in SBW.B3			
site area				
building footprint	168			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10	1	180	180	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**180**	
hotel				
boutique hotel in officers mess		800	1	
boutique hotel / studios		28	0	
total			**1**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SBW.H1**			
description	house			
carparking	in carparking stacker in SBW.B5			
site area				
building footprint	70	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	180	180	
total	**1**		**180**	
15% circulation etc			27	
balconies 10m2 per apt	1	20	20	
carparking in garages		30	0	
total building area			**227**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SBW.H2**			
description	house			
carparking	in carparking stacker in SBW.B5			
site area				
building footprint	70	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	180	180	
total	**1**		**180**	
15% circulation etc			27	
balconies 10m2 per apt	1	20	20	
carparking in garages		30	0	
total building area			**227**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.B1**			
description	Community Hall / childcare in relocated heritage building			
carparking				
site area	1184			
building footprint	168			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		100	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare	1	200	200	
public toilets			0	
guardhouse				
total			**200**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.TH1/2**			
description	terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	540	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	9	130	1170	
stand alone houses private carpark		160	0	
total	**9**		**1170**	
15% circulation etc			175.5	
balconies 10m2 per apt	9	10	90	
carparking in garages	9	30	270	a single garage per house
total building area			**1705.5**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.A1/2**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	1010	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath	10	50	500	
apt 2 bd 1 bath 1 WC	9	70	630	
apt 2.5 bd 1 bath 1 ES	16	80	1280	
apt 3 bd 2 bath	15	100	1500	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**50**		**3910**	
15% circulation etc			586.5	
balconies 10m2 per apt	50	10	500	
carparking in garages	29	30	870	a single park in a shared garage
total building area			**5866.5**	
carparking				
residential uncovered	21	15	315	a single park in a shared mews
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**21**		**315**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.TH3**			
description	terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	312			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	5	130	650	
stand alone houses private carpark		160	0	
total	**5**		**650**	
15% circulation etc			97.5	
balconies 10m2 per apt	5	10	50	
carparking in garages	5	30	150	a single garage per house
total building area			**947.5**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.TH4/5**			
description	terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	640			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	9	130	1170	
stand alone houses private carpark		160	0	
total	**9**		**1170**	
15% circulation etc			175.5	
balconies 10m2 per apt	9	10	90	
carparking in garages	9	30	270	a single garage per house
total building area			**1705.5**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.A3**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	504			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath	5	50	250	
apt 2 bd 1 bath 1 WC	5	70	350	
apt 2.5 bd 1 bath 1 ES	5	80	400	
apt 3 bd 2 bath	10	100	1000	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**25**		**2000**	
15% circulation etc			300	
balconies 10m2 per apt	25	10	250	
carparking in garages	15	30	450	a single park in a shared garage
total building area			**3000**	
carparking				
residential uncovered	10	15	150	a single park in a shared mews
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**10**		**150**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.A4**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	136			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES	5	80	400	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**5**		**400**	
15% circulation etc			132	33% rather than 15% due to smaller size
balconies 10m2 per apt	5	10	50	
carparking in garages		30	0	
total building area			**582**	
carparking				
residential uncovered	5	15	75	a single park in a shared mews
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**5**		**75**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.H1**			
description	house			
carparking	at grade garage			
site area				
building footprint	90	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.H2**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.H3**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.H4**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.H5**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
carparking				
residential uncovered		20	0	
hotel uncovered				
vistor / public uncovered		20	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.H6**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.H7**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB.H8**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB5.H9**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB5.H10**			
description	house			
carparking	at grade garage			
site area				
building footprint	150	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SB5.H11**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**SP1.1**			
description	South Point vacant site / carparking / public open space / shelter			
carparking				
site area				
building footprint	30			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		250	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered	32	15	480	
carstacker				
total	**32**		**480**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse	1	30	30	
total			**30**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building				
description	Main road			
carparking				
site area				
building footprint				
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		250	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
carparking				
residential uncovered		15	0	
hotel uncovered				
vistor / public uncovered	68	15	1020	
carstacker				
total	**68**		**1020**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				
guardhouse				
total			**0**	

shelly bay masterplan

schedule of accommodation without aged care

12-Sep-16

building	**TOTALS**		
description			
carparking			
site area			
building footprint	19312		
		# units	total area
residential			
apt 1 bd 1 bath	30		
apt 2 bd 1 bath 1 WC	64		
apt 2.5 bd 1 bath 1 ES	106		
apt 3 bd 2 bath	80		
terrace houses 3 bd private carpark	58		
stand alone houses private carpark	14		
total		**352**	33100
15% circulation etc			5037
balconies 10m2 per apt			3710
carparking in garages	213		6280
total building area			**48127**
carparking			
residential uncovered	118		
hotel uncovered	8		
vistor / public uncovered	128		
carstacker	60		
total		**314**	
hospitality			
brewery / shipwrights			250
restaurant / shed 8			250
cafe 1 / building SBW.B10			180
cafe 2 / hotel			100
cafe 3 / shed 8			170
cafe 4 / building NB.TH4			0
total			**950**
hotel			
boutique hotel in officers mess			702
boutique hotel / studios			840
total			**1542**
commercial / retail			
boutique office / artist's studios / retail			2072
total			**2072**
community			
ferry terminal			100
community hall / childcare			200
public toilets			50
guardhouse			50
total			**400**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**TOTALS**		
description			
carparking			
site area			
building footprint	14307		
		# units	total area
residential			
apt 1 bd 1 bath	30		
apt 2 bd 1 bath 1 WC	49		
apt 2.5 bd 1 bath 1 ES	71		
apt 3 bd 2 bath	60		
terrace houses 3 bd private carpark	47		
stand alone houses private carpark	14		
total		**271**	25300
15% circulation etc			3867
balconies 10m2 per apt			2860
carparking in garages		**163**	4720
total building area			**36747**
aged care			
apt 2.5 bd 1 bath 1 ES	55		
apt 3 bd 2 bath	20		
serviced apartments	20		
care suites	35		
FoH / BoH facilities	2		
total		**132**	18090
15% circulation etc			2713.5
balconies 6m2 / 10m2 per apt			1800
carparking in garages		**16**	
total building area			**22763.5**
carparking			
residential uncovered	87		
aged care uncovered	51		
hotel uncovered	8		
vistor / public uncovered	128		
carstacker	60		
total		**334**	
hospitality			
brewery / shipwrights			250
restaurant / shed 8			250
cafe 1 / building SBW.B10			180
cafe 2 / hotel			100
cafe 3 / shed 8			170
cafe 4 / building NB.TH4			0
total			**950**
hotel			
boutique hotel in officers mess			702
boutique hotel / studios			840
total			**1542**
commercial / retail			
boutique office / artist's studios / retail			2072
total			**2072**
community			
ferry terminal			100
community hall / childcare			200
public toilets			50

guardhouse	50
total	**400**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NP.B1**			
description	North Point vacant site / carparking / public open space / shelter			
carparking				
site area				
building footprint	20			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		250	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered	28	15	420	
carstacker				
total	**28**		**420**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				

guardhouse	1	20	20
total			**20**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.H1**			
description	house			
carparking	at grade garage			
site area				
building footprint	101			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				

guardhouse	
total	0

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.TH1**			
description	terrace houses on three levels			
carparking	at grade garage			
site area				
building footprint	145			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	2	135	270	
stand alone houses private carpark		250	0	
total	**2**		**270**	
15% circulation etc			40.5	
balconies 10m2 per apt	2	20	40	
carparking in garages	2	30	60	a single garage per house
total building area			**410.5**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				

guardhouse	
total	0

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.A1**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	378			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath	6	50	300	
apt 2 bd 1 bath 1 WC	8	70	560	
apt 2.5 bd 1 bath 1 ES	6	80	480	
apt 3 bd 2 bath	5	100	500	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**25**		**1840**	
15% circulation etc			276	
balconies 10m2 per apt	25	10	250	
carparking in garages	13	30	390	a single park in a shared garage
total building area			**2756**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered	12	15	180	a single park in a shared mews
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**12**		**180**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.TH2**			
description	terrace houses on three levels			
carparking	at grade garage			
site area				
building footprint	280			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	3	160	480	
stand alone houses private carpark		250	0	
total	**3**		**480**	
15% circulation etc			72	
balconies 10m2 per apt	3	20	60	
carparking in garages	3	30	90	a single garage per house
total building area			**702**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.A2**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	630			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC	5	70	350	
apt 2.5 bd 1 bath 1 ES	15	80	1200	
apt 3 bd 2 bath	10	100	1000	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**30**		**2550**	
15% circulation etc			382.5	
balconies 10m2 per apt	30	10	300	
carparking in garages	17	30	510	a single park in a shared garage
total building area			**3742.5**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total			**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt			0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered	13	15	195	a single park in a shared mews
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**13**		**195**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.TH3/4 ALT**			
description	aged care terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	360	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	20	0	a single garage per house
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath	8	130	1040	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**8**		**1040**	
15% circulation etc			156	
balconies 6m2 / 10m2 per apt	8		0	
carparking in garages	8	20	160	a single garage per house
total building area			**1196**	
carparking				
residential uncovered				
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.A3 ALT**			
description	aged care apartments on six levels			
carparking	at grade			
site area				
building footprint	162			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages		30	0	a single park in a shared garage
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES	32	80	2560	
apt 3 bd 2 bath	6	100	600	
serviced apartments		45	0	
care suites		25	0	
FoH / BoH facilities	1	162		
total	**39**		**3160**	
15% circulation etc			474	
balconies 6m2 / 10m2 per apt	39	10	390	
carparking in garages				
total building area			**4024**	
carparking				
residential uncovered				
aged care uncovered	20	15	300	a single park in a shared mews
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**20**		**300**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.A4/5**			
description	aged care apartments on six levels			
carparking	at grade			
site area				
building footprint	630			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages		30	0	a single park in a shared garage
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES	15	80	1200	
apt 3 bd 2 bath	6	100	600	
serviced apartments	20	45	900	
care suites	35	25	875	
FoH / BoH facilities	1	630	630	
total	**77**		**4205**	
15% circulation etc			630.75	
balconies 6m2 / 10m2 per apt	77	6	462	
carparking in garages				
total building area			**5297.75**	
carparking				
residential uncovered				
aged care uncovered	31	15	0	a single park in a shared mews
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**31**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.TH5 ALT**			
description	aged care terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	540	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	a single garage per house
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES	8	80	640	
apt 3 bd 2 bath		100	0	
serviced apartments		45	0	
care suites		25	0	
FoH / BoH facilities		275	0	
total	**8**		**640**	
15% circulation etc			96	
balconies 6m2 / 10m2 per apt	8	6	48	
carparking in garages	8			
total building area			**784**	
carparking				
residential uncovered				
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.A6 ALT**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	380			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath	5	50	250	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES	10	80	800	
apt 3 bd 2 bath	5	100	500	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**20**		**1550**	
15% circulation etc			232.5	
balconies 10m2 per apt	20	10	200	
carparking in garages	12	30	360	a single park in a shared garage
total building area			**2342.5**	
aged care				
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
serviced apartments		45		
care suites		25	0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0	10	0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered	8	15	120	a single park in a shared mews
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**8**		**120**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.TH6 ALT**			
description	terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	240			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	4	130	520	
stand alone houses private carpark		160	0	
total	**4**		**520**	
15% circulation etc			78	
balconies 10m2 per apt	4	10	40	
carparking in garages	4	20	80	a single garage per house
total building area			**718**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.TH7**			
description	terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	364			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	5	130	650	
stand alone houses private carpark		160	0	
total	**5**		**650**	
15% circulation etc			97.5	
balconies 10m2 per apt	5	10	50	
carparking in garages	5	20	100	a single garage per house
total building area			**897.5**	
aged care				
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
serviced apartments		45	0	
care suites		25	0	
FoH / BoH facilities		550	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0	6	0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**NB.A7**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	504			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC	7	70	490	
apt 2.5 bd 1 bath 1 ES	8	80	640	
apt 3 bd 2 bath	10	100	1000	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**25**		**2130**	
15% circulation etc			319.5	
balconies 10m2 per apt	25	10	250	
carparking in garages	15	30	450	a single park in a shared garage
total building area			**3149.5**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered	10	15	150	a single park in a shared mews
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**10**		**150**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel		100		
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SBW.B1 and SBW.B2**			
description	boutique hotel in relocated officer's mess building and new six level tower			
carparking	at grade			
site area				
building footprint	799			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered	8	15	120	
vistor / public uncovered		15	0	
carstacker				
total	**8**		**120**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel	1	100	100	
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**100**	
hotel				
boutique hotel in officers mess	1	700	700	
boutique hotel / studios	30	28	840	
total			**1540**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SBW.A1**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	378			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath	4	50	200	
apt 2 bd 1 bath 1 WC	6	70	420	
apt 2.5 bd 1 bath 1 ES	6	80	480	
apt 3 bd 2 bath	5	100	500	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**21**		**1600**	
15% circulation etc			240	
balconies 10m2 per apt	21	10	210	
carparking in garages	13	30	390	a single park in a shared garage
total building area			**2440**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered	8	15	120	a single park in a shared mews
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**8**		**120**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SBW.B3**			
description	carstacker / future cable car terminal			
carparking				
site area				
building footprint	99			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		250	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages				
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments			0	
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker	30	20	600	in carstacker building
total	**30**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SBW.B4**			
description	apartments above tenancies on three levels			
carparking	in carparking stacker in SBW.B5			
site area				
building footprint	661			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	10	130	1300	
stand alone houses private carpark		160	0	
total	**10**		**1300**	
15% circulation etc			195	
balconies 10m2 per apt	10	10	100	
carparking in garages			0	
total building area			**1595**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail	10	50	500	
total			**500**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SBW.B5**			
description	carstacker			
carparking				
site area				
building footprint	125			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		250	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages				
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities			0	
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker	30	20	600	in carstacker building
total	**30**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SBW.B6**			
description	kiosks and public toilets			
carparking	in carparking stacker in SBW.B3			
site area				
building footprint	252			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail	2	50	100	
total			**100**	
community				
ferry terminal	1	100	100	
community hall / childcare				
public toilets	1	50	50	

guardhouse	
total	**150**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SBW.B7**			
description	shed 8			
carparking	in carparking stacker in SBW.B3			
site area				
building footprint	1892			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities			0	
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8	1	250	250	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8	1	170	170	
cafe 4 / building NB.TH4				
total			**420**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail	1	1472	1472	
total			**1472**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SBW.B8**			
description	micro brewery in Shipwrights building			
carparking	in carparking stacker in SBW.B3			
site area				
building footprint	279			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights	1	250	250	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**250**	
hotel				
boutique hotel in officers mess		800	1	
boutique hotel / studios		28	0	
total			**1**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SBW.B9**			
description	serviced apartments on three levels above slipway			
carparking	in carparking stacker in SBW.B5			
site area				
building footprint	300			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC	9	70	630	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**9**		**630**	
15% circulation etc			94.5	
balconies 10m2 per apt	9	10	90	
carparking in garages		25	0	
total building area			**814.5**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		50	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SBW.B10**			
description	Chocolate Fish cafe in relocated heritage building			
carparking	in carparking stacker in SBW.B3			
site area				
building footprint	168			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10	1	180	180	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**180**	
hotel				
boutique hotel in officers mess		800	1	
boutique hotel / studios		28	0	
total			**1**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SBW.H1**			
description	house			
carparking	in carparking stacker in SBW.B5			
site area				
building footprint	70	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	180	180	
total	**1**		**180**	
15% circulation etc			27	
balconies 10m2 per apt	1	20	20	
carparking in garages		30	0	
total building area			**227**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SBW.H2**			
description	house			
carparking	in carparking stacker in SBW.B5			
site area				
building footprint	70	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	180	180	
total	**1**		**180**	
15% circulation etc			27	
balconies 10m2 per apt	1	20	20	
carparking in garages		30	0	
total building area			**227**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.B1**			
description	Community Hall / childcare in relocated heritage building			
carparking				
site area	1184			
building footprint	168			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		100	0	
total			**0**	
community				
ferry terminal			0	
community hall / childcare	1	200	200	
public toilets			0	

guardhouse	
total	**200**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.TH1/2**			
description	terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	540	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	9	130	1170	
stand alone houses private carpark		160	0	
total	**9**		**1170**	
15% circulation etc			175.5	
balconies 10m2 per apt	9	10	90	
carparking in garages	9	30	270	a single garage per house
total building area			**1705.5**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.A1/2**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	1010	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath	10	50	500	
apt 2 bd 1 bath 1 WC	9	70	630	
apt 2.5 bd 1 bath 1 ES	16	80	1280	
apt 3 bd 2 bath	15	100	1500	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**50**		**3910**	
15% circulation etc			586.5	
balconies 10m2 per apt	50	10	500	
carparking in garages	29	30	870	a single park in a shared garage
total building area			**5866.5**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered	21	15	315	a single park in a shared mews
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**21**		**315**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.TH3**			
description	terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	312			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	5	130	650	
stand alone houses private carpark		160	0	
total	**5**		**650**	
15% circulation etc			97.5	
balconies 10m2 per apt	5	10	50	
carparking in garages	5	30	150	a single garage per house
total building area			**947.5**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.TH4/5**			
description	terrace houses on three levels			
carparking	at grade carparking			
site area				
building footprint	640			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark	9	130	1170	
stand alone houses private carpark		160	0	
total	**9**		**1170**	
15% circulation etc			175.5	
balconies 10m2 per apt	9	10	90	
carparking in garages	9	30	270	a single garage per house
total building area			**1705.5**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.A3**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	504			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath	5	50	250	
apt 2 bd 1 bath 1 WC	5	70	350	
apt 2.5 bd 1 bath 1 ES	5	80	400	
apt 3 bd 2 bath	10	100	1000	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**25**		**2000**	
15% circulation etc			300	
balconies 10m2 per apt	25	10	250	
carparking in garages	15	30	450	a single park in a shared garage
total building area			**3000**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered	10	15	150	a single park in a shared mews
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**10**		**150**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.A4**			
description	apartments on six levels			
carparking	at grade			
site area				
building footprint	136			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES	5	80	400	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		160	0	
total	**5**		**400**	
15% circulation etc			132	33% rather than 15% due to smaller size
balconies 10m2 per apt	5	10	50	
carparking in garages		30	0	
total building area			**582**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered	5	15	75	a single park in a shared mews
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**5**		**75**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.H1**			
description	house			
carparking	at grade garage			
site area				
building footprint	90	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.H2**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.H3**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.H4**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.H5**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		20	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		20	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.H6**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.H7**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB.H8**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB5.H9**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB5.H10**			
description	house			
carparking	at grade garage			
site area				
building footprint	150	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SB5.H11**			
description	house			
carparking	at grade garage			
site area				
building footprint	100	approx		
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark	1	220	220	
total	**1**		**220**	
15% circulation etc			33	
balconies 10m2 per apt	1	20	20	
carparking in garages	1	30	30	a single garage per house
total building area			**303**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered		15	0	
carstacker				
total	**0**		**0**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**SP1.1**			
description	South Point vacant site / carparking / public open space / shelter			
carparking				
site area				
building footprint	30			
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		250	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered	32	15	480	
carstacker				
total	**32**		**480**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	1	30	30
total			**30**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building				
description	Main road			
carparking				
site area				
building footprint				
	# units	unit area	total area	comment
residential				
apt 1 bd 1 bath		50	0	
apt 2 bd 1 bath 1 WC		70	0	
apt 2.5 bd 1 bath 1 ES		80	0	
apt 3 bd 2 bath		100	0	
terrace houses 3 bd private carpark		130	0	
stand alone houses private carpark		250	0	
total	**0**		**0**	
15% circulation etc			0	
balconies 10m2 per apt	0	10	0	
carparking in garages	0	30	0	
total building area			**0**	
aged care				
apt 2.5 bd 1 bath 1 ES			0	
apt 3 bd 2 bath			0	
serviced apartments				
care suites			0	
FoH / BoH facilities				
total	**0**		**0**	
15% circulation etc			0	
balconies 6m2 / 10m2 per apt	0		0	
carparking in garages				
total building area			**0**	
carparking				
residential uncovered		15	0	
aged care uncovered				
hotel uncovered				
vistor / public uncovered	68	15	1020	
carstacker				
total	**68**		**1020**	
hospitality				
brewery / shipwrights		200	0	
restaurant / shed 8		250	0	
cafe 1 / building SBW.B10		180	0	
cafe 2 / hotel				
cafe 3 / shed 8		170	0	
cafe 4 / building NB.TH4				
total			**0**	
hotel				
boutique hotel in officers mess		800	0	
boutique hotel / studios		28	0	
total			**0**	
commercial / retail				
boutique office / artist's studios / retail		500	0	
total			**0**	
community				
ferry terminal		100	0	
community hall / childcare				
public toilets				

guardhouse	
total	**0**

shelly bay masterplan

schedule of accommodation with aged care

12-Sep-16

building	**TOTALS**		
description			
carparking			
site area			
building footprint	14307		
		# units	total area
residential			
apt 1 bd 1 bath	30		
apt 2 bd 1 bath 1 WC	49		
apt 2.5 bd 1 bath 1 ES	71		
apt 3 bd 2 bath	60		
terrace houses 3 bd private carpark	47		
stand alone houses private carpark	14		
total		**271**	25300
15% circulation etc			3867
balconies 10m2 per apt			2860
carparking in garages	163		4720
total building area			**36747**
aged care			
apt 2.5 bd 1 bath 1 ES	55		
apt 3 bd 2 bath	20		
serviced apartments	20		
care suites	35		
FoH / BoH facilities	2		
total		**132**	9045
15% circulation etc			1356.75
balconies 6m2 / 10m2 per apt		132	900
carparking in garages	16		160
total building area			**11461.75**
carparking			
residential uncovered	87		
aged care uncovered	51		
hotel uncovered	8		
vistor / public uncovered	128		
carstacker	60		
total		**334**	
hospitality			
brewery / shipwrights			250
restaurant / shed 8			250
cafe 1 / building SBW.B10			180
cafe 2 / hotel			100
cafe 3 / shed 8			170
cafe 4 / building NB.TH4			0
total			**950**
hotel			
boutique hotel in officers mess			702
boutique hotel / studios			840
total			**1542**
commercial / retail			
boutique office / artist's studios / retail			2072
total			**2072**
community			
ferry terminal			100
community hall / childcare			200
public toilets			50

guardhouse	50
total	**400**

The Wellington Company
19-Jan-2016

Shelly Bay Development

Preliminary Geotechnical Assessment Report

Shelly Bay Development

Preliminary Geotechnical Assessment Report

Client: The Wellington Company

Co No.: 903151

Prepared by

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AECOM in Australia and New Zealand is certified to the latest version of ISO9001, ISO14001, AS/NZS4801 and OHSAS18001.

Quality Information

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Reviewed by Jeffrey Peng/Lars Schmidt/Andrew Campbell

Revision History

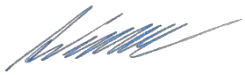
Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
	19-Jan-2016	For Client Comment	Andrew Campbell Geotechnical Manager - Ground Engineering & Tunnelling	

Table of Contents

Executive Summary

AECOM New Zealand Ltd. (AECOM) have been contracted by The Wellington Company Ltd. (TWC) to provide multidisciplinary and design consultancy services, as part of the initial technical investigation and high level concept design validation, for a combined residential & commercial development at Shelly Bay & Mount Crawford, Wellington.

Residential properties, including houses, townhouses and apartment buildings up to 2, 3 and 7 storeys each, respectively, are proposed. The development will also include construction of a variety of commercial and retail facilities, including large office and retail developments up to 1,400m^2, as well as several hotels up to 6-7 storeys each. The existing offshore wharf and jetty structures are to be rejuvenated to create a ferry terminal and marina, and a cable car terminal and track is to be built upon the hillside to serve new properties upon Mount Crawford itself.

AECOM have scoped and supervised a preliminary phase of geotechnical investigation across the project site, including boreholes, inspection pits and cone penetration (CPT) testing. This report presents the findings and interpretation of the geotechnical investigations undertaken by AECOM at Shelly Bay, provides a geological model for the site, and preliminary engineering parameters for each stratum identified.

The site occupies two adjacent bays located in Wellington Harbour, each of which was progressively infilled during the Holocene Epoch with marginal marine sediments, most typically comprising fine sand. More recently, development of the area in the mid-19th to 20th century as a military installation has led to the placement of reclamation fill across much of the site area on top of these marine sediments. Completely weathered greywacke (colluvium) underlies the marine sediment and reclamation fill, in turn overlying more competent greywacke bedrock which also forms Mount Crawford, the steep hillsides of which border the site to the east.

A geohazard assessment has also been carried out to identify geotechnical and geological issues which may impact upon the development. This assessment has considered hazards such as tsunami inundation and ground fault rupture, as well as liquefaction, lateral spreading and rock slope instability. The marine sediments which underlie much of the site have been found to be susceptible to liquefaction, and vertical settlements of up to 250mm have been estimated in the southern bay where these deposits are encountered to their greatest extent. Elsewhere, such settlements are generally around 50 – 60mm in magnitude.

Recommendations for foundations for onshore structures, marine infrastructure (including seawalls, the marina, wharf and beach), requirements for slope stability measures and other site infrastructure (i.e. roads, paving and utilities) have been made upon the basis of the geohazard assessment. Foundations for onshore structures are likely to comprise a combination of shallow pad or strip footings where bedrock is encountered close to the surface; where liquefiable materials are present, piled foundations extending to bedrock are likely to be required, especially for heavier structures such as the multi-storey hotel. Ground improvement may also be required to mitigate against the risk posed by lateral spreading during a seismic event.

A structural assessment of the existing marina in 2010 suggests that the structure is in a state of disrepair, and is likely to require a major overhaul. Large numbers of the existing piles are likely to require replacement or retrofitting as a minimum. An alternative option may be to install steel sheet piles around the existing structure and backfill with further reclamation fill, largely demolishing the existing structure in the process.

Whilst some of the existing sea walls appear in good condition, others are not and some have even undergone partial collapse. In general, the seawalls are not considered to offer significant resilience to lateral spread, and may have been founded directly upon liquefiable sediment. These features may require retrofit or complete replacement.

There are a number of rock slopes around the site. A detailed discontinuity survey of unfavourable discontinuities of each, and subsequent analysis, has confirmed the potential for continued failures from these outcrops. The most common failures are likely to be relatively small (up to 0.1m^3), but rarer, larger failures (up to 10m^3) are also possible under adverse conditions in a few areas. Netting and rock bolting is recommended to remove the hazard posed by such failures to end users of the development.

Additional geotechnical investigation will be required prior to detailed design, and recommendations have been made in this report on a structure and area specific basis across the site.

1.0 Introduction

1.1 General

AECOM New Zealand Ltd. (AECOM) have been contracted by The Wellington Company Ltd. (TWC) to provide multidisciplinary and design consultancy services, as part of the initial technical investigation and high level concept design validation, for a combined residential & commercial development at Shelly Bay & Mount Crawford, Wellington (hereafter 'the site').

1.2 Proposed Development

The development proposed by TWC is outlined in detail in the Shelly Bay & Mount Crawford Masterplan (Ref. 1). An extract of the development proposal showing prominent details across the site is included in Appendix A.

The majority of existing structures at the site are likely to be demolished as part of the development, with only a few elements retained for refurbishment. Residential properties, including houses, townhouses and apartment buildings up to 2, 3 and 7 storeys each, respectively, are proposed. The development will also include construction of a variety of commercial and retail facilities, including large office and retail developments up to 1,400m^2, as well as several hotels up to 6-7 storeys each.

The development will also entail construction of a cable car terminal and track in the adjacent hillside to serve new residential properties upon Mount Crawford, as well as refurbishment of the existing offshore pier and wharf structures, in order to create a new ferry terminal. The existing beach to the south of the site area is also to be replenished with additional sand and extended.

1.3 Scope of Works

The geotechnical Scope of Works in support of the development is as follows;

- Carry out an initial desk based study of the site and surrounding area;
- Carry out a site walkover, including geological mapping and discontinuity survey(s) of prominent features, such as rock outcrops, across the site area;
- Plan, scope, supervise and interpret an initial phase of intrusive geotechnical site investigations across the site;
- Provide a geological ground model for the site;
- Provide geotechnical and seismic design parameters;
- Identify potential geohazards at the site, assess their likelihood of occurrence & severity, and the resulting qualitative risk to the development and end users;
- Provide preliminary recommendations for the following:
  - Foundations for onshore buildings throughout the development,
  - The need for and preliminary scoping of slope stabilisation works in the terrain surrounding the development;
  - Requirements for marine infrastructure, including the ferry wharf, marina, and land reclamation for the proposed beach;
  - Recommendations for other site infrastructure, such as roadways, paving, and utilities;
  - Recommendations for mitigation or remedial measures with respect to geohazards identified during the site investigations;
  - Requirements and preliminary scoping of additional geotechnical investigations for detailed design stages.
- Prepare and deliver a Preliminary Geotechnical Assessment Report (PGAR) summarising the findings and recommendations of the above investigations.

2.0 Site Description

2.1 Site Description

Shelly Bay is located 4km to east of Wellington City, and upon the western edge of the Miramar Peninsula. A general location plan of the site is shown in Appendix A.

The site comprises two adjacent infilled bays bordered to the east by the steep, densely vegetated slopes of Mount Crawford, and to the west by Wellington Harbour. Mount Crawford rises steeply at a slope of between 30 up to 70 degrees, and to a maximum height of 163m above sea level.

The site is almost 5 hectares in plan area, and comprises mostly flat terrain across each bay. A satellite image of the site, dated 2013, is shown in Figure 1. There are approximately 43 buildings across the site, including several pier and wharf structures at the headland between the two bays. These structures are associated with historical usage of the site as a military installation in the late 19th century through to the mid-20th century; many remain in active use, though some structures, particularly the pier and wharf, are in various states of disrepair. The site is intersected by several roads, most notably Massey Road and Shelly Bay Road, as well as several car parks.

2.2 Geological Setting

2.2.1 Solid Geology

Figure 2 shows an extract from the geological survey map of the Miramar Peninsula (Ref. 2).

Shelly Bay & Mount Crawford are underlain by Rakaia Terranes; Triassic rock types which are part of the wider Torlesse Supergroup. The Rakaia Terrane is part of a group of greywacke rocks terranes, which characteristically comprises late Carboniferous to late Trassic, quartzfeldspathic, metamorphosed sandstone and mudstone sequences together with poorly bedded sandstone with minor coloured mudstone of marginal marine to submarine origin.

In the Wellington Area, greywacke rocks are known to comprise monotonous, complexly folded and steeply dipping sequences of uniformly low-grade metamorphosed tubidites consisting of cyclical sedimentary units of sand grading up to mud.

2.2.2 Quaternary Deposits

Above the greywacke basement rock, each of the bays at the site has been progressively infilled by colluvium (completely weathered greywacke) originating from the surrounding slopes, as well as natural marginal marine sediments of Holocene age. More recently, reclamation fill, associated with the development of the area as a naval station in the late 19th & early 20th century, has also been placed across much of the area to create an artificial shoreline, sitting above the layers of colluvium and marginal marine sediments.

2.3 Seismicity

The site is located within 20km of 2 major faults, as identified in NZS 1170.5 (Ref. 3).

The active Wellington Fault, which runs in a southwest to northeast orientation, lies within 5 km to the west of the site. The Wairarapa Fault is also located approximately 19km to the east of the site, and beyond the Rimutaka Range.

The geological map also indicates a number of faults within approximately 800m to 2km of the site, such as the Seatoun and Evans Bay Faults, respectively. However, for the purposes of determining seismic spectra for design, these features are not considered to be major faults.

Figure 1 Aerial Photograph, Shelly Bay, 2013 (Ref. 4)

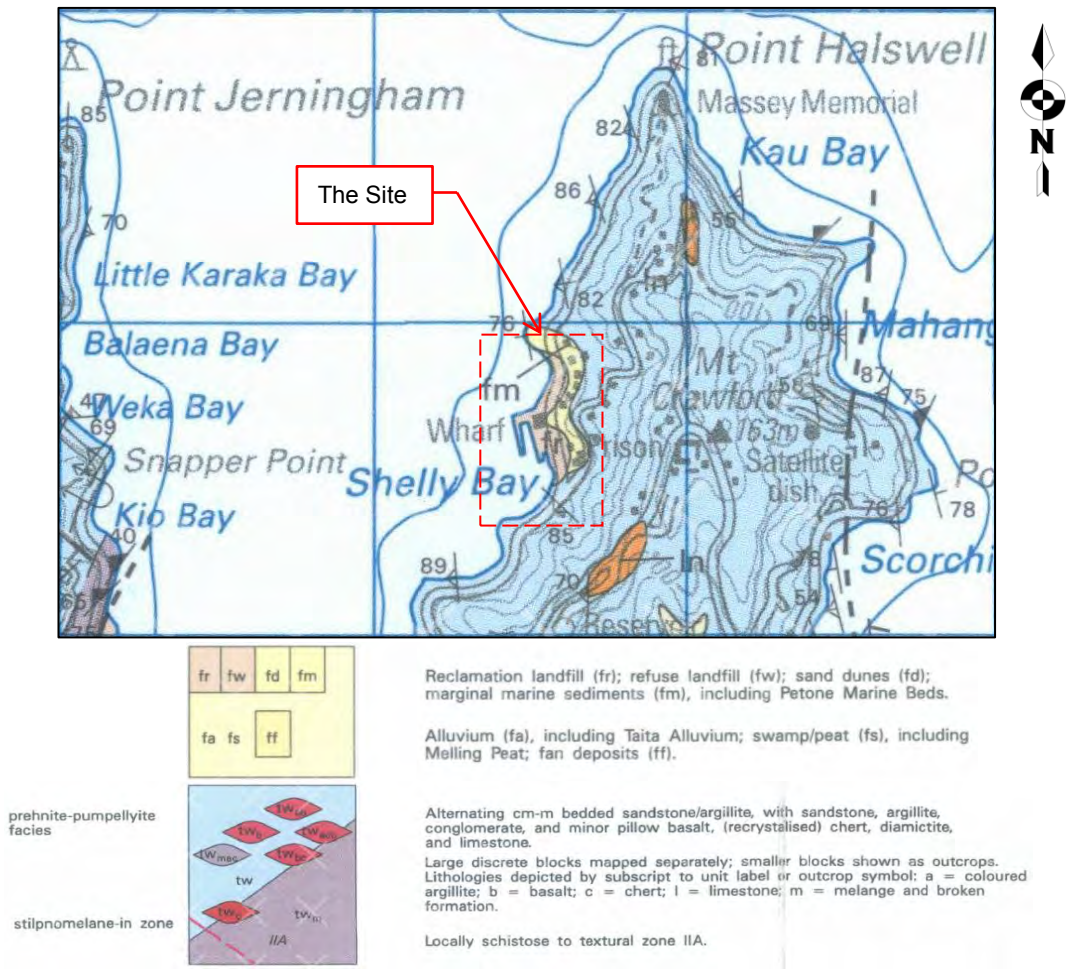


Figure 2 Geological Map of Shelly Bay, Mount Crawford & Surrounding Area (Ref. 2)

3.0 Geotechnical Investigations

3.1 Desk Study

A desk study was conducted in tandem with the field works, and included appraisal of the following sources of information;

- A review of the geological maps and memoirs available for the Miramar Peninsula and greater Wellington region;
- A search for historical site investigation records within the public domain using the Greater Wellington Regional Council GIS viewer;
- Aerial photography and topographical data available online through Wellington City Council Webmaps;
- Review of historical design and construction drawings for the roadway, seawalls and buildings across the site, including the areas of reclamation, wharf and slipway structures, respectively;
- Retrieval and review of geotechnical investigation data for the Shed 8 area conducted in 2007 and 2015, respectively, and held by Tonkin & Taylor (T&T).

3.2 Site Walkover & Survey

An initial, general walkover was conducted at the site on the 9th December 2015. The primary objective of this walkover was to investigate prospective geotechnical investigation locations and potential access issues, prior to the intrusive geotechnical works being carried out.

A second walkover took place on 18th January 2016, and included more detailed inspection of the slopes around the site, included nine rock outcrops. Detailed mapping of rock discontinuities was also undertaken across three of these features for further analysis, and scoping of requirements for slope remediation.

3.3 Geotechnical Investigations

Intrusive geotechnical investigations were carried out across the site, as summarised below in Table 1.

Table 1 Summary of Geotechnical Investigations

Type	ID	Northing [mN]	Easting [mE]	Depth [mbgl]	Reason for Termination
Borehole	DH01	5426871	1752549	19.68	Rock head proven.
	DH02	5426889	1752628	4.6	Rock head proven.
	DH03	5427090	1752594	10.78	Rock head proven.
	DH04	5427135	1752586	16.63	Rock head proven.
Cone Penetration Test	CPT1	5426848	1752593	6.6	Refusal within colluvium.
Trial Pit	TP4	5427031	1752539	2.2	Rock head proven.
	TP5	5427077	1752605	2.4	Rock head proven.
	TP6	5427114	1752612	1.9	Rock head proven.

The site investigation coordinates are given in terms of the NZTM2000 datum, and have been approximated by taking measurements from landmarks in the vicinity of each investigative location (e.g. a kerb line, manhole cover or other distinctive feature easily distinguishable on the most recent aerial photographs of the site). Site investigation locations are shown upon the SI Location Plan & Geological Map in Appendix A.

Trial pits and cores recovered from the boreholes were logged by an AECOM geotechnical engineer in accordance with the procedures outlined in the NZ Geotechnical Society Guideline, 'Field Description of Soil and

Rock'. The cores were also photographed and placed in core boxes for storage. All cores are stored at Griffiths Drilling NZ Limited's yard in Wellington.

The borehole logs and core photographs are presented in Appendix C. The trial pit logs are presented in Appendix D, and the CPT log in Appendix E.

3.3.1 Access Restrictions

Limited access to the areas surrounding Shed 8 during the site investigation works meant that a number of investigative locations could not be completed. As a consequence, several proposed borehole and trial pit locations, which would have otherwise been completed within this area, were relocated or cancelled over the course of the site works. In some instances, a borehole was carried out in an area where a CPT test had originally been proposed. The prevalence of shallow rock in some areas of the site (such as the northern bay) evidenced during the course of the trial pit excavations also meant that carrying out CPT testing in these areas would add relatively little value to the boreholes already completed by this stage in the investigation.

As a result, only one CPT test was completed, whilst two trial pits (TP1 & TP2) scheduled in the vicinity of Shed 8 were cancelled. A third trial pit (TP3) encountered a disused concrete culvert at around 300mm below ground level, and which had not been detected during the buried service location survey carried out prior to the geotechnical investigations. The ground above the culvert was reinstated and the trial pit subsequently cancelled.

4.0 Geological Model & Preliminary Design Parameters

4.1 Geological Model

A geological model of the site has been developed on the basis of the findings of the desk study, site visits and intrusive investigations outlined in Section 3.0.

In general, ground conditions consist of reclamation fill, often overlying marginal marine sediments on top of colluvial material (completely weathered greywacke rock) and highly to moderately weathered greywacke.

The depth to competent rock varies across each bay. As would be expected, however, the depth to rock head below ground level increases with proximity to the foreshore, and decreases towards the back of each bay and with decreasing proximity from the base of Mount Crawford, where the rock head 'daylights'.

A number of geological sections have been prepared to illustrate the geological model in each bay, and are presented in Appendix A. General ground conditions are summarise in Table 2 below.

Table 2 Geological Summary

Soil Unit & Typical Description		Depth to the Top of Layer [mbgl]	Layer Thickness [m]	SPT 'N' Value [Blows/300mm]		Cone Resistance, q_c [MPa]	
				Range	Average	Range	Average
1a	Silty GRAVEL, some cobbles and minor boulders, sometimes in a sandy or silty matrix. **[Reclamation Fill]**	0.0	1.7 – 3.0	5 - 15	11	2 - 20	8
1b	GRAVEL and COBBLES in a silty matrix. Some gravel and boulders of concrete. Wood fragments, iron pins, brick and ceramic fragments. **[Demolition Fill]**	0.0	0.3 – 1.5	10	10	N/A	
2a	Fine SAND with some shell fragments and minor silt. **[Marginal Marine Deposits]**	0.5 – 3.9	2.5 – 7.5	2 – 24	17	2 – 5	3
2b	With lenses of very soft, highly plastic SILT. **[Marginal Marine Deposits]**	4.7	1.3	< 2		Not encountered	

Soil Unit & Typical Description		Depth to the Top of Layer	Layer Thickness	SPT 'N' Value [Blows/300mm]		Cone Resistance, q_c [MPa]	
3a	Sandy SILT with some gravel **[Colluvium; completely weathered greywacke]**	11.4	5	8 - 14	10	20 - 35	25
3b	Highly weathered, very weak, silty fine SANDSTONE **[Greywacke]**	1.5 – 5.5	6	9 - 50	26	N/A	
3c	Moderately weathered, very weak, silty fine SANDSTONE and sandy SILTSTONE **[Greywacke]**	11.5 - 16.3	N/A	50 +		N/A	

4.2 Groundwater

Groundwater strikes were recorded in a number of trial pits, and groundwater measurements taken in several boreholes, as summarised below in Table 3.

Measurements in DH02 were taken at least 24 hours after drilling had finished, in order to allow the local groundwater table to restabilise following artificial introduction of water into the bore as part of the sonic drilling process.

Table 3 Groundwater Recordings

Location	Depth [mbgl]
TP5	1.8
TP6	1.9
DH02	0.7

Due to the coastal environment, it is anticipated that the groundwater level close to the foreshore will be related to the sea level and tidal variations. Tidal effects will decrease moving inland.

An estimation of the likely groundwater table across the site is included on the geological sections shown in Appendix A. Along the foreshore, a design static groundwater level of 1 - 2m depth may generally be assumed for the preliminary liquefaction assessment. However, it is anticipated that that there will be a general flow of groundwater from the hillside of Mount Crawford and towards the sea, and that this depth may reduce further inland. Groundwater level adopted for design purposes should therefore be selected on a location specific basis where this is relevant.

4.3 Geotechnical Parameters

Geotechnical parameters for the units identified in Table 2 are presented below in Table 4.

Table 4 Geotechnical Parameters, Soil

Soil Unit & Typical Description		Unit Weight [kN/m^3]	Undrained Shear Strength [kPa]	Effective (Drained) Parameters		Unconfined Compressive Strength, q_u [MPa]	Drained Young's Modulus, E' * [MPa]
				Friction Angle [Degrees]	Cohesion [kPa]		
1a	Silty GRAVEL, some cobbles and minor boulders, sometimes in a sandy or silty matrix. **[Reclamation Fill]**	19	-	35	-	-	40

Soil Unit & Typical Description		Unit Weight [kN/m^3]	Undrained Shear Strength [kPa]	Effective (Drained) Parameters		Unconfined Compressive Strength, q_u [MPa]	Drained Young's Modulus, E' * [MPa]
				Friction Angle [Degrees]	Cohesion [kPa]		
1b	GRAVEL and COBBLES in a silty matrix. Some gravel and boulders of concrete. Wood fragments, iron pins, brick and ceramic fragments. **[Demolition Fill]**	19	-	35	-	-	40
2a	Fine SAND with some shell fragments and minor silt. **[Marginal Marine Deposits]**	17	-	30	-	-	30 – 50
2b	With lenses of very soft, highly plastic SILT. **[Marginal Marine Deposits]**	16	10	-	-	-	2 – 12
3a	Sandy SILT with some gravel **[Colluvium; completely weathered greywacke]**	18	-	32	2	-	30 – 50
3b	Highly weathered, very weak, silty fine SANDSTONE **[Greywacke]**	19	-	35	20	-	150
3c	Moderately weathered, very weak, silty fine SANDSTONE and sandy SILTSTONE **[Greywacke]**	20	-	-	-	2	250 – 400
** Values of Young's Modulus provided are appropriate for 0.1% axial strain*							

4.4 Site Classification & Seismic Hazard Spectra

The site is divisible into two subsoil classes, owing to the varying depth to greywacke bedrock across the site.

Close to the shorefront, Subsoil Class C (Shallow Soil) is judged as being appropriate, whilst towards the rear of each bay, and as the depth of competent rock reduces to less than around 2 to 3 metres, Class B (Rock) is suitable. An indicative boundary line separating these two zones is shown in Appendix A, and is based upon the boreholes undertaken by AECOM in December 2015, by T&T in 2007 & 2015, and historical data showing the extent of reclamation fill and rock outcropping in the vicinity of Shed 8. This line is indicative only.

Parameters for the calculation of Peak Ground Acceleration (PGA) for horizontal loading are given in Table 5 below. PGA is then calculated from the following;

$$C(T) = C_h(T)ZRN(T,D) \quad (1)$$

On the basis of the Shelly Bay & Mount Crawford Masterplan (Ref. 1), the site has been classed as Importance Level 2. This is considered appropriate for the majority of structures throughout the site, however where larger structures (such as the 6 storey hotel) are proposed, then an Importance Level of 3 may be warranted and should be adopted if, for example, the cumulative plan area of the structure exceeds 10,000m^2, or if any of the other criteria warranting an Importance Level of 3 as outlined in Ref. 15 are met. The Importance Level for each structure should be re-evaluated as the masterplan evolves, and prior to detailed design once final building forms are known.

Table 5 Seismic Parameters, Horizontal Loading Spectrum, Subsoil Class B & C

Common Parameters	Symbol	SLS	ULS
Annual Probability of Exceedance		1/25	1/500
Return Period Factor	R_s or R_u	0.25	1.00
Structural Importance Level		2	
Design Working Life		50 years	
Hazard Factor	Z	0.40	
Near Fault Factor	N(T,D)	1.00	
Subsoil Class B	**Symbol**	**SLS**	**ULS**
Spectral Shape Factor	C_h(T)	1.00	
Peak Ground Acceleration, Horizontal Loading	PGA	0.10g	0.40g
Subsoil Class C	**Symbol**	**SLS**	**ULS**
Spectral Shape Factor	C_h(T)	1.33	
Peak Ground Acceleration, Horizontal Loading	PGA	0.13g	0.53g

5.0 Geohazard Assessment

5.1 Overview

The following section discusses and quantifies (where appropriate) geohazards identified across the site area during the desk study and field works, respectively.

A geohazard is best defined as a geological state with the potential to cause damage or harm to human life, property and both the natural and built environment.

The following geohazards are anticipated to have some level of impact upon the design of the proposed development at the site, and are discussed in the following subsections;

- Earthquake induced hazards, including:
  - fault rupture,
  - ground shaking amplification,
  - soil liquefaction and lateral spread;
- Tsunami inundation;
- Rock falls.

5.2 Surface Fault Rupture

In sufficiently large or shallow earthquakes, the fault rupture may propagate up to the ground surface. In addition to being strongly shaken, any buildings situated on or near the fault rupture have the potential to suffer substantially more damage or collapse – particularly if the foundations are offset and the building straddles the fault trace. An example of Surface Fault Rupture observed after the 2010 Canterbury Earthquake is shown below in Figure 3.

The Ministry for the Environment (Ref. 5) recommend a minimum avoidance zone of 20 metres either side around surface traces of mapped faults or the likely fault rupture zone, though this should be increased depending upon the complexity of the fault system, or uncertainty regarding the location or extent of the fault trace at the ground surface.

The closest mapped fault is the Seatoun Fault, some 800m to the east of the site. It should also be noted that there is some evidence of relative movement in several of the rock outcrops surveyed around the site (Section 5.7). The potential for a splay or 'offshoot' fault to rupture across the site cannot therefore be ruled out; however, the same could be said for the majority of the Wellington CBD.

Figure 3 Surface Fault Rupture following 2010 Canterbury Earthquake (Ref. 6)

5.3 Ground Shaking Amplification

There are two mechanisms by which the intensity of ground shaking may be amplified, resulting in larger peak accelerations at the ground surface, and larger seismic demands upon buildings in the vicinity.

The first mechanism is amplification of the seismic waves generated by the fault rupture as a consequence of soft and loose soils overlying bedrock. The geotechnical investigations conducted at the site have highlighted the potential for sporadic layers of very soft material; in DH03, for example, a layer of very soft, highly plastic silt (Unit 2b) was encountered. However, this was the only such occurrence of such soft material in any of the boreholes, and the thickness of this unit was relatively thin; only 1.3 metres in total. It is therefore considered unlikely that there will be any substantial amplification of ground shaking as a result of soft deposits across the site.

Topographical features may also act to amplify the intensity of ground shaking. For slope angles of less than about 15 degrees, such effects are minimal; however, where slopes are significantly steeper, peak ground accelerations may be increased by as much as 20 – 40%. This amplification is typically concentrated in the immediate vicinity of the slope crest, and diminishes with increasing distance from it (Ref. 7). Rather than being considered a specific hazard to the development, this is better classed as a design consideration and should be considered during detailed design.

5.4 Tsunami Inundation

A number of the faults in the Greater Wellington region include an offshore component. Should rupturing of the fault take place offshore or within Wellington Harbour, then the location of the site on the coast places the development at risk of inundation from the resulting earthquake-triggered tsunami. Submarine landslides in the Cook Strait may also potentially generate a tsunami.

The most significant fault rupture in the Wellington area in recent history took place in 1855 on the Wairarapa Fault, some 19km to the west of the site. This rupture generated a tsunami with a maximum run-up of 5m in several locations in Wellington City. In Lambton Quay, the tsunami was also up to 2.5m in height, whilst waves continued to sweep around Wellington Harbour and Cook Strait for more than 12 hours following the event (Ref. 8).

GNS have developed tsunami hazard curves for several major cities in New Zealand, including Wellington. For a return period of 500 years (corresponding to that of the design ULS seismic event), the maximum amplitude of the tsunami wave may be between 5 – 7 metres, though it should be noted that this modelling is highly probabilistic and intended to give a general indication as to the severity of such an event.

Nevertheless, in the event of a future fault rupture offshore, and with sufficient energy to generate a tsunami, it is considered highly likely that the resulting wave will completely inundate both of the bays at the site. This is reflected in the evacuation planning and zonation of the area (Ref. 12).

5.5 Seismic Liquefaction

5.5.1 General

Liquefaction occurs when cyclic deformations generated by an earthquake cause an increase in pore water pressure in lower density sands and silts. When the pore water pressure equals in-situ applied pressure, loss in strength occurs (liquefaction) leading to ground deformation and, potentially, loss of bearing capacity. The presence of significant pore water pressure within the soil is essential for liquefaction and generally material above the water table is not susceptible to liquefaction. The susceptibility of a soil is a function of particle size distribution, groundwater level, soil density and loading. Liquefaction is a transient effect and strength is regained to some degree following the event as pore water pressures dissipate.

During earthquake shaking, soil particles may dislodge and reorganise into a denser state, whether above or below the groundwater table, though typically effects are more pronounced below the groundwater table. Densification of discrete layers accumulated over the full depth soil profile, as well as ejection of material, can also result in significant ground surface settlement.

5.5.2 Evaluation

A liquefaction analysis has been carried out using the results from the in-situ geotechnical testing, and the CLiq (Version 1.7.6.34 by Geologismiki, 2006) and LiquefyPro software programs, respectively. To this end, only those investigative locations where potentially liquefiable soils were observed during the fieldworks were considered in the analysis, including DH01, 03 & 04, and CPT1.

Groundwater level was taken at between 0.5m to 2mbgl, depending upon investigative location considered. Peak Ground Acceleration is taken as calculated in Table 5 and for Class C – Shallow Soil.

The following assumptions and options were also selected in conducting the liquefaction assessment based upon the CPT test (and using CLiq);

- Liquefaction Criteria is after the Idriss & Boulanger (I&B 2014) method;
- Settlements are calculated after Zhang et al. (2002 & 2004)
- Fines correction after Robertson & Wride 1998 is adopted; and
- Clay-like material softening behaviour has been applied.

Where liquefaction susceptibility was based upon results of SPT testing (and LiquefyPro), the following assumptions and options were selected;

- Liquefaction settlements are calculated after Ishihara & Yoshimine,
- Fines correction after Idriss & Seed is adopted during liquefaction,

- A hammer energy ratio correction of 1.25 is applied to raw SPT blowcounts, as appropriate for an Automatic Trip Hammer,
- Additional corrections for borehole diameter and sampling method are set to unity.

5.5.3 Results

A summary of the magnitude of liquefaction-induced vertical ground settlement is given in Table 6.

Table 6 Magnitude of Liquefaction – Induced Vertical Settlements

Investigation ID	Design Groundwater Level [m]	Total Ground Settlement (mm)	
		1/25 Year Return Period (SLS)	1/500 Year Return Period (ULS)
CPT1	1	Negligible (< 10)	< 50
DH01	2		180 – 250
DH03	2		< 55
DH04	2		< 65

5.5.4 Discussion

It may be seen from the above results that soil liquefaction in an SLS event is likely to have minimal impact upon the development, with settlements of less than 10mm generally predicted across the site.

The magnitude of settlement predicted in the ULS event at each investigative location is somewhat larger, and generally correlates directly with the extent to which the Marginal Marine Sediments are encountered in each borehole – though the groundwater level in the vicinity also influences the extent of liquefiable materials. The analysis also indicates that, rather than liquefaction presenting as discrete intervals of liquefiable material in this unit, the entire strata has the potential to liquefy.

As a result, liquefaction induced settlements are seen to peak at DH01 and where Unit 2a was around 7 – 8m in thickness; conversely, at DH03 and DH04, where this unit was less than 2 metres in thickness, settlements are notably less.

5.6 Lateral Spread

5.6.1 General

Lateral spreading of ground can occur in liquefied soil where there is a slope or a 'free face' (e.g., shoreline) towards which the ground may displace. Lateral spread of the ground occurs under static loading condition (post-earthquake) when the gravitational driving force of the ground due to the slope or free face gradient exceeds the shearing resistance of the liquefied soil. Lateral displacements are greatest towards the free face and diminish with distance back from the free face. Lateral displacements can be highly destructive for infrastructure, with effects of lateral spread potentially extending hundreds of metres back from the free face.

Instability of a quayside wall bounding reclaimed land alongside Wellington Centerport was observed following the 21st July 2013, M6.5 Seddon Earthquake. The existing coastal protection, and part of the reclaimed area, was lost to sea, as shown in Figure 4. In this instance, effects of lateral spread were observed up to approximately 150 metres back from the face of the quayside wall (Ref. 9).

Figure 4 Effects of Liquefaction and Lateral Spreading upon Quayside Wall, Wellington, 2013 (Ref. 9).

Lateral spreading at the site has been assessed at the location of DH01 and CPT1 using empirical methods (including the CLiq software, and Ref. 13). The following inputs and assumptions have also been considered to give a preliminary assessment of lateral spreading risk at the site;

- A free face height of 2.5m. This has been assessed from topographical data of the area, as well as historical construction drawings of the seawalls and bathymetry data available in the vicinity;
- Distance from the free face varies from 5m (DH01) to 30m (CPT1);
- Distance to source earthquake of 4km, assuming that rupturing takes place upon the Wellington Fault.

5.6.2 Results

Results of the lateral spread analysis are shown below in Table 7.

Table 7 Empirical Estimation of Lateral Spread

Location	Distance from shoreline [m]				
	5m	10m	20m	30m	40m
	Estimated Lateral Spread [m]				
DH01	1.5	1.0	0.7	0.5	0.4
CPT1	-	-	0.9	0.7	0.5

The analysis indicates that ULS lateral spread may be in the region of 700mm to over 1.5 metres, depending upon proximity to the free face. This estimation is based upon empirical methods only, and should be taken as an indication that significant lateral spread is likely to occur, rather than a precise calculation of the exact magnitude.

More detailed geometric information, as well as offshore geotechnical investigation, is required to determine the bathymetry and gradient of the seabed, as well as the thickness and extent of the liquefiable material offshore. This should be acquired and this risk more thoroughly addressed and quantified during detailed design.

Owing to the generally negligible liquefaction settlements predicted during the SLS level event, negligible lateral spread is inferred during the SLS.

5.7 Slope Stability

5.7.1 Site Survey

A site walkover was conducted on 18th January 2016 to supplement geological and geotechnical data procured from the geotechnical investigations, as well as to investigate significant rock features and slopes in the area surrounding the site for potential signs of instability.

In total, 9 distinct slopes were inspected, as shown below in Figure 5; an interpretive geological map of the site is also included in Appendix A.

3 sites in total (Slopes 1, 5 & 7) were also subject to detailed discontinuity mapping, either as a result of visibly unfavourable discontinuities 'daylighting' across the outcrop, visual evidence of large or recent debris falls, and where access to the feature on foot was possible. A detailed site walkover and observations matrix has been compiled for each slope and is included in Appendix B. General observations from the inspection are discussed and analysed in the following sections.

Figure 5 Location of Slope Inspections at Shelly Bay

5.7.2 Summary of Observations

5.7.2.1 Geology

The rock outcrops slopes surrounding the site area comprise interbedded sequences of greywacke rock, consisting of highly to moderately weathered fine sandstone and fine sandy siltstone. In many locations, the crest of the slope was also covered in a thin cover of topsoil and completely weathered greywacke (colluvium) material, and which was frequently covered by dense scrub/bush and pine trees with visibly extensive root systems.

5.7.2.2 Modes of Failure

In general, many of the rock slopes inspected displayed unfavourable discontinuities which are anticipated to result in the future development of wedge and planar type failures, with toppling type failures also possible, but less common. Such failures are likely to be triggered by normal weathering processes, and are also likely exacerbated in several areas by the presence of large root systems which penetrate into the more competent rock from the colluvium overburden, and dislodge intact blocks through 'root jacking'. The presence of such root

systems will also create enhanced pathways for rainwater to penetrate into the slope during periods of prolonged or heavy rainfall. Seismic activity will also, of course, also increase the frequency with which such failures occur.

At the majority of slopes, debris volumes were substantially less than 0.5m^3, with only a few discrete blocks of very weak to moderately strong greywacke up to 400mm across present in the resulting slides, and only at some sites. However, at slope 5, a much larger, albeit older debris flow, potentially up to 10m^3 in volume was observed, with intact boulders of moderately strong to strong greywacke rock up to 900mm across present in the debris pile. This is shown below in Figure 6(a).

Limited shallow translational failures in the superficial cover of soil overlying the greywacke rock were observed during the walkover and survey. However, the dense cover of vegetation and generally difficult access to the higher areas of Mount Crawford means that the possibility of such slope failures elsewhere cannot be discounted. It is likely that the dense vegetation covering much of the hillside has acted in part to stabilise this shallow surface layer, however such failures are very common in slopes of similar geology and topography in the Greater Wellington region, and are often triggered by periods of intense rainfall or seismic activity. Consideration should be given to the potential for such failures during detailed design, if significant removal of vegetation from slopes is required. One such failure, at Slope 8, is illustrated below in Figure 6(b).

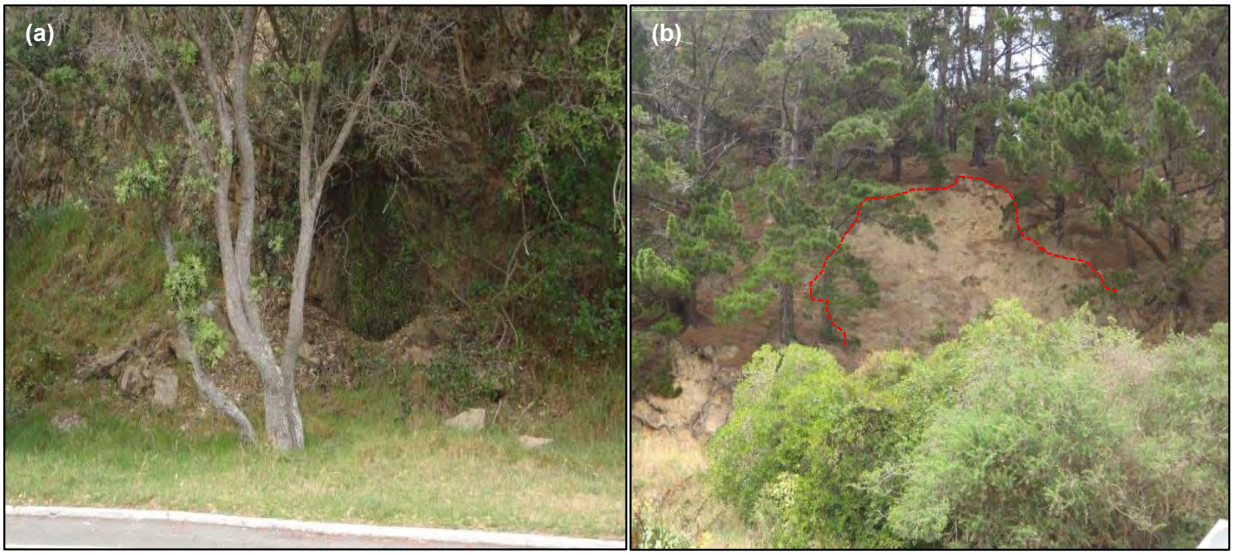


Figure 6 (a) Rock fall debris at toe of Slope 5; (b) Extent of shallow surface failure above greywacke outcrop at Slope 8

5.7.3 DIPS Analysis

The software DIPs was used to investigate which failure modes are kinematically admissible in each rock slope. DIPS graphically represents the surveyed rock discontinuities in a stereographic projection to allow identification of potential failure modes.

Typical DIPS analysis outputs are shown below to illustrate the failure mechanisms associated with each kinematic analysis. A DIPs analysis was carried out using rock discontinuity data taken from the 3 slopes surveyed during the site walkover, to investigate which failure modes within the rock mass are kinematically admissible, and confirm site observations.

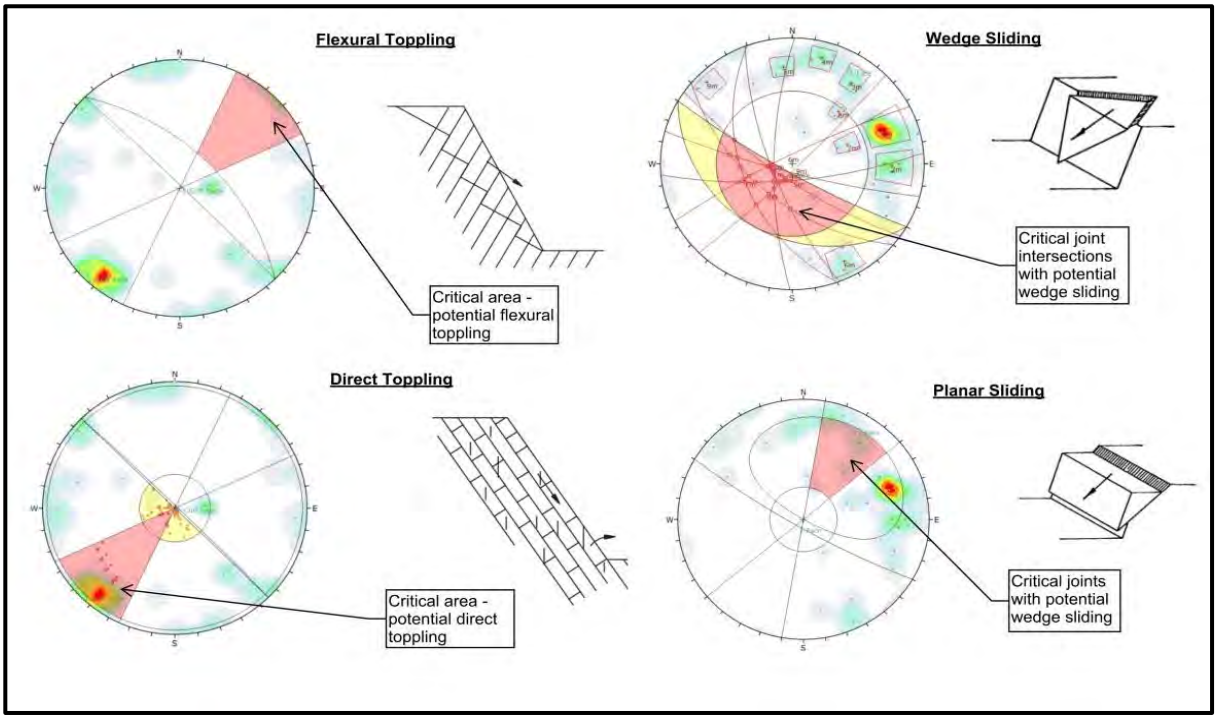


Figure 7 Illustration of a DIPS Kinematic Analysis

Toppling describes the possibility of individual rock blocks or slabs to topple over and in most cases result in rock falls or ravelling.

Planar Sliding and Wedge Sliding describe the possibility of rock blocks or slabs to slide along one or multiple (intersecting) planes. In order to evaluate the possibility of these failure modes friction components and geometric constraints are considered in the DIPS analysis.

While DIPS shows the kinematically possible failure mechanisms, it does not give an indication of the factor of safety against failure or the scale of failures.

Results from the DIPS analysis for the 3 slopes surveyed during the site walkover are shown in Table 8. Detailed output is included in Appendix F.

Table 8 DIPS Analysis – Results: Slope 1, 5 & 7

Kinematic Failure Mode	Percentage Critical Planes or Intersections (%)			
	Slope 1	Slope 5 Face 1	Slope 5 Face 2	Slope 7
Planar Sliding	24%	37%	24%	25%
Wedge Sliding	22%	59%	40%	36%
Flexural Toppling	0%	10%	5%	25%
Direct Toppling	24%	37%	29%	31%

5.7.4 Discussion

The result of the kinematic analyses is that unfavourable discontinuity orientations exist at all sites to varying degrees. It should be noted that critical intersections for toppling and wedge failure modes are based on intersections of all mapped discontinuities at the slope sections. The analyses assume indefinite persistence and therefore wedge sliding potential is likely to be overestimated.

With respect to the conditions observed on site, and in particular the frequency with which recent and older failures were observed, their relative sizes and total volumes of debris, this is likely indicative that small failures up to 0.125m^3 in volume will continue indefinitely as a consequence of the mechanisms described in Section 5.7.2.2; that is, weathering, root jacking, periods of prolonged rainfall and periodic seismic activity. Larger falls, possibly up

to 3m^3 cannot be discounted, but are perhaps possible at only at a few slopes (such as Slope 5) and are generally considered to be rarer occurrences, more likely to be triggered by adverse conditions such as seismic activity.

Regrading of the slopes for construction purposes should carefully consider and design slopes accordingly so as not to create a face geometry which is more likely to result in more substantial rock falls from each face.

6.0 Geotechnical Risk Register & Development Hazard Map

A qualitative risk assessment has been carried out considering the results and interpretation of the geotechnical field works and analysis presented in Section 5.0. The likelihood of each geohazard and the potential impact upon the end users of the development have been considered in order to evaluate the risk associated with each.

Table 9 and Table 10 below show the matrix used to generally assess risk level, and the risk assessment outcomes respectively. The risk assessment methodology is included in Appendix G.

Table 9 Risk Level Matrix (Based upon Ref. 10)

		Impact					
		Catastrophic	Disastrous	Major	Medium	Low	Minor
Likelihood	Almost Certain	Very High	Very High	Very High	High	High	Moderate
	Very Likely	Very High	Very High	High	High	Moderate	Low
	Likely	Very High	High	High	Moderate	Low	Low
	Possible	Very High	High	Moderate	Low	Very Low-Low	Very Low
	Unlikely	High	Moderate	Low	Very Low	Very Low	Very Low
	Rare	Moderate	Low	Very Low	Very Low	Very Low	Very Low

Table 10 Risk Assessment

ID	Geohazard	Potential Effects	Likelihood	Severity	Risk
1	Surface Fault Rupture	– Large vertical and lateral displacements at ground surface – Substantial damage to foundations, buildings and infrastructure within immediate vicinity of surface fault trace	Rare	Catastrophic	Moderate
2	Tsunami Inundation	– Devastating inundation of low lying land – Flooding of basements, scouring and undermining of buildings, – Exposure and damage of underground services – Bodily movement of lighter structures and property (e.g. vehicles)	Rare	Catastrophic	Moderate
3	Liquefaction	– Differential settlement (sinking or tilting) of structures on liquefiable material, – Damage to underground services, – Deformation of surface infrastructure (i.e. roadways)	Possible	Major	Moderate
4	Lateral Spread	– Lateral movement of soil masses towards shoreline, – Differential settlement (sinking or tilting) of structures, – Spreading of foundations, – Substantial damage to and/or collapse of aging coastal infrastructure (e.g. seawalls)	Possible	Major	Moderate

ID	Geohazard	Potential Effects	Likelihood	Severity	Risk
5	Slope Instability	**Small Rock/Debris Falls** Up to 0.125m^3 Rocks piling up behind or entering property boundary Potential for minor damage or moderate injury to property and end users	Very Likely	Low	Moderate
		Large Rock Falls Up to 10m^3 More likely to result in significant damage and injury to property and end users	Possible	Major	Moderate

A Development Hazard & Recommendations Map overlay has been created using extracts of the Shelly Bay Masterplan Document (Ref. 1), which zones the above hazards, indicating which areas of the site are susceptible to each. This Map is included in Appendix A.

Overall, the risk level is considered normal for a large development site in Wellington.

Recommendations for design, and in order to address and mitigate the risk posed by each of the above hazards are indicated upon the Development Hazard Map, and discussed in greater detail in the following Section.

7.0 Design Recommendations

7.1 Onshore Building Foundations

For those areas marked in green on the Development Hazard Map in Appendix A, static settlements and liquefaction susceptibility are anticipated to be low, and competent greywacke bedrock is likely to be located at shallow depths (up to 2 – 3 metres) below existing ground level. Building foundations are therefore likely to consist of predominantly shallow pad and strip foundations; however, where larger building footprints are proposed, localised short piles may also be required to control differential settlement, owing to the nature of the rock head profile which tends to dip downwards across each bay from the base of Mount Crawford towards the shoreline.

Those areas marked in red are considered susceptible to seismic liquefaction and lateral spread; shallow pad and strip foundations are therefore unlikely to control or prevent damage, even for relatively light structures (i.e. timber framed buildings of 2 storeys or less), such as the 2 bedroom apartment buildings proposed along the shoreline in the northernmost bay. However, the relatively shallow depths to competent bedrock and non-liquefiable material in the northernmost bay (around 6 – 7 metres) are likely to mean that piles are again a viable option economically. However, additional piles or ground improvement will be required to resist the effects of lateral spread for structures placed close to the foreshore, and this is likely to add extra cost to the foundations of each building.

Competent bedrock was found to be deeper below ground level in the southernmost bay. Larger structures, such as the 6 storey hotel, should also be founded upon piles which penetrate to bedrock. Such piles are likely to be at least 10 – 12m long, or possibly longer, depending upon structural requirements and the exact depth to competent greywacke rock within the building footprint. Caution should be exercised for those structures which straddle the headland between the two bays and extend into the southern bay, as these buildings are likely to be founded partially upon shallow bedrock as well as liquefiable material. This is indicated by the yellow shaded area upon the Site Hazard Map.

7.2 Marine Infrastructure

7.2.1 Marina and Ferry Wharf

On the basis of the Masterplan (Ref. 1), it is proposed that the existing wharf in its entirety be redeveloped into a ferry wharf and small craft marina.

A (structural) engineering assessment was carried out upon the existing structure in November 2010 (Ref. 11). This included a visual inspection of the supporting piles from the surface to seabed by a team of divers, who rated each pile on a scale from 1 (good) to 5 (no integrity). The scale employed is as shown below in Table 11.

Table 11 Wharf Pile Grading System (Ref. 11)

Grade	Description	Piles per Grade
1	**Good** Pile capable of taking significant portion of design load, estimate 80 – 95% of design load	62
2	**Minimal necking** Pile capable of taking minor portion of design loads. Estimate 60 – 85% of design load.	
3	**Under half worn** Pile capable of taking minor portion of design loads. Estimate 40 – 60% of design load. Caution required.	132
4	**More than half worn** Pile must be treated with considerable caution and thoroughly inspected before loading.	63
5	**Broken/missing/no integrity** Pile is of no structural value.	41
	Total:	298

Out of a total 298 piles inspected, almost 80% were rated at grade 3 or below; this implies that some 45% of the piles are incapable of carrying 40-60% of their design load, with a further 35% of the total piles inspected are incapable of carrying less than 40% of their design load. In lieu of a further detailed assessment, consideration of actual design loadings upon the wharf and potential proof-load testing of several piles, it is unlikely that the wharf as-is is suitable for reuse, without some form of remedial works or intervention.

One solution for rejuvenation of the wharf may be to construct a reinforced concrete or steel sheet pile cofferdam around the perimeter of the existing structure, which is subsequently backfilled with reclamation fill. This may allow for only limited demolition/removal of the existing structure to be carried out, rather than complete removal, prior to construction of the new facility.

A second alternative would then be to partially or completely remove and replace the existing structure with a similar structure comprising reinforced concrete piles and deck, respectively. This may involve replacement of individual piles with new timber or concrete sections, or retrofitting of existing piles. Other structural elements, such as the deck, may also require replacement, though this will be the subject of a later report by the structural/civil discipline. A specialist wharf and marine structures designer is required and should be engaged for further assessment, and any design will need to be carried out in cooperation between the marine engineer, structural engineer and geotechnical engineer.

Due to the long wave run distance from the northwest of the site, the wave height is likely to exceed levels appropriate for small craft to moor. If a piled wharf structure similar to the current arrangement is preferred, then skirting is likely to be required as a minimum to reduce the wave heights within the marina. This will significantly increase the lateral load demand upon the structure, but can be accommodated during the detailed design. In this respect, a beneficial combination may be the construction of a cofferdam type structure towards the proposed ferry dock, which would double as protection for the marina behind. The Wharf alongside Shed 8 may also benefit from a change from piled pier to sheet pile seawall, including additional reclamation fill.

It is considered likely that redevelopment of the wharf structure will require additional geotechnical investigation, some of which may need to be carried out over water. Requirements for additional geotechnical investigation are discussed in Section 8.0.

7.2.2 Sea walls

There are several different configurations of seawall and coastal protection around the site. Whilst some of these appear to be in good condition, others are in various states of disrepair or have undergone collapse, as shown below in Figure 8. In general, many of the walls were judged as being at the end of their useful life, with 30% requiring repair or retrofit, and 20% requiring complete replacement. Several sections of sea wall, particularly around the Shed 8 area, could not be accessed or inspected visually.

Review of construction drawings of several seawalls in the southern bay show only thin concrete covers with a greywacke boulder facing; backfill to the wall is likely demolition or reclamation fill. Whilst some of these structures are founded directly onto bedrock, others appear to have been built directly onto the ‘beach’. This implies that the sea walls are founded directly upon unit 2a, which was been identified as being susceptible to liquefaction in

Section 5.5. As a result, such structures will offer limited resilience to the effects of lateral spread and are likely to be severely damaged in a ULS level event.

It is uneconomical to design new or retrofit existing seawalls to resist lateral spread, as the extent of movement is too significant to be retained by such a relatively small structure. Instead, building foundation design should take into account the likely magnitude of lateral spread, and ground improvement around foundations of buildings at significant risk (i.e. those close to the shoreline) should be adopted or additional piles provided, as suggested in Section 7.1. This could be combined with the seawall retrofit or redesign for certain structures.

The seawall design should also consider sea level rise associated with climate change; based upon estimations by Tonkin & Taylor (Ref. 14), a 0.5m rise over the course of 50 years is suggested as a preliminary estimation. The seawalls should therefore be designed for overtopping as a result of sea level rise and the associated effects of climate change (e.g. increase in frequency of heavy swells); this may be acceptable in some areas of the site where structures are positioned some distance from the seawalls and unlikely to be influenced. In other areas, however, a staged or simply a higher seawall may be required to mitigate the risk.

Stone revetment and rock armour type designs are likely to be given priority for seawall design at the site as these are relatively economical designs, and match current seawall appearances around the bays. Seawall design will also vary depending upon the marina design, as the configuration of the seawalls may also influence wave heights in some areas of the site.

Figure 8 General impression of existing seawalls around the site: (a) Location Plan; (b) Concrete/greywacke boulder facing founded directly onto bedrock; (c) damage to existing seawall in southern bay; (d) collapse of seawall in vicinity of Shed 8.

7.2.3 Beach Expansion

The expansion of the existing beach to the south of the site should consider the potential for the material placed to be subsequently removed as a result of erosional processes in the adjacent bay. A specialist marine engineering assessment is likely to be required to design the beach expansion, and should include an assessment of the ocean currents and migration rates, options for migration mitigation, beach sand grading and consideration of the preferred beach layout.

Depending upon the mechanisms and rates of erosion, wooden groynes could be placed along the beach, or a breakwater or similar structure could be placed along the western flank of the bay, to improve retention of placed material.

7.3 Slope Stability

Based upon the detailed survey and rock discontinuity survey, it is considered advisable to carry out some form of remedial works across each of the prominent rock slopes surveyed and discussed in Section 5.7. The rough order extent of the remedial works has been estimated as 60% of the current rock slopes across the site area, and is shown indicatively on the Development Hazard Map in Appendix A

The precise extent of such works will require confirmation during detailed design, and should consider the requirements for removal of vegetation across each slope, as well as the geometry to which each slope requires to be regraded. Optimisation of the rock slope geometry using further DIPS analyses will minimise the amount of failures likely to originate from a given slope, if further cuts are required for structures around the site.

Where rock slope failures continue to be predicted with respect to the proposed geometry of each slope, the most economical form of remediation is likely to be high strength netting secured to the slope with a grid of rock bolts at approximately 2m centres; additional discrete bolts may also be deployed. Similar remedial works have been employed in the greywacke bedrock present across the greater Wellington region with apparent success; an image of a rock bolt netting on Birdwood Street, Karori, is shown below in Figure 9.

Figure 9 Rock netting designed by AECOM and installed on Birdwood Street, Wellington, 2013.

Where good separation is maintained between the rock slopes and structures, a rock ditch or catch fence could be provided as an alternative to netting to arrest and debris becoming dislodged from the slope face. Existing debris patterns, such as that shown at Slope 5 in Figure 6(a), could be used as a guide for sizing rock ditch width in this instance.

In either case, where substantial vegetation is required to be removed from the slopes as part of the development, scaling works should also be carried out to remove the remaining superficial layer of completely weathered greywacke and topsoil from the slope surface, as this material will be prone to shallow translational failures if it is allowed to become saturated during periods of prolonged rainfall, or as a result of seismic activity. The exposed greywacke surface may then require netting as shown in Figure 9. Localised shotcrete and concrete buttresses may also be required to maintain rock slope stability.

7.4 Site Infrastructure

7.4.1 Roads & Paving

The existing reclamation fill across the site is likely to provide a suitable subgrade for the construction or rerouting of roads and paving proposed. This is evidenced by the apparently good condition of the existing roads and car parks across the site, though traffic levels through the area are likely to increase with the commissioning of the development.

Consideration should be given to rerouting the stream, which currently drains from the gully in the southeast of the site (shown on the geological interpretive map in Appendix A), into a culvert below the existing road level. The existing drain beneath the structure in this location is in a state of considerable disrepair, and the constant flow of surface water across the road has caused substantial localised damage to the pavement, as per Figure 10 below.

Figure 10 Road damage due to surface water from gully runoff

7.4.2 Service Corridors

Connections of structures to external services (e.g. water, sewerage and power) should be made using flexible connections in order to avoid damage as a consequence of liquefaction induced differential settlement between the structures and surrounding ground, and to generally increase resilience of the development to a seismic event.

Service conduits should also not enter buildings via concrete slab foundations or pile cap, and the connection should instead be made through the external walls of each building. This will ensure that the service conduits are readily accessed and repairable, should they rupture as a result of a seismic event, or otherwise.

8.0 Additional Geotechnical Investigations

8.1 Investigation Requirements

It is considered advisable to carry out an additional phase of site investigation prior to detailed design, and once the layout of the development and nature of each structure has been finalised. Recommendations are summarised in Table 12 and discussed below.

Table 12 Recommendations for Additional Geotechnical Investigation

Development	Site Location	Hazard Map Zone	Recommended Investigations
3 bedroom townhouse	South Bay	Yellow	1 borehole, aligned with centre of gully feature
Retail, Café, Fish & Chips/Micro Brewery	South Bay	Red	Max. 2 CPTs within general footprint of building cluster
120 Bed Hotel – 6 Levels, Restaurant	South Bay/Headland	Yellow	1 borehole; 2 CPT tests around southern perimeter/footprint.
2 Bedroom apartments with 1 bed units underneath – 2 levels	North Bay	Red	2 CPTs either side of DH04 location.
Wharf, marina, (& potential breakwater site)	Headland, South Bay	N/A	2 – 3 boreholes and 4 CPT tests, concentrated around southern end of promenade and marina.

Where structures are proposed that may straddle two adjacent zones identified upon the Development Hazard and Recommendations Map, it would also be of considerable value to perform one borehole in the centre of the structure, and one or more CPTs around the perimeter of the building. This will allow determination of the likely dip of the rock head, as well as determination of the extent of any liquefiable material across the building footprint. This is of particular importance for the 6 storey hotel and restaurant, respectively, which are likely to straddle zones of shallow bedrock and liquefiable material. In this instance, the borehole is recommended so that targeted undisturbed samples of the bedrock can be retrieved for strength testing (e.g. UCS tests). Classification testing in the liquefiable material (e.g. particle size distribution tests) would also be of benefit.

The other structures proposed in the red and potentially liquefiable zones are generally likely to be only one or two storeys high. Targeted CPT testing around the building cluster is therefore likely to suffice for establishing depth to bedrock and extent of liquefiable material within the footprint of each structure.

For marine structures, a phase of offshore investigation should also be carried out. This should consist of predominantly CPT testing, as the potential for reclamation or demolition fill which might otherwise inhibit progression of the CPT below ground level is low, and liquefiable marine sediments are likely to be present directly at the seabed and overlying greywacke bedrock. These CPTs will also allow extent of liquefiable strata offshore to be more precisely determined for the purposes of lateral spread analyses in the northern and southern bays, respectively, and 2 – 3 boreholes would also be of benefit as part of this phase of investigation.

In performing CPT testing, it is recommended that equipment with a large self/dead-weight be adopted to perform the tests. The reclamation fill present across much of the site comprises coarse gravel and cobbles, which may inhibit penetration of the cone if pushed by a smaller machine relying upon screw augers to generate thrust/resistance to early cone refusal.

8.2 Post-Investigation Processes and Multi-Disciplinary Involvement

Following completion and interpretation of the additional geotechnical investigations, the following processes & disciplines will need to be engaged to advance the detailed design of the development;

- Geotechnical foundation design should be carried out in cooperation with a structural engineer responsible for the overall building design,
- A marine engineer should be engaged for the wharf and beach design, respectively, and detailed geotechnical design will also be required for the wharf piles and cofferdam elements,
- A detailed geotechnical assessment and design will be required for the existing seawalls and rock slopes,
- Infrastructure assessment and design, including construction and modernisation of new and existing gas, electricity, and communication networks will be required across the site,
- Building services assessment and design, including air conditioning, piping, etc. for each structure will be required,
- Civil engineering services will also be required for road and stream realignment design.

9.0 References

ID	Citation
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6	Otago University, Department of Geology, http://www.otago.ac.nz/geology/news/archive/2010/darfield-EQ-9-2010.html. Accessed January 2016.
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8	Power, W. (2013). Review of Tsunami Hazard in New Zealand (2013 Update). GNS Science Consultancy Report 2013/131, August 2013.
9	Hancox, G. T., Archibald, G. C., Cousins, W.J., Perrin, N.D., Misra, S. (2013). Reconnaissance report on liquefaction effects and landslides caused by the M_L 6.5 Cook Strait earthquake of 21st July 2013, New Zealand. GNS Science 2013/42, December 2013.
10	Australian Geomechanics Society (AGS) (2000). Landslide risk management concepts and guidelines. Australian geomechanics society sub-committee on landslide risk management, March 2000.
11	OCEL Consultants NZ Limited (2010). Shelly Bay Wharf, Wellington Harbour, Review of Structural Status. November 2010.
12	Wellington City Council (WCC) (2015). Wellington City Council Webmaps, http://wellington.govt.nz/webmap/wccmap.html (Accessed January 2015).
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14	Tonkin & Taylor (T&T) (2013). Sea Level Rise Options Analysis, Report prepared for Wellington City Council, June 2013. T&T Ref. 61579.002.R6.
15	Standards New Zealand (2005). Structural design actions, Part 0: General Principles – New Zealand. NZS1170.0:2002. Standards New Zealand, Wellington.

10.0 Limitations

Recommendations and opinions contained in this report are based upon limited site investigations and observations. Inferences of ground conditions over the site are made on the basis of investigation results using geological principles and engineering judgement. However, it is possible that ground conditions over the site may vary and therefore it is not possible to guarantee the continuity of the ground conditions away from test locations.

Information in this report is not sufficient for detailed design. Further investigations, potentially including collection of bathymetry metocean data for offshore structural design are required. Where details of the proposed development change from that shown and assumed in this report, certain elements and recommendations may require reassessment.

This report has been prepared for the particular project described in the brief to us, and no responsibility accepted for the use of any part of this report in any other context or for any other purpose.

Appendix A

Site Location Plans, Maps & Drawings

1) Regional Site Location Plan

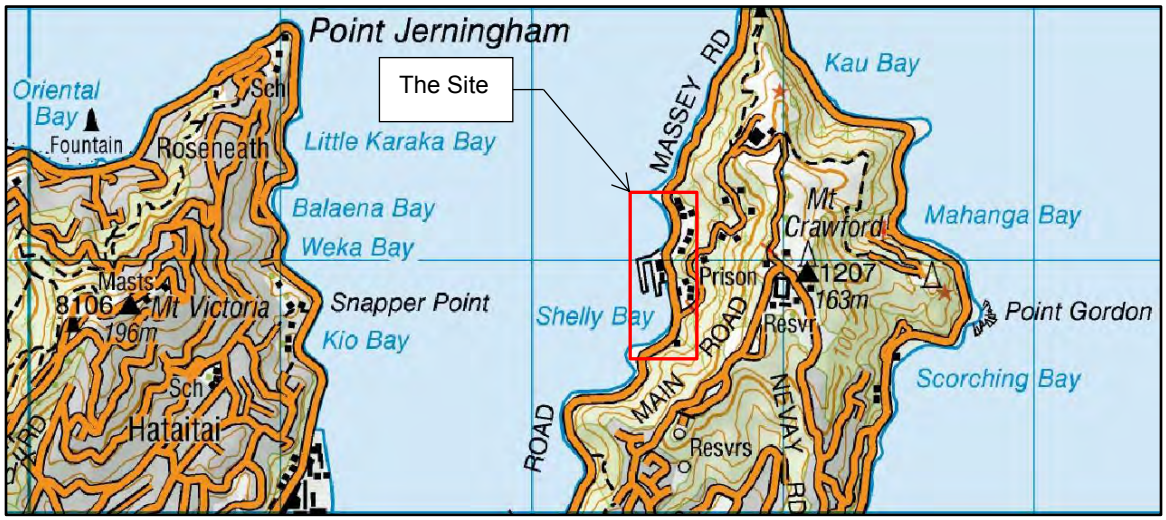
2) Extract from Shelly Bay & Mount Crawford Masterplan

3) SI Location Plan & Interpretive Geological Map

4) Geological Cross Sections

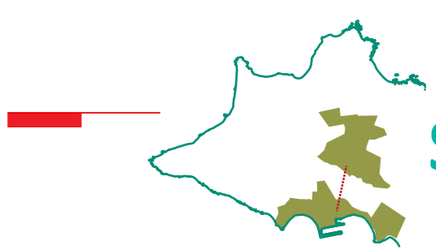
5) Development Hazard & Recommendations Map

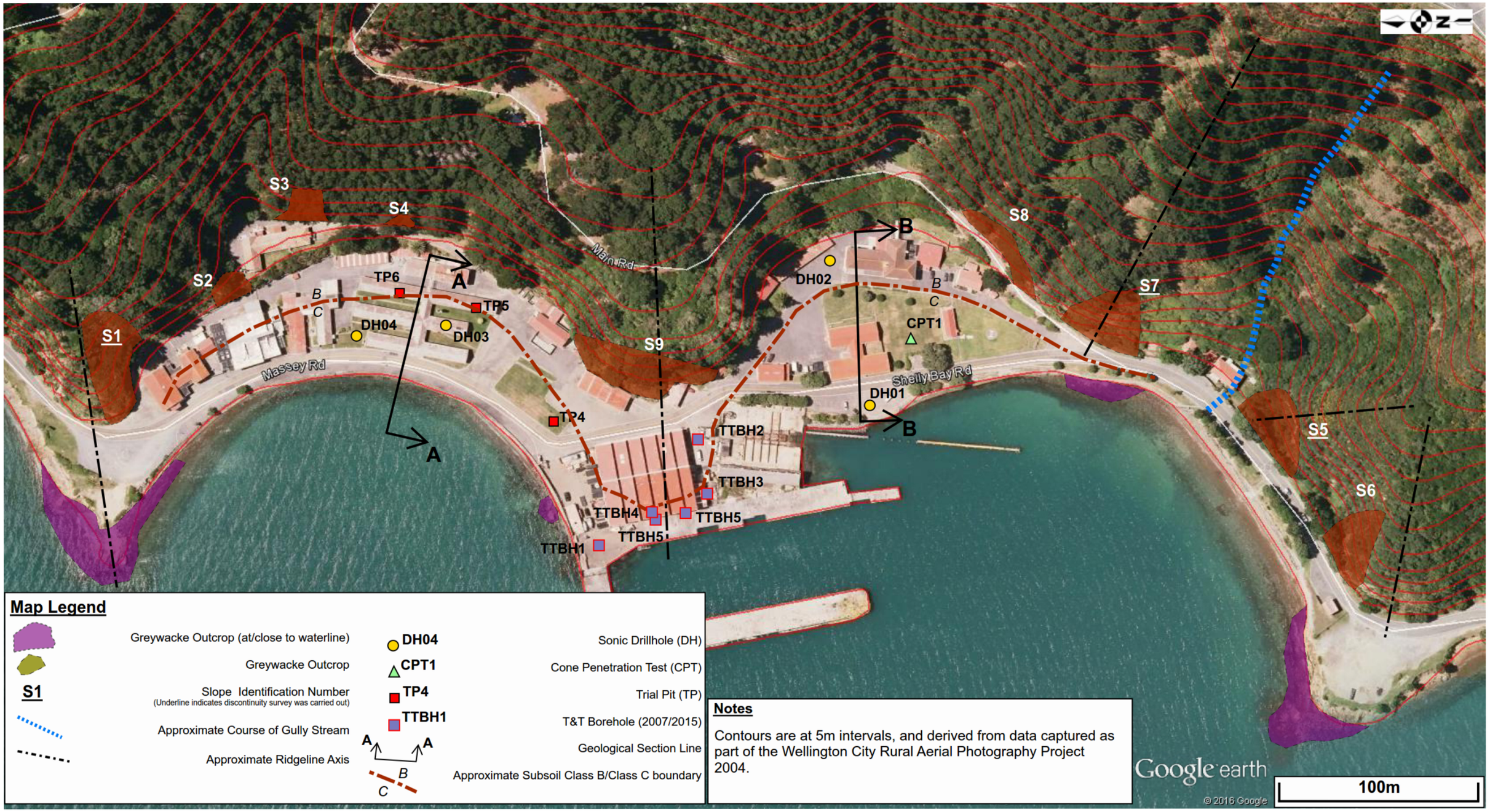
Appendix A Site Location Plans & Drawings



1. Bedroom Townhouses with 1 bedroom units under – 3 Levels
2. 3 Bedroom Townhouses – 2 Levels
3. 2 Bedroom Apartments with 1 bed units under – 2 Levels
4. 2 and 3 Bedroom Apartment Building – 7 Levels
5. 2 and 3 Bedroom Apartment Building – 6 Levels
6. Courtyard / Plaza with Carparking below
7. Retail
8. Ferry Terminal
9. Ferry Wharf
10. Marina- 46 Berth
11. Hotel Conference Rooms / Back of House

12. 120 Bed Hotel – 6 Levels
13. Restaurant
14. Cafe
15. Fish and Chips / Micro Brewery
16. Artists Quarter – Mixed Retail and Artists
17. Cable Car Terminal
18. Plaza with Retail under
19. Boutique Hotel
20. 3 Bedroom Townhouses- 3 Levels
21. 4 Bedroom Houses-3/4 Levels
22. 4 Bedroom Houses – 3 Levels
23. Gateway Pavilion





Map Legend

- Greywacke Outcrop (at/close to waterline)
- Greywacke Outcrop
- S1 — Slope Identification Number (Underline indicates discontinuity survey was carried out)
- Approximate Course of Gully Stream
- Approximate Ridgeline Axis
- DH04 — Sonic Drillhole (DH)
- CPT1 — Cone Penetration Test (CPT)
- TP4 — Trial Pit (TP)
- TTBH1 — T&T Borehole (2007/2015)
- A A — Geological Section Line
- B C — Approximate Subsoil Class B/Class C boundary

Notes

Contours are at 5m intervals, and derived from data captured as part of the Wellington City Rural Aerial Photography Project 2004.

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SHELLY BAY

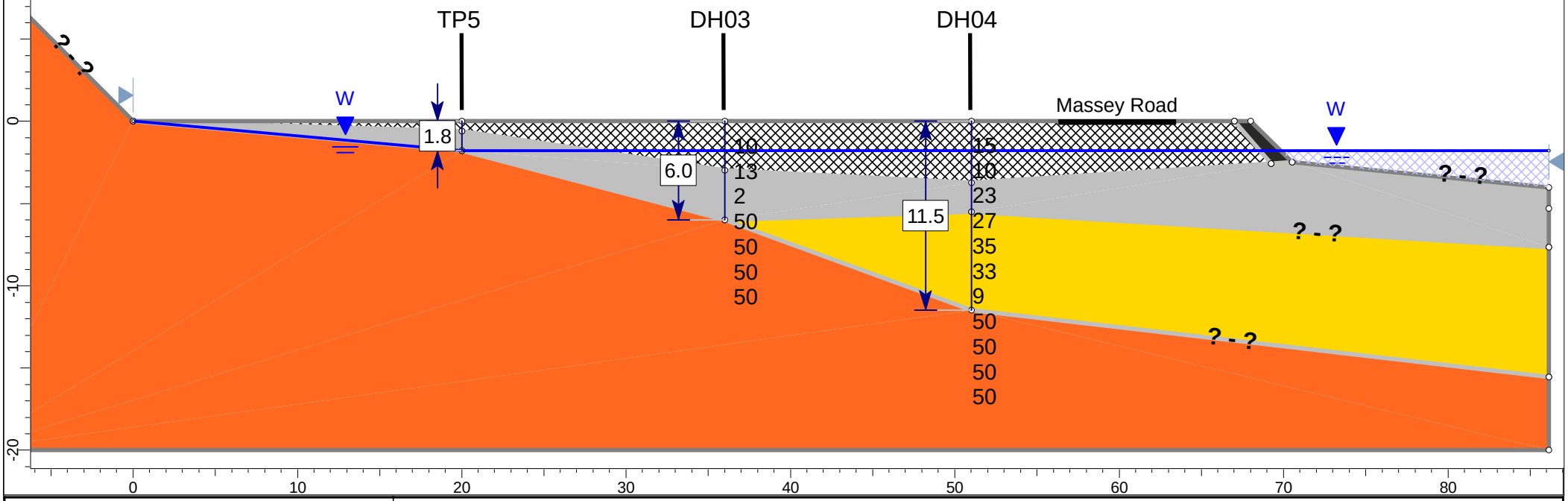
SI Location Plan & Interpretive Geological Map
January 2016

Notes:

Cross section is indicative only, and not intended to give exact levels to rock head or any other stratum for design purposes.

Uncorrected SPT blowcounts shown next to each borehole.

Material Name	Color
Moderately Weathered GREYWACKE	
Completely Weathered GREYWACKE [Colluvium]	
Marginal Marine Sediments	
Reclamation/Demolition Fill	
Sea Wall	



Project	Shelly Bay		
Analysis Description	Geological Cross Section A-A		
Drawn By	TK	*Company*	AECOM
Date	25/01/2016, 4:51:38 p.m.	*File Name*	

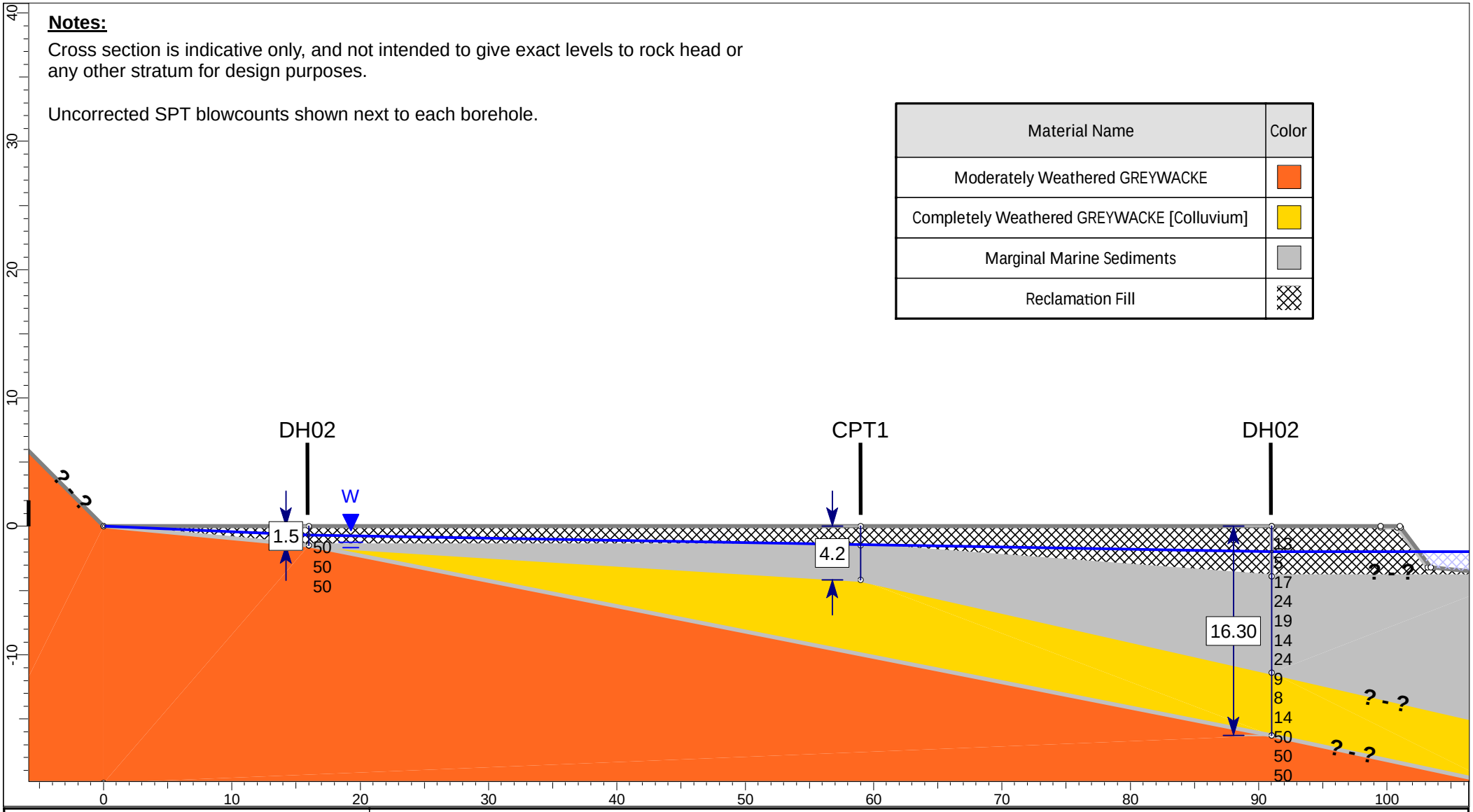
SLIDE 6.004

Notes:

Cross section is indicative only, and not intended to give exact levels to rock head or any other stratum for design purposes.

Uncorrected SPT blowcounts shown next to each borehole.

Material Name	Color
Moderately Weathered GREYWACKE	
Completely Weathered GREYWACKE [Colluvium]	
Marginal Marine Sediments	
Reclamation Fill	



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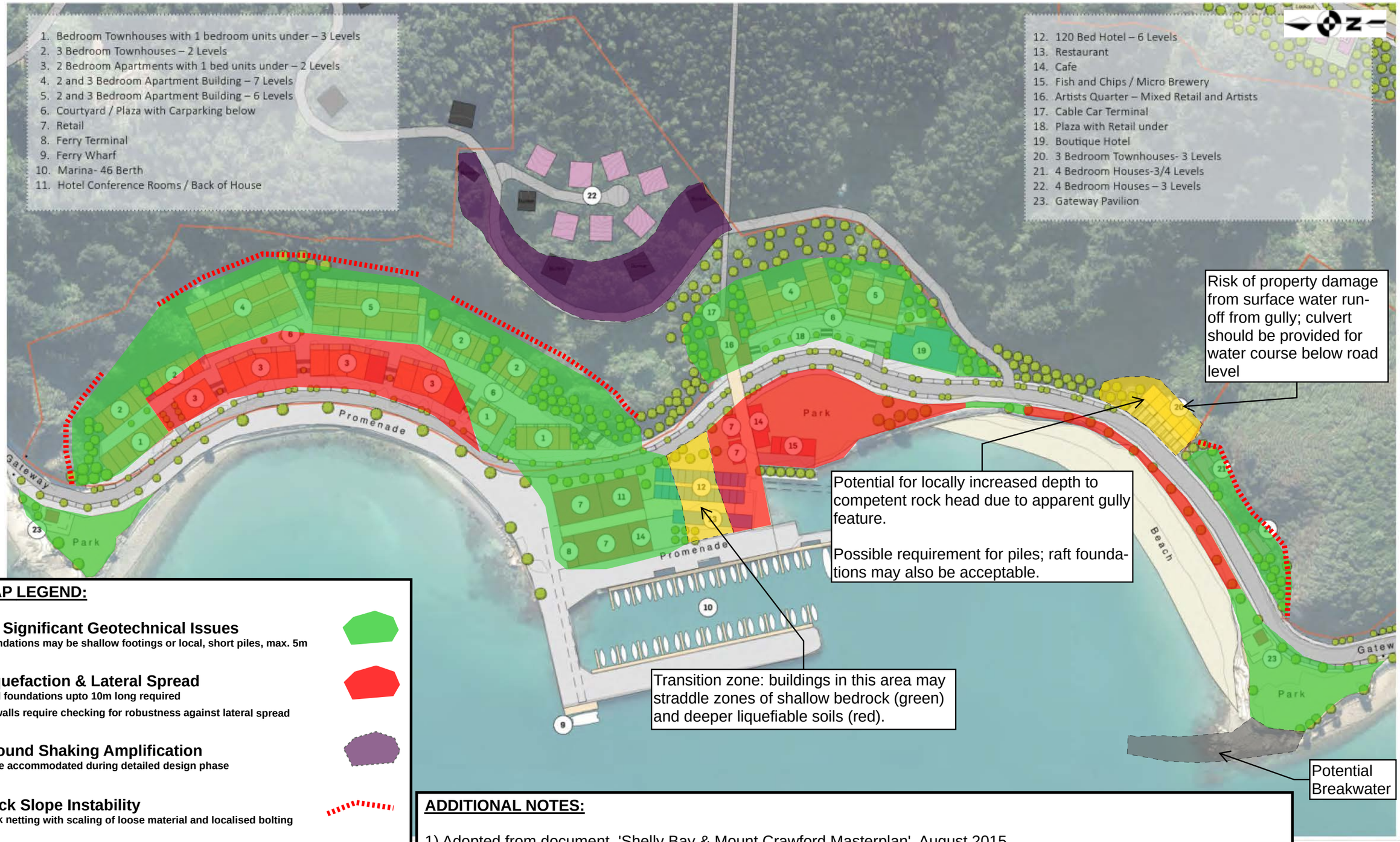
	Analysis Description	Geological Cross Section B-B	
	Drawn By	TK	*Company* AECOM
	Date	25/01/2016, 5:50:43 p.m.	*File Name*

SLIDE 6.004



MAP LEGEND:

No Significant Geotechnical Issues
Foundations may be shallow footings or local, short piles, max. 5m

Liquefaction & Lateral Spread
Piled foundations upto 10m long required
Seawalls require checking for robustness against lateral spread

Ground Shaking Amplification
To be accommodated during detailed design phase

Rock Slope Instability
Rock netting with scaling of loose material and localised bolting

Areas of Uncertainty
See specific call-out notes
Further geotechnical investigation required

ADDITIONAL NOTES:

1) Adopted from document, 'Shelly Bay & Mount Crawford Masterplan', August 2015.
2) Tsunami risk not shown; entire area should be considered at risk of inundation.
3) Ground rupture risk not shown, as this is considered to be a low risk item.
4) Extent of each colour coded zone is indicative only, and may vary slightly from that shown as geotechnical data is refined.

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SHELLY BAY
Development Hazard & Recommendations Map
January 2016

Appendix B

Slope Survey Observations Matrix

			Shelly Bay Rock Slope Inspection Matrix (To be read in conjunction with AECOM Shelly Bay PGAR, January 2016)				Survey Photographs					
Slope ID	**Height [m]**	**Inclination [Degrees]**	**Geological Description**	**Overburden**	**Vegetation**	**Discontinuity Survey Conducted?**	**Feature**	**General Form, Prominent Features & Details**			**Apparent Failures**	
1	10 - 12	65	Moderately weathered greywacke. Outcrops of fine SANDSTONE often massive with no apparent discontinuities. Otherwise generally closely to very closely spaced, moderately narrow to very narrow discontinuities with undulating to planar surfaces	Cover of completely weathered greywacke, at slope toe and crest, respectively.	Dense bush coverage over slope crest. Some small vegetation across slope face, frequent root systems with evidence of root jacking.	Yes						
							View of feature from south, looking north	Plane of relative movement (possible faulting); evidence of crushed material close to feature.	Live tree roots within slope face, root jacking mechanism likely/evident.	Cave at base, likely requiring infill.	Discrete blocks, upto 300mm, moderately strong	Otherwise small, upto 100mm, very weak to weak debris.
2	12 - 15	60	Moderately to highly weathered greywacke. Closely spaced, moderately wide to narrow, discontinuities with undulating to planar surfaces.	Cover of completely weathered greywacke, at slope crest.	Yes, shallow vegetation and substantial root structures throughout (though many have been felled or appear to be dead)	No - difficult access						
							View of feature, looking east	Extensive (dead) root system and clear, loose blocks in-situ	Side-on view of slope crest, looking north	Slumping within colluvium/completely weathered greywacke cover.	Failure onto roadway at base of feature. Small debris slides < 0.15m^3 volume, individual blocks are very weak to weak, moderately weathered greywacke, < 100mm maximum size.	
3	Section 1, 3m tall Section 2, above Section 1, 25m - 30m tall	Section 1, 65 degrees Section 2, 45 degrees	Moderately to highly weathered greywacke. Closely spaced to very closely spaced, moderately narrow to very narrow discontinuities with undulating to stepped surfaces.	Thin veneer of topsoil/completely weathered greywacke at top of Section 1, continuing behind slope and likely increasing in thickness.	Yes,dense cover of bush at crest of Section 1, with some root systems evident. Dense coverage of pine trees across Section 2	No						
							View of Section 1 & 2, looking north/northeast along roadway. Section 2 continutes to horizon.	View of Section 1 only, looking south/southeast along roadway	Live root system, potential for root jacking of blocks.		Failure onto roadway at base of feature. Some discrete blocks, upto 400mm, moderately strong to strong greywacke. Small debris flows < 0.1m^3 volume, comprising very weak to weak greywacke.	
4	5	65	Moderately weathered greywacke. Closely spaced to very closely spaced, moderately narrow to very narrow discontinuities with planar and stepped surfaces.	Highly weathered layer at crest, with thin veneer of topsoil.	Dense, shallow bush (ferns, etc) at crest. Single mature tree at toe/road level. Dense coverage of pine trees across slope behind feature.	No						
							View of feature, looking south/southeast along roadway, downhill	Detail of discontinuities				
5	20	70	Moderately weathered greywacke. Slope has round holes with 'pitted' like quality high upon face.	Occasional, thin veneer of superficial soil across face. Also appears to be deposit of overburden, presumably colluvium, extending back from slope crest, as evidenced by presence of vegetation.	Frequent, shallow vegetation and grass across face, as well as numerous areas of mature vegetation growth (trees) across face. Slope crest features dense cover of bush.	Yes						
							View of feature from adjacent beach, looking south	Close - up of moderately to highly weathered material approaching crest.	Outcrops surveyed at toe of slope; debris visible in foreground		Large debris flows, <3m^3, vegetation growth across debris flow suggests these are not recent failures.	Boulders, strong greywacke, upto 900mm across present in debris.

6	10	55	Moderately weathered greywacke. Closely spaced, moderately narrow to very narrow, stepped discontinuities.	Occasional, thin veneer of superficial soil across face. Also appears to be deposit of overburden, presumably colluvium, extending back from slope crest, as evidenced by presence of vegetation.	Frequent bush and mature vegetation, such as trees, present over upper portion of slope face.	No - difficult access, limited structures currently proposed in vicinity						
							View of feature from adjacent roadway, looking south		Development of wedge failures within rock mass		Debris flows 1up to m^3, Boulders upto 400mm	
7	20	75	Moderately weathered greywacke. Closely spaced, moderately narrow, undulating to planar discontinuities.	Occasional, thin veneer of superficial soil across face. Also appears to be deposit of overburden, presumably colluvium, extending back from slope crest, as evidenced by presence of vegetation.	Frequent, shallow vegetation and grass across face, as well as numerous areas of mature vegetation growth (trees) across face. Slope crest features dense cover of bush.	Yes						
							View of feature from adjacent roadway, looking southeast	Outcrop at slope toe				
8	10	75	Moderately weathered greywacke. Very closely to extremely closely spaced, moderately narrow to moderately wide, undulating discontinuities.	Thin veneer of topsoil/completely weathed greywacke and topsoil, continuing behind slope and likely increasing in thickness.	Frequent, shallow vegetation and grass across face, as well as numerous areas of mature vegetation growth (trees) across face. Slope crest features dense cover of bush.	No						
							View of feature from adjacent roadway, looking southwest	Plane of relative movement (dip/dip dir; 053/045), evidence of crushed material. Roots follow plane of weakness.	Visible bedding, moderately thick, very steeply inclined		Shallow slide in topsoil/completely weathered greywacke.	Debris < $0.5m^3$: topsoil/completely weathered greywacke, fragments of highly - moderately weathered, very weak greywacke
9	10	50	Moderately weathered greywacke. Fine sandstone often massive in nature, with discontinuties only appearing around slope toe.	Thin veneer of topsoil/completely weathed greywacke and topsoil, continuing behind slope and likely increasing in thickness.	Frequent, shallow vegetation and grass across face, as well as numerous areas of mature vegetation growth (trees) across face. Slope crest features dense cover of bush.	No - difficult access						
							View of feature from corner of old Transfield Depot, looking northeast	View of upper slope, over top of Transfield Depot			Superficial debris piled up behind pipework and building	

Appendix C

Borehole Logs

TERMINOLOGY AND SYMBOLS

Drilling / Investigation Methods

CFHSA - Continuous Flight Hollow Stem Auger.
CFSSA - Continuous Flight Solid Stem Auger.
DC - Dynamic Coring (eg Terrier Rig).
DCP - Dynamic Cone Penetrometer.
HA - Hand Auger.
HQ3 - HQ Triple Tube.
HQWL - HQ Wire Line.
HWOB - Heavy Weight Open Barrel.
NQ3 - NQ Triple Tube.
NQWL - NQ Wire Line.
OB - 100mm diameter Open Barrel.
OB70 - 70mm diameter Open Barrel.
PERC - Percussion.
PQ3 - PQ Triple Tube.
PQWL - PQ Wire Line.
RC - Reverse Circulation.
RCDHH - Reverse Circulation Down Hole Hammer.
SPT - Standard Penetration Test.
SPERC - Sonic Percussion.
PT - Push Tube Sample
VAC EX - Vacuum Excavation.
WASH - Wash Drilling.

Test Results

SPT "N" value; uncorrected blow count for 300 mm penetration
/# / # / # / # / # blows per 75 mm penetration

ss - Standard Penetration Test - split spoon
sc - Standard Penetrattion Test - solid cone
SUOW - Sunk Under Own Weight

Vane Shear Strength Tests

/ # Vane shear strenght test results given as peak / remoulded shear strengths (kPa). Test as per NZGS Guideline, 2001.

$^{\#}$ = Vane test performed on core recovered prior to extrusion from core barrel.
* = Vane test performed on excavated material of suitable size.

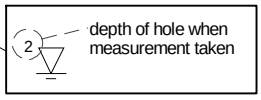
UTP - Unable to penetrate.

Piezometer Installation

Standpipe
Slotted Standpipe
Drill Cuttings
Bentonite
Grout
Cement
Gravel Pack Filer
Sand Pack Filter

Groundwater Records

Water Level (Static)
Water Level (During Drilling)
Water Inflow/Seep
Water Outflow
Complete Water Loss
Regain Circulation



Samples

PT - Thin Wall Push Sample
U - Undisturbed
D - Disturbed (Core)
B - Disturbed (Pit)

ROCK DESCRIPTIONS

Relative Strength

		USC (MPa)
ES	- Extremely strong	> 250
VS	- Very Strong	100 - 250
S	- Strong	50 - 100
MS	- Moderately Strong	20 - 50
W	- Weak	5 - 20
VW	- Very Weak	1 - 5
EW	- Extremely Weak	< 1

Weathering

UW - Unweathered
SW - Slightly Weathered
MW - Moderately Weathered
HW - Highly Weathered
CW - Completely Weathered

SOIL DESCRIPTIONS

Consistency Cohesive Soils

	Su (kPa)
Very Soft	< 12
Soft	12 - 25
Firm	25 - 50
Stiff	50 - 100
Very Stiff	100 - 200
Hard	200 - 500

Relative Density Non-cohesive soils

	SPT "N" Value (uncorrected)
Very Loose	< 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	> 50

Rock Defect Abbreviations

Defect Type
J = Joint
Slk = Slickenside
BP = Bedding Plane Defect
SZ = Shear Zone
FZ = Fracture Zone
WZ = Weak Zone
F = Fracture
BkJ = Broken Joint
L = Lamination
HJ = Healed Joint
DB = Drilling Break

Defect Apperance
BkJ = Broken Joint
L = Lamination
HJ = Healed Joint
DB = Drilling Break
R = Rough
vR = Very Rough
Sm = Smooth
T = Tight
Pl = Planar
Cn = Clean
Bed = Bedding
\\ = Parallel
Ud = Undulating
St = Stepped
Op = Open
Pol = Polished
H = Healed

Infill Material
Mn = Manganese
Fe = Iron Oxide
Qtz = Quartz
S = Sand
Gr = Graphite
Ch = Chlorite
NF = No Infill
Co = Coalified
Py = Pyrite
Slt = Silt
CC = Calcite
Cb = Carbonaceous
Cl = Clay
V = Veneer
Calc = Calcareous

Graphic Log (typical symbols)

Organic Material
Clay
Silt
Sand
Gravel / Cobbles
Mudstone
Siltstone
Sandstone
Volcanic Rock
No recovery

Rock Classification Abbreviations

GSI = Geological Strength Index
RQD = Rock Quality Designation
Jn = Joint Set Number
Jr = Joint Roughness Number
Ja = Joint Alteration Number

Soil and rock descriptions generally as in "Guidelines for the Field Description of Soil and Rock for Engineering Purposes" by the NZ Geotechnical Society Inc, December 2005.

LOG OF DRILLHOLE

HOLE IDENTIFICATION **DH01**

Client The Wellington Company Ltd.
Project Shelly Bay Development
Project number 60480847

Co-ordinates 1752549mE 5426871mN
Orientation -90° Elevation (Approx)
Location Shelly Bay, Wellington
Feature Shoreline car park, adjacent to Officer's Mess Quarters (HQ).

GEOLOGICAL DESCRIPTION	Test Records: Shear Vane residual - peak 0 - 200 kPa	Test Records: N Values 0 - 50	Drilling Method / Casing remarks	Core Loss/Lift 0 - 100%	Depth	Graphic Log	SOIL PROPERTIES (Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc)	Instrumentation
FILL: 0m: Reclamation Fill			VAC EX		1		0m: Vacuum excavation, no recovery.	
		SS 3,2,3, 2,3,5 N=13	SPT / Sonic		2		1.5m: Sandy GRAVEL with some silt; brown. Medium dense, moist. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded, moderately weathered, moderately strong, greywacke.	
2.9m: Core Loss		SS 1,1,1, 1,1,2 N=5	SPT / Sonic		3		2.8 to 2.9m: Layer of cobbles; brown. Dry. Moderately weathered, moderately strong greywacke. 2.9m: Core Loss	
3m: Reclamation Fill					4		3m: Sandy GRAVEL with some silt; brown. Loose, moist. Sand and gravel as described above.	
Marginal Marine Deposits: 3.9m: Marine Sediments comprising fine sand and silt with intact shells and shell fragments.		SS 3,4,4, 4,4,5 N=17	SPT / Sonic		5		3.9m: Fine SAND with some shell fragments and minor silt; grey. Medium dense, moist.	
		SS 4,5,6, 5,6,7 N=24	SPT / Sonic		6			
		SS 5,4,5, 4,5,5 N=19	SPT / Sonic		7			
		SS 3,4,3, 3,4,4 N=14	SPT / Sonic		8			
		SS 2,3,5, 6,7,6 N=24	SPT / Sonic		9		10.9m: With only minor intact shells/shell fragments. 11m: Grading to silty, low plasticity.	
RAKAIA TERRANE: 11.4m: Colluvium [Completely weathered greywacke].		SS 3,2,1, 3,3,2 N=9	SPT / Sonic		10		11.4m: Sandy SILT with some gravel; brown-grey. Soft to firm, moist, low plasticity. Sand is fine. Gravel is fine to medium, angular to sub-angular, moderately to highly weathered, very weak to weak greywacke.	
		SS 1,3,2, 2,3,1 N=8	SPT / Sonic		11			
		SS 2,3,3, 3,4,4 N=14	SPT / Sonic		12		16m: Grading to stiff.	
16.3m: Moderately weathered, brown, silty fine SANDSTONE [Greywacke]. Very weak, very closely spaced joints.		SS 4,3,9, 30,11 for 35mm N>50	SPT / Sonic		13		17 to 17.5m: Recovered as gravel in a sandy silty matrix; brown. Stiff, wet, low plasticity. Sand is fine. Gravel is fine to medium, angular to subangular, very weak greywacke. (Drilling induced).	
		SS 2,9,28, 22 for 75mm N>50	SPT / Sonic		14		18.3 to 18.9m: As above.	
		SS 5,18,40, 10 for 15mm N>50	SPT		15		19.1 to 19.3m: As above; loose, dry.	
					16			
					17			
					18			
					19			
					20		DH01 terminated at 19.68m Target Depth	
					21			

Date Time

(m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

Remarks
Coordinates in terms of NZTM2000 and are approximate.
Groundwater not encountered.

Casing Details
Depth Diameter

Date logged 15/12/2015
Logged TK
Checked RBG

Driller Griffiths Drilling
Started 14/12/2015
Drill Rig Crawler Sonic
Finished 15/12/2015
Core Boxes 6

DRILLHOLE LOG SOIL SHELLYBAY.GPJ BASE.GDT 22/01/16

Date Printed: 22/01/2016

Box: 1 of 6 - Depth: 1.50m to 4.95m of 19.68m

Date Drilled 14/12/2015 to 15/12/2015

Box: 2 of 6 - Depth: 4.95m to 7.95m of 19.68m

Date Drilled 14/12/2015 to 15/12/2015

Box: 3 of 6 - Depth: 7.95m to 10.95m of 19.68m

Date Drilled 14/12/2015 to 15/12/2015

Box: 4 of 6 - Depth: 10.95m to 13.95m of 19.68m

Date Drilled 14/12/2015 to 15/12/2015

Box: 5 of 6 - Depth: 13.95m to 16.84m of 19.68m

Date Drilled 14/12/2015 to 15/12/2015

Box: 6 of 6 - Depth: 16.84m to 19.68m of 19.68m

Date Drilled 14/12/2015 to 15/12/2015

LOG OF DRILLHOLE

HOLE IDENTIFICATION **DH02**

Client The Wellington Company Ltd.
Project Shelly Bay Development
Project number 60480847

Co-ordinates 1752628mE 5426889mN
Orientation -90° Elevation (Approx)
Location Shelly Bay, Wellington
Feature Car park adjacent to South Bay Officer's Mess Garages.

GEOLOGICAL DESCRIPTION	Test Records (Shear Vane residual - peak 0 - 200 kPa; N Values 0 - 50)	Drilling Method / Casing remarks	Core Loss/Lift 0 - 100%	Depth	Graphic Log	SOIL PROPERTIES	Instrumentation
0m: Reclamation Fill		VAC EX		1		0m: Vacuum excavation, no recovery.	
1.5m: Highly weathered, very weak, brown, silty fine SANDSTONE [Greywacke].	ss 4,9,12, 12,14,12 for 65mm N>50	SPT		2		1.5m: Recovered as fine to coarse GRAVEL with minor cobbles in a fine silty sandy matrix; light brown. Dense; dry. Gravel is fine to coarse, angular to subangular, greywacke. Gravel crumbles under firm finger pressure to fine silty sand.	
		Sonic					
	ss 8,23,43, 7 for 15mm N>50	SPT		3			
		Sonic		4		3.8 to 4.6m: With minor coarse gravel of moderately weathered, moderately strong greywacke.	
	ss 20,30 for 25mm N>50	SPT					
						DH02 terminated at 4.6m Target Depth	

RAKAIA TERRANE

Date Time

(m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

Remarks
Coordinates in terms of NZTM2000 and are approximate.
Groundwater not encountered.

Casing Details
Depth Diameter

Date logged 15/12/2015
Logged TK
Checked RBG

Driller Griffiths Drilling
Started 15/12/2015
Drill Rig Crawler Sonic
Finished 15/12/2015
Core Boxes 1

Date Printed: 22/01/2016

DRILLHOLE LOG SOIL SHELLYBAY.GPJ BASE.GDT 22/01/16

PHOTOGRAPHIC LOG OF DRILLHOLE

AECOM

Project Shelly Bay Development

Location Shelly Bay, Wellington

HOLE IDENTIFICATION **DH02**

Box: 1 of 1 - Depth: 1.50m to 4.60m of 4.60m

Date Drilled 15/12/2015 to 15/12/2015

DRILLHOLE LOG SOIL SHELLYBAY.GPJ BASE.GDT 22/01/16

LOG OF DRILLHOLE

HOLE IDENTIFICATION **DH03**

Client The Wellington Company Ltd.
Project Shelly Bay Development
Project number 60480847

Co-ordinates 1752594mE 5427090mN
Orientation -90° Elevation (Approx)
Location Shelly Bay, Wellington
Feature Footprint of demolished Airmen's Accommodation Building.

GEOLOGICAL DESCRIPTION	Test Records (Shear Vane residual - peak 0 - 200 kPa; N Values 0 - 50)	Drilling Method / Casing remarks	Core Loss/Lift (0 - 100%)	Depth	Graphic Log	SOIL PROPERTIES	Instrumentation
FILL: 0m: Demolition Fill		VAC EX		1		0m: Vacuum excavation, no recovery.	
FILL: 1.5m: Reclamation Fill	ss 3,3,3, 3,2,2 N=10	SPT		2		1.5m: GRAVEL and COBBLES; light brown. Loose, moist. Cobbles and gravel are angular to subangular, moderately strong to strong greywacke. Gravel is fine to coarse.	
FILL: 1.95m: Core Loss		Sonic				1.95m: Core Loss	
FILL: 2.45m: Reclamation Fill		Sonic				2.45m: Soil description as above. 2.65 to 3m: In a sandy matrix with some silt.	
Marginal Marine Deposits: 3m: Marine Sediments comprising fine sand and silt with intact shells and shell fragments.	ss 3,4,3, 3,3,4 N=13	SPT		3		3m: Fine SAND with some wood fragments and minor silt; grey. Medium dense, moist.	
		Sonic		4		3.9 to 3.95m: Large root fragment, partially decomposed. No odour. 3.95 to 4.7m: Grading to a fine sandy SILT with some shell fragments.	
	ss 3,2,1, 0,1,0 N=2	SPT				4.7m: SILT; grey. Very soft, saturated, highly plastic. Recovered as a slurry.	
		Sonic		5		5.4m: Dilatant, free water appears on surface when tapped/shaken in hand.	
RAKAIA TERRANE: 6m: Moderately weathered, grey-brown, fine to medium sandy SILTSTONE [greywacke]. Very weak, closely to very closely spaced joints. 6.5 to 7m: Grading to a silty fine to medium SANDSTONE.	ss 3,6,9, 11,18,12 for 30mm N>50	SPT		6			
		Sonic		7		7.15 to 7.3m: Recovered as fine to medium gravel with minor cobbles in a fine sandy silty matrix; light brown. Loosely packed; dry. Gravel is highly weathered, very weak, fine to medium sandstone. (drilling induced).	
RAKAIA TERRANE: 7m: Moderately weathered, light brown, silty fine SANDSTONE [greywacke]. Very weak, closely spaced joints.	ss 6,12,18, 32 for 65mm N>50	SPT		8			
		Sonic				8.5 to 8.7m: Recovered as fine to medium gravel with minor cobbles in a fine sandy silty matrix; light brown. Loosely packed; dry. Gravel as described above (drilling induced).	
	ss 6,7,32, 18 for 60mm N>50	SPT		9			
		Sonic		10		10 to 10.5m: Recovered as fine to medium gravel with minor cobbles in a fine sandy silty matrix; light brown. Loosely packed; dry. Gravel as described above (drilling induced).	
	ss 9,19,24, 26 for 55mm N>50	SPT		11		DH03 terminated at 10.78m Target Depth	

Date Time

(m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

Remarks
Coordinates in terms of NZTM2000 and are approximate.
Groundwater not encountered.

Casing Details
Depth Diameter

Date logged 16/12/2015
Logged TK
Checked RBG

Driller Griffiths Drilling
Started 15/12/2015
Drill Rig Crawler Sonic
Finished 16/12/2015
Core Boxes 3

DRILLHOLE LOG SOIL SHELLYBAY.GPJ BASE.GDT 22/01/16

Date Printed: 22/01/2016

Box: 1 of 3 - Depth: 1.50m to 5.20m of 10.78m

Date Drilled 15/12/2015 to 16/12/2015

Box: 2 of 3 - Depth: 5.20m to 8.00m of 10.78m

Date Drilled 15/12/2015 to 16/12/2015

PHOTOGRAPHIC LOG OF DRILLHOLE

AECOM

Project Shelly Bay Development
Location Shelly Bay, Wellington

HOLE IDENTIFICATION **DH03**

Box: 3 of 3 - Depth: 8.00m to 10.78m of 10.78m

Date Drilled 15/12/2015 to 16/12/2015

DRILLHOLE LOG SOIL SHELLYBAY.GPJ BASE.GDT 22/01/16

LOG OF DRILLHOLE

HOLE IDENTIFICATION **DH04**

Client The Wellington Company Ltd.
Project Shelly Bay Development
Project number 60480847

Co-ordinates 1752586mE 5427135mN
Orientation -90° Elevation (Approx)
Location Shelly Bay, Wellington
Feature Adjacent to W/O and SNCO's Mess Building.

GEOLOGICAL DESCRIPTION	Test Records (Shear Vane residual - peak 0 - 200 kPa; N Values 0 - 50)	Drilling Method / Casing remarks	Core Loss/Lift 0 - 100%	Depth (m)	Graphic Log	SOIL PROPERTIES	Instrumentation
FILL: 0m: Topsoil		DUG				0m: (Hand excavated).	
0.3m: Core Loss						0.3m: Core Loss	
0.64m: Reclamation Fill	ss 3,3,2, 3,3,7 N=15	Sonic / SPT		1–2		0.64m: Gravelly SILT with some sand; brown. Soft to firm, moist, high plasticity. Sand is fine. Gravel is fine to coarse, angular to subrounded, moderately weathered, weak to moderately strong greywacke.	
	ss 2,2,4, 3,1,2 N=10	Sonic / SPT		3		3.45 to 3.6m: Grading to saturated.	
Marine: 3.75m: Marine Sediments comprising fine sand and silt with intact shells and shell fragments.	ss 3,7,7, 6,5,5 N=23	Sonic / SPT		4–5		3.75m: Fine to medium SAND with some shell fragments; light grey. Medium dense, moist. 4m: Silty GRAVEL with some sand; light grey. Medium dense, wet. Gravel is fine to coarse, angular to subangular greywacke. 5 to 5.5m: Grading to light brown.	
RAKAIA TERRANE: 5.5m: Highly weathered, extremely weak, silty fine SANDSTONE [greywacke].	ss 5,8,6, 8,6,7 N=27	Sonic / SPT		6–7		5.5m: Recovered as fine to coarse GRAVEL in a fine silty sandy matrix; light brown. Medium dense; dry. Gravel is angular to subangular, extremely weak greywacke. Gravel crumbles under firm finger pressure to fine silty sand.	
	ss 4,6,10, 9,7,9 N=35	Sonic / SPT		8			
	ss 6,14,7, 10,7,9 N=33	Sonic / SPT		9–10			
	ss 2,1,2, 1,2,4 N=9	Sonic / SPT		11			
11.5m: Moderately weathered, light brown, silty fine SANDSTONE [greywacke]. Very weak, closely spaced joints.	ss 4,7,22, 26 for 35mm N>50	Sonic / SPT		12–13		11.6 to 13.5m: Recovered as fine to coarse GRAVEL in a fine silty sandy matrix; light brown. Loosely packed; dry. Gravel is angular to subangular, weak greywacke. Gravel crumbles under firm finger pressure to fine silty sand. (Drilling induced).	
	ss 4,30,20 for 25mm N>50	Sonic / SPT		14			
	ss 9,20,50 for 55mm N>50	Sonic / SPT		15–16		14.6 to 15m: As above. 16 to 16.5m: As above; gravel is coarse	
	ss 16,34 for 35mm N>50	SPT		17		DH04 terminated at 16.63m Target Depth	
				18–19			

Date Time

(m)

Hand Held Shear Vane

vane shear strength per NZGS guideline

Remarks
Coordinates in terms of NZTM2000 and are approximate.
Groundwater not encountered.

Casing Details
Depth Diameter

Date logged 17/12/2015
Logged TK
Checked RBG

Driller Griffiths Drilling
Started 16/12/2015
Drill Rig Crawler Sonic
Finished 17/12/2015
Core Boxes 6

DRILLHOLE LOG SOIL SHELLYBAY.GPJ BASE.GDT 22/01/16

Date Printed: 22/01/2016

Box: 1 of 6 - Depth: 0.30m to 3.45m of 16.63m

Date Drilled 16/12/2015 to 17/12/2015

Box: 2 of 6 - Depth: 3.45m to 6.45m of 16.63m

Date Drilled 16/12/2015 to 17/12/2015

Box: 3 of 6 - Depth: 6.45m to 9.45m of 16.63m

Date Drilled 16/12/2015 to 17/12/2015

Box: 4 of 6 - Depth: 9.45m to 12.26m of 16.63m

Date Drilled 16/12/2015 to 17/12/2015

Box: 5 of 6 - Depth: 12.26m to 14.60m of 16.63m

Date Drilled 16/12/2015 to 17/12/2015

Box: 6 of 6 - Depth: 14.60m to 16.63m of 16.63m

Date Drilled 16/12/2015 to 17/12/2015

Appendix D

Trial Pit Logs

LOG OF TEST PIT

INSPECTION PIT IDENTIFICATION **TP4**

Client The Wellington Company Ltd.
Project Shelly Bay Development
Project number 60480847

Co-ordinates 1752539mE 5427031mN
Orientation -90° Elevation (Approx)
Location Shelly Bay, Wellington
Feature Adjacent to Transfield Depot.

Depth	GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records	Sampling	Dynamic Cone Penetrometer (Blows per mm) 2 4 6 8	SOIL PROPERTIES (Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc) Depth Related Remarks DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, Continuity, Roughness, Infilling, etc.)	Graphic Log	Instrumentation
0	TOPSOIL: 0m: Topsoil				0m: SILT with minor sand and minor gravel; light brown. Loosely packed, dry. Sand is fine. Gravel is fine to medium, angular greywacke.		
0.2					0.3m: With minor glass and brick fragments.		
0.3	FILL: 0.3m: Reclamation Fill				0.3m: GRAVEL and COBBLES in a sandy matrix with minor silt; brown. Loosely packed, dry. Gravel and cobbles are angular to subangular greywacke. Gravel is fine to medium.		
0.4					0.5m: BOULDERS, COBBLES and GRAVEL in a silty matrix with minor sand; brown. Loosely packed, moist. Boulders, cobbles and gravel are angular to subangular, moderately weathered greywacke. Gravel is fine to coarse.		
0.6							
0.8							
1.0							
1.2							
1.4							
1.6							
1.8							
2.0	Marine: 2m: Marginal Marine Sediments				2m: Sandy SILT with intact shells and shell fragments; dark grey. Loose, moist. Sand is fine.		
2.2					TP4 terminated at 2.2m Unable to advance as too difficult to excavate		
2.4							

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)

Hand Held Shear Vane

Vane shear strength per NZGS guideline

Length
Width
Stability Stable

Excavation Method 3.5 Tonne Excavator
Orientation B -90°

Remarks
Coordinates in terms of NZTM2000 and are approximate.
Trial pit terminated upon establishing greywacke basement.
Hole backfilled with spoil upon completion.
No groundwater encountered.

Started 17/12/2015
Finished 17/12/2015
Date logged 17/12/2015
Logged TK
Checked RBG

22/01/2016


BOULDERS, COBBLES and GRAVEL in a silty matrix with minor sand; brown. Loosely packed; moist. Boulders, cobbles and gravel are angular to subangular, moderately weathered greywacke. Gravel is fine to coarse.
GRAVEL and COBBLES in a sandy matrix with minor silt; brown. Loosely packed, dry. Gravel and cobbles are angular to subangular greywacke. Gravel is fine to medium.

LOG OF TEST PIT

INSPECTION PIT IDENTIFICATION **TP5**

Client The Wellington Company Ltd.
Project Shelly Bay Development
Project number 60480847

Co-ordinates 1752605mE 5427077mN
Orientation -90° Elevation (Approx)
Location Shelly Bay, Wellington
Feature Footprint of demolished Airmen's Accommodation Building.

Depth	GEOLOGICAL DESCRIPTION (Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc))	Test Records	Sampling	Dynamic Cone Penetrometer (Blows per mm) 2 4 6 8	SOIL PROPERTIES (Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc) Depth Related Remarks / DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, Continuity, Roughness, Infilling, etc.)	Graphic Log	Instrumentation
0.2	TOPSOIL 0m: Topsoil				0m: Gravelly SILT; light brown. Loose, dry. Gravel is angular to subangular, fine to medium.		
0.4	FILL 0.3m: Demolition Fill				0.3m: GRAVEL and COBBLES in a silty matrix with some intact shells and shell fragments; light brown. Loosely packed, dry. Cobbles and gravel are angular, moderately weathered, strong greywacke. Gravel is fine to coarse. Some coarse gravel to cobble sized fragments of brick, concrete and ceramic; minor fragments of wood, 0.5 to 0.6m in length; iron pins. 0.5 to 0.6m: Concrete boulder, 400mm diameter.		
0.6	Marine 0.6m: Marginal Marine Sediments				0.6m: Fine to medium SAND with minor gravel and some rootlets; black. Loose, moist. Gravels are subangular to subrounded, fine to medium, greywacke.		
0.8					0.8m: Coarse SAND; brown. Loose, moist.		
1.0	RAKAIA TERRANE 0.9m: Highly weathered, brown, silty fine SANDSTONE [greywacke].				0.9m: COBBLES and GRAVEL in a sandy silty matrix with minor boulders; grey-brown. Loosely packed; moist. Gravel is fine to coarse. Gravel, cobbles and boulders are angular to subrounded, moderately weathered greywacke.		
1.2							
1.4							
1.6							
1.8	1.8m: Moderately weathered, brown, fine SANDSTONE [greywacke].				1.8m: Recovered as angular to subangular COBBLES and fine to coarse GRAVEL in a sandy matrix with some boulders.		1.8
2.0							
2.2							
2.4					TP5 terminated at 2.4m Unable to advance as too difficult to excavate		
2.6							
2.8							

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)
17/12/2015 00:00	1.80	-	1.8

Hand Held Shear Vane

Vane shear strength per NZGS guideline

Length
Width
Stability Stable

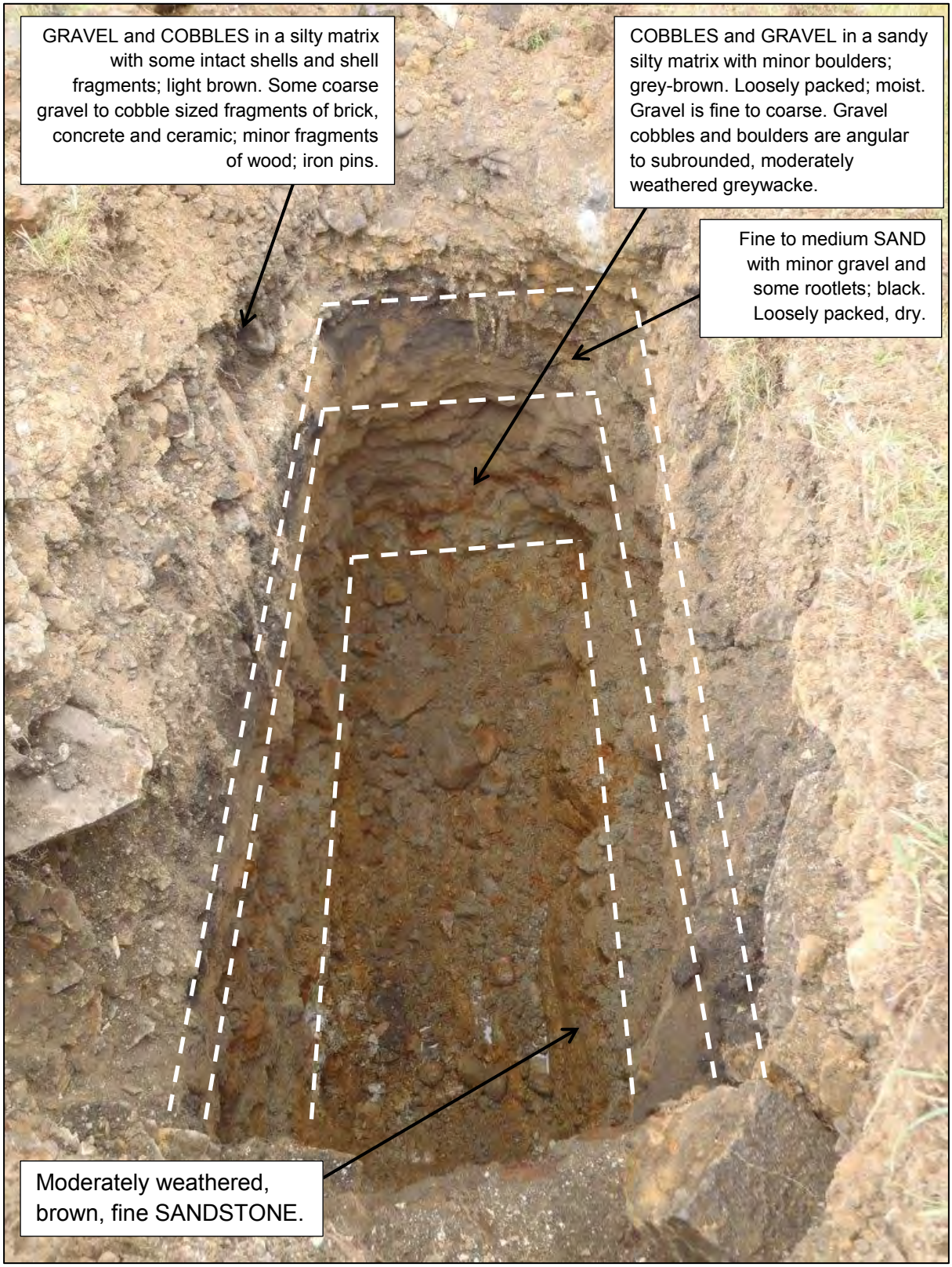
Excavation Method 3.5 Tonne Excavator
Orientation B -90°

Remarks
Coordinates in terms of NZTM2000 and are approximate.
Trial pit terminated upon establishing greywacke basement.
Hole backfilled with spoil upon completion.

Started 17/12/2015
Finished 17/12/2015
Date logged 17/12/2015
Logged TK
Checked RBG

22/01/2016

Shelly Bay – TP5 Test Pit photograph



LOG OF TEST PIT

INSPECTION PIT IDENTIFICATION **TP6**

Client The Wellington Company Ltd.
Project Shelly Bay Development
Project number 60480847

Co-ordinates 1752612mE 5427114mN
Orientation -90° Elevation (Approx)
Location Shelly Bay, Wellington
Feature Footprint of demolished Airmen's Accommodation Building.

Depth	GEOLOGICAL DESCRIPTION Weathering, Colour, Fabric, Rock Name, Strength, Discontinuities, Lithological Features (bedding, foliation, mineralogy, cement, etc)	Test Records	Sampling	Dynamic Cone Penetrometer (Blows per mm) 2 4 6 8	SOIL PROPERTIES Subordinate MAJOR minor; colour; structure. Strength; moisture condition; grading; bedding; plasticity; sensitivity; major fraction description; subordinate fraction description; minor fraction description etc Depth Related Remarks DEFECT DESCRIPTION (Joints, Bedding Seams, Shatter, Shear and Crush Zones, Foliation, Schistosity, Attitude, Spacing, Continuity, Roughness, Infilling, etc.)	Graphic Log	Instrumentation
0.2	TOPSOIL 0m: Topsoil				0m: Gravelly SILT with some rootlets; light brown. Loosely packed, dry. Gravel is fine to medium, subangular to rounded, moderately weathered, moderately strong greywacke.		
0.4	FILL 0.2m: Reclamation Fill				0.2m: Silty GRAVEL with some cobbles and rootlets and minor boulders; light brown. Loosely packed, dry. Cobbles and gravel are angular, moderately weathered strong greywacke. Gravel is fine to coarse.		
0.6	Marine Sediments 0.5m: Marginal Marine Sediments				0.5m: GRAVEL and shell fragments with minor sand and minor intact shells; black. Loosely packed, moist. Gravel is fine to coarse, sub-rounded to rounded. Sand is medium to coarse. Shell fragments; white, grade as fine to coarse sand; intact shells up to 20mm in size; trace fine purple shell fragments.		
1.4	RAKAIA TERRANE 1.4m: Highly weathered, brown, silty fine SANDSTONE [greywacke].				1.4m: COBBLES and GRAVEL in a sandy silty matrix with minor boulders; grey-brown. Loosely packed; moist. Gravel is fine to coarse. Gravel, cobbles and boulders are angular to subrounded, moderately weathered greywacke.		1.9
2.0					TP6 terminated at 1.9m Unable to advance as too difficult to excavate		
2.2							
2.4							

For explanation of symbols and observations, see key sheet

FLUID DEPTHS DURING DRILLING

Date Time	Drilled Depth (m)	Casing Depth (m)	Fluid Depth (m)
17/12/2015 00:00	1.90	-	1.9

Hand Held Shear Vane

Vane shear strength per NZGS guideline

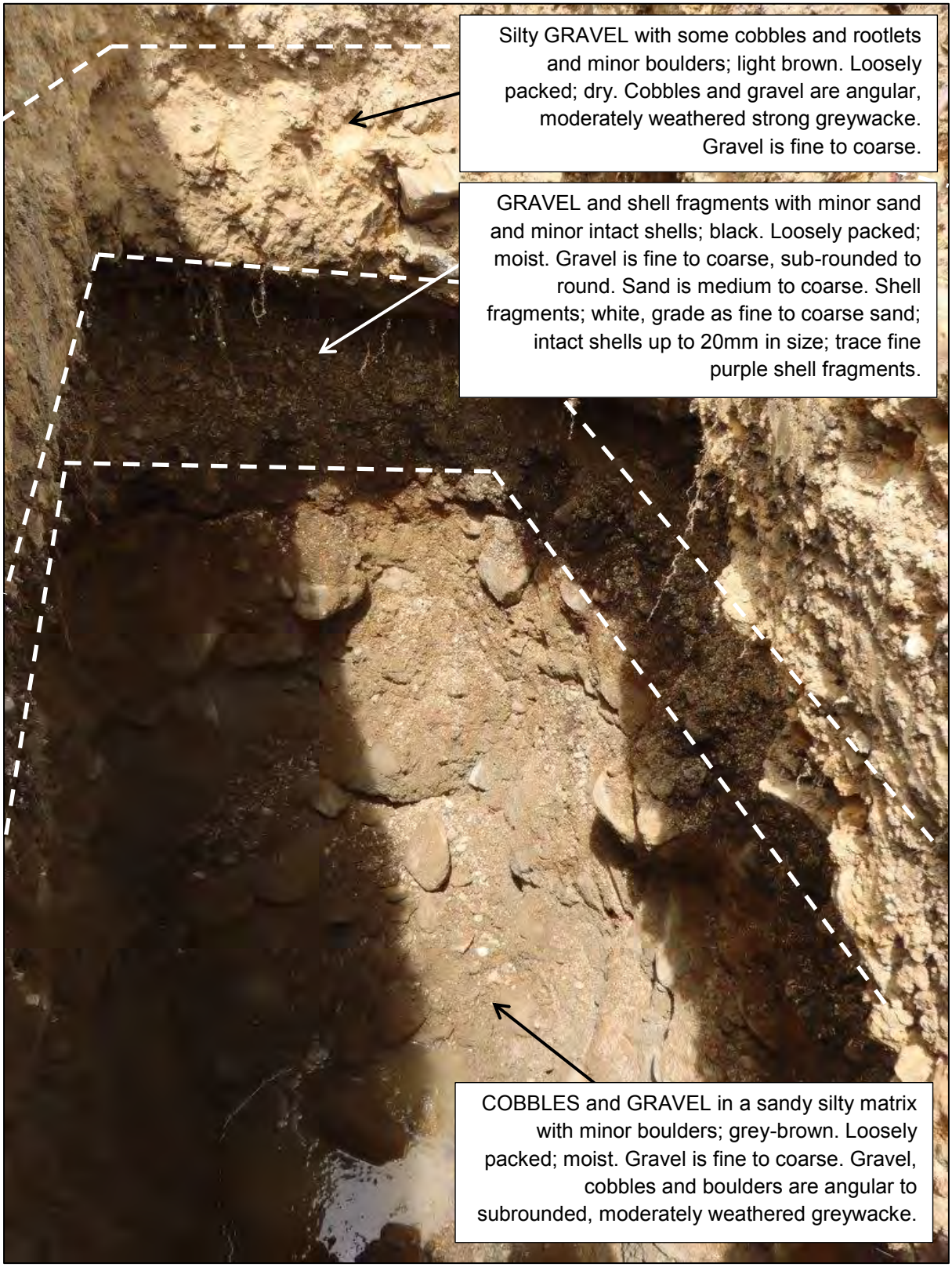
Length
Width
Stability Stable

Excavation Method 3.5 Tonne Excavator
Orientation B -90°

Remarks
Coordinates in terms of NZTM2000 and are approximate.
Trial pit terminated upon establishing greywacke basement.
Hole backfilled with spoil upon completion.

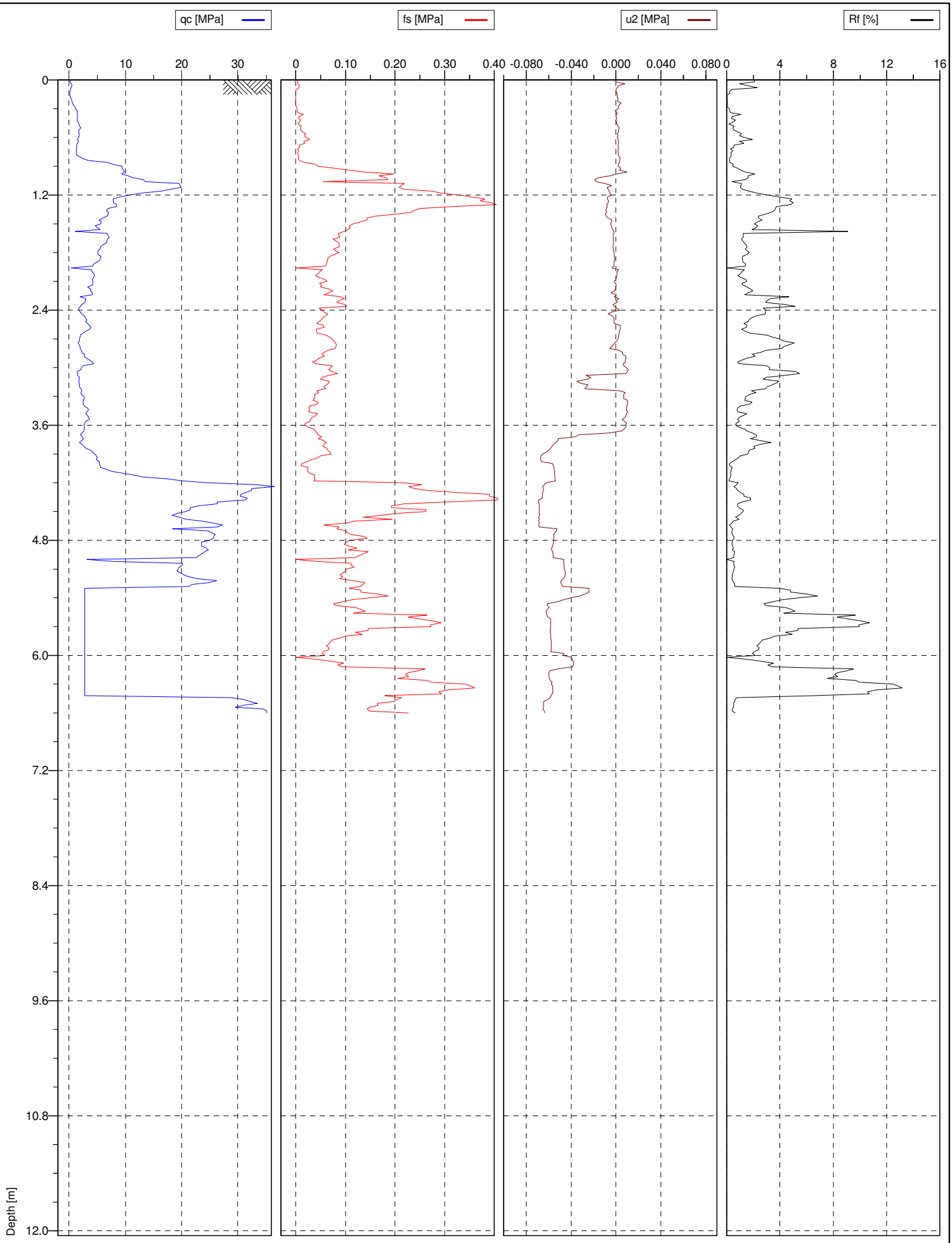
Started 17/12/2015
Finished 17/12/2015
Date logged 17/12/2015
Logged TK
Checked RBG

22/01/2016


Silty GRAVEL with some cobbles and rootlets and minor boulders; light brown. Loosely packed; dry. Cobbles and gravel are angular, moderately weathered strong greywacke. Gravel is fine to coarse.
GRAVEL and shell fragments with minor sand and minor intact shells; black. Loosely packed; moist. Gravel is fine to coarse, sub-rounded to round. Sand is medium to coarse. Shell fragments; white, grade as fine to coarse sand; intact shells up to 20mm in size; trace fine purple shell fragments.
COBBLES and GRAVEL in a sandy silty matrix with minor boulders; grey-brown. Loosely packed; moist. Gravel is fine to coarse. Gravel, cobbles and boulders are angular to subrounded, moderately weathered greywacke.

Appendix E

CPT Logs



GRIFFITHS DRILLING

U2

Cone No: 4818
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Shelly Bay	Position: S41"17.724', E174"49.351'	Ground level: 0.00	Test no: CPT1
Project ID: CPT1	Client: AECOM	Date: 17/12/2015	Scale: 1 : 50
Project: SHELLY BAY		Page: 1/1	Fig:
		File: Shelly Bay CPT1.cpt	

Appendix F

Analysis Output

1) Liquefaction Analysis (LiquefyPro & CLiq)

2) DIPs Discontinuity Analysis, Slope 1, 5 & 7

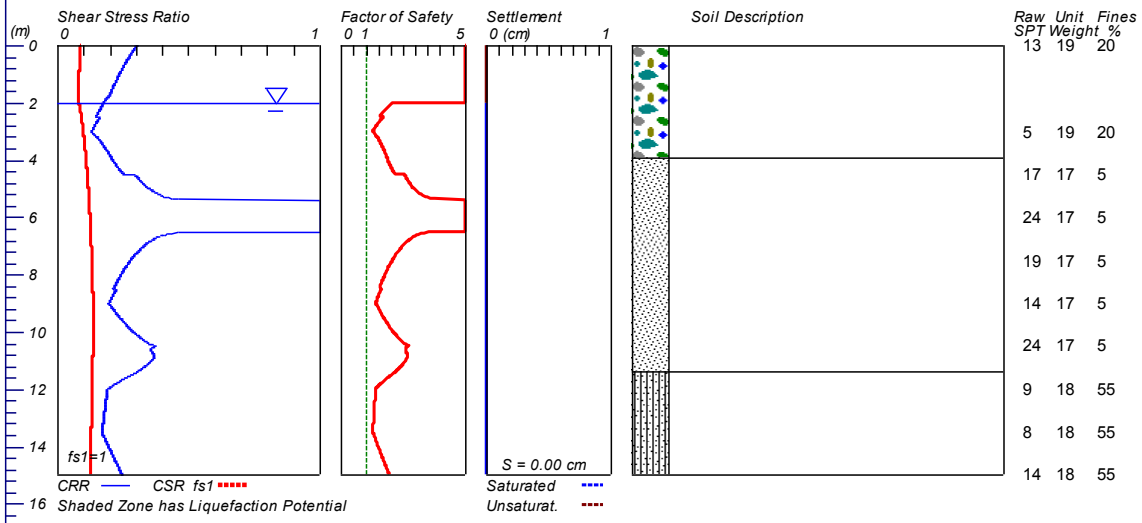
LIQUEFACTION ANALYSIS

DH01
SLS

Shelly Bay

Hole No.=DH01 Water Depth=2 m

Magnitude=7.5
Acceleration=0.13g



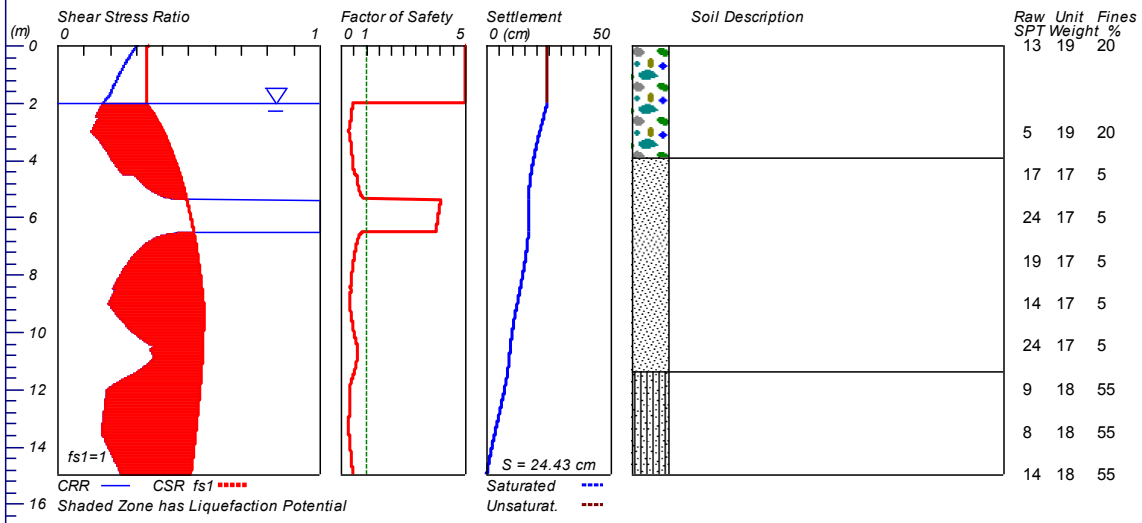
LIQUEFACTION ANALYSIS

DH01
ULS

Shelly Bay

Hole No.=DH01 Water Depth=2 m

Magnitude=7.5
Acceleration=0.53g



LiquefyPro CivilTech Software USA www.civiltech.com

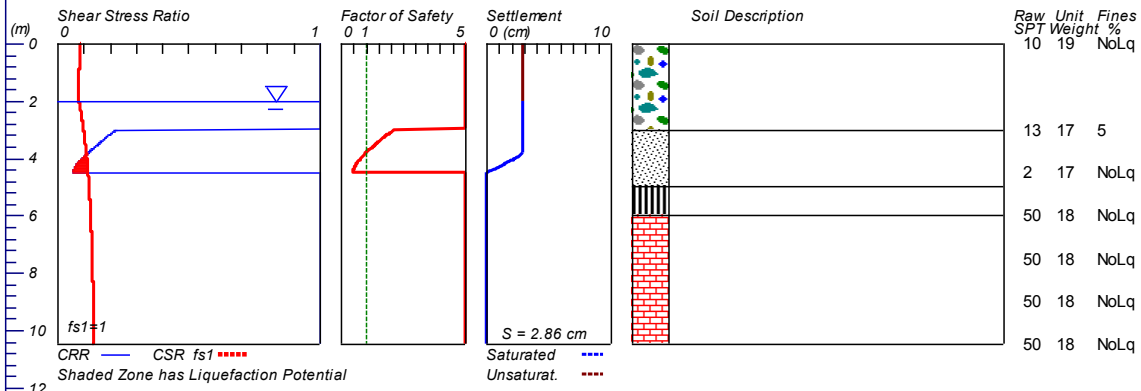
LIQUEFACTION ANALYSIS

DH03
SLS

Shelly Bay

Hole No.=DH03 Water Depth=2 m

Magnitude=7.5
Acceleration=0.13g



Raw SPT	Unit Weight	Fines %
10	19	NoLq
13	17	5
2	17	NoLq
50	18	NoLq
50	18	NoLq
50	18	NoLq
50	18	NoLq

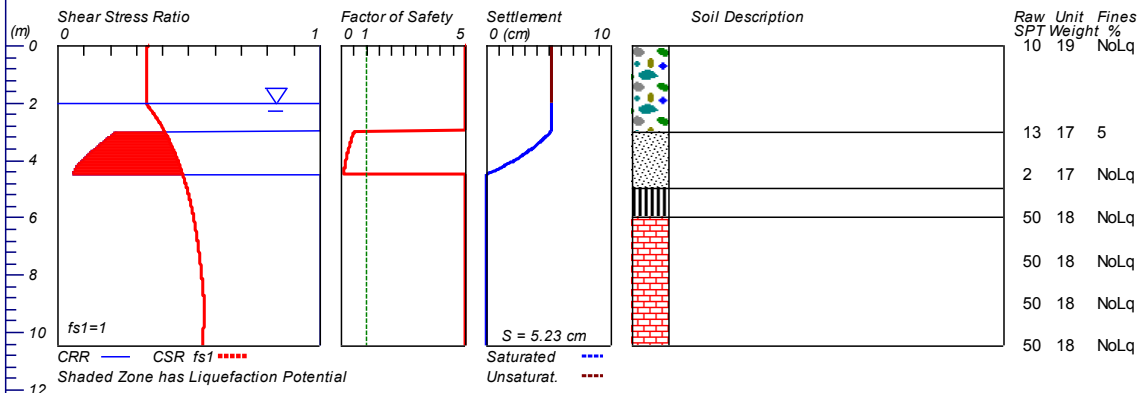
LIQUEFACTION ANALYSIS

DH03
ULS

Shelly Bay

Hole No.=DH03 Water Depth=2 m

Magnitude=7.5
Acceleration=0.53g



Raw SPT	Unit Weight	Fines %
10	19	NoLq
13	17	5
2	17	NoLq
50	18	NoLq
50	18	NoLq
50	18	NoLq
50	18	NoLq

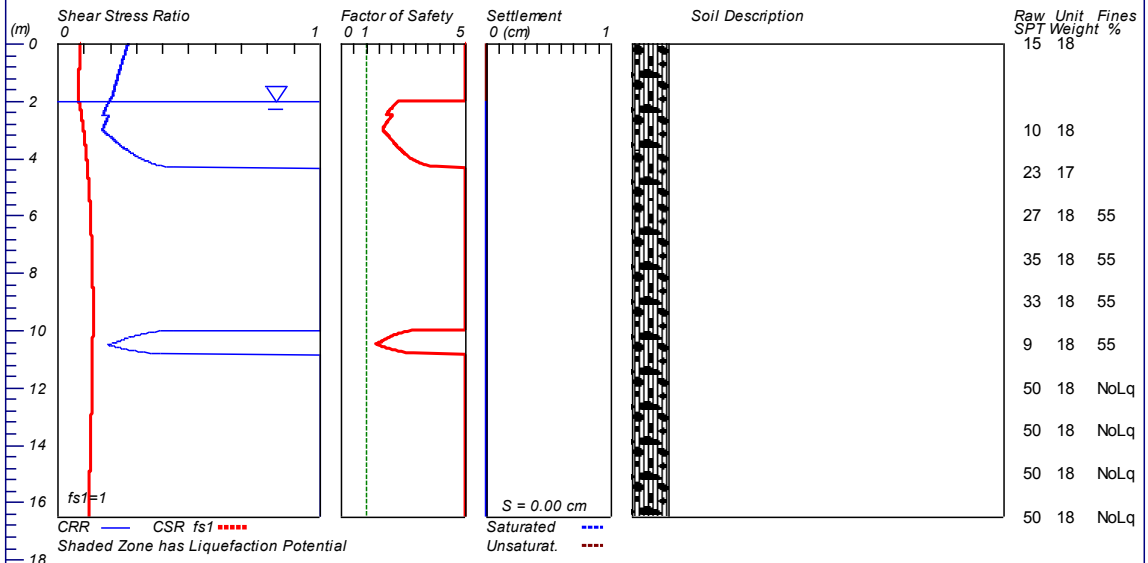
LIQUEFACTION ANALYSIS

DH04
SLS

Shelly Bay

Hole No.=DH04 Water Depth=2 m

Magnitude=7.5
Acceleration=0.13g



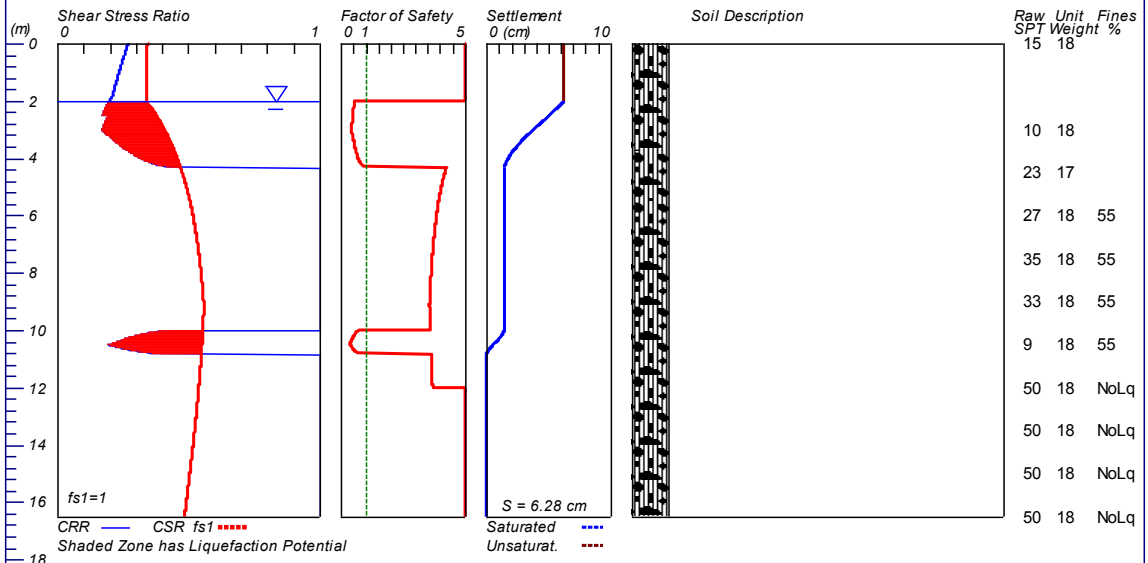
LIQUEFACTION ANALYSIS

DH04
ULS

Shelly Bay

Hole No.=DH04 Water Depth=2 m

Magnitude=7.5
Acceleration=0.53g



Raw SPT	Unit Weight	Fines %
15	18	
10	18	
23	17	
27	18	55
35	18	55
33	18	55
9	18	55
50	18	NoLq
50	18	NoLq
50	18	NoLq
50	18	NoLq

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121 Rostrevor Street
Hamilton
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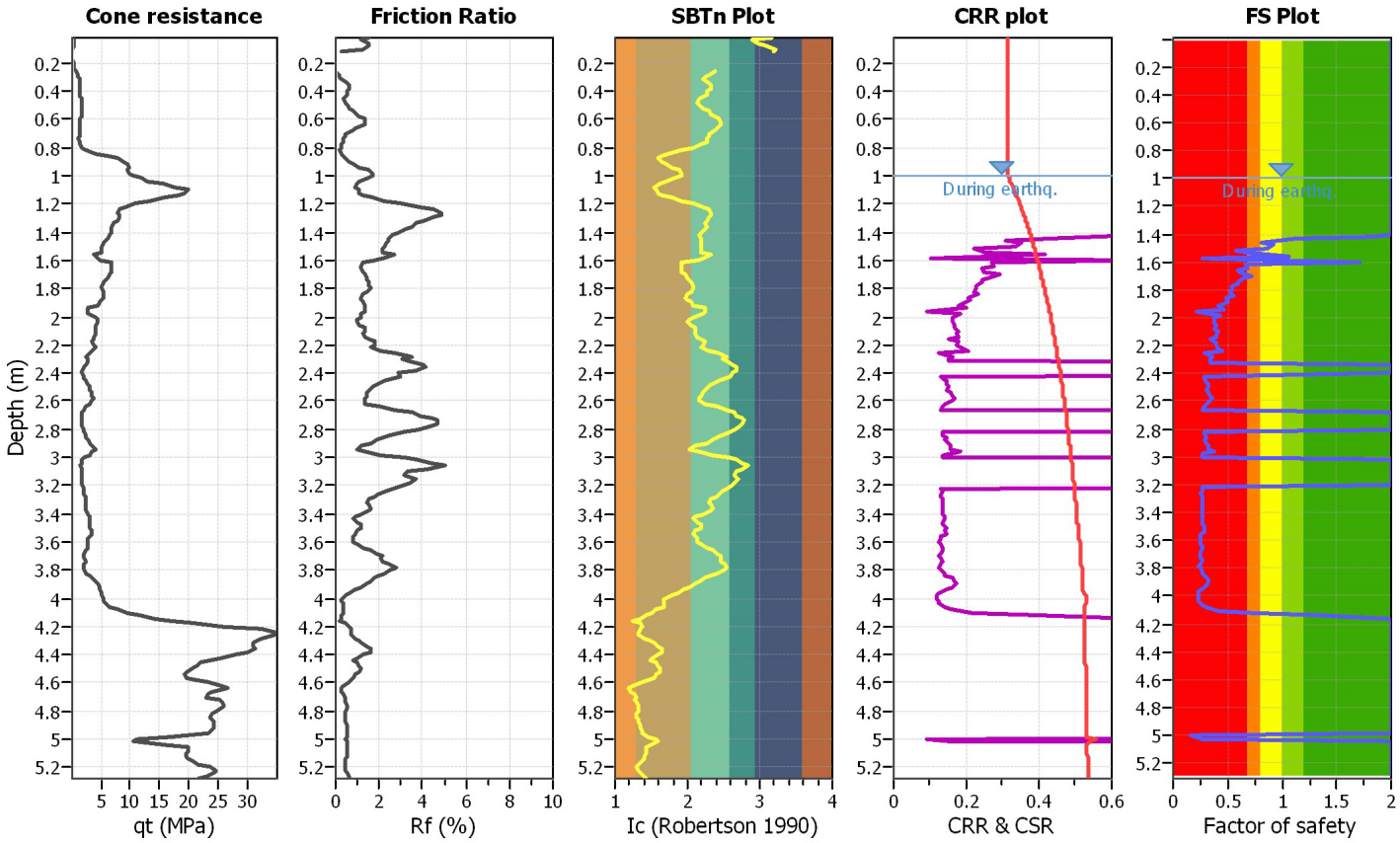
LIQUEFACTION ANALYSIS REPORT

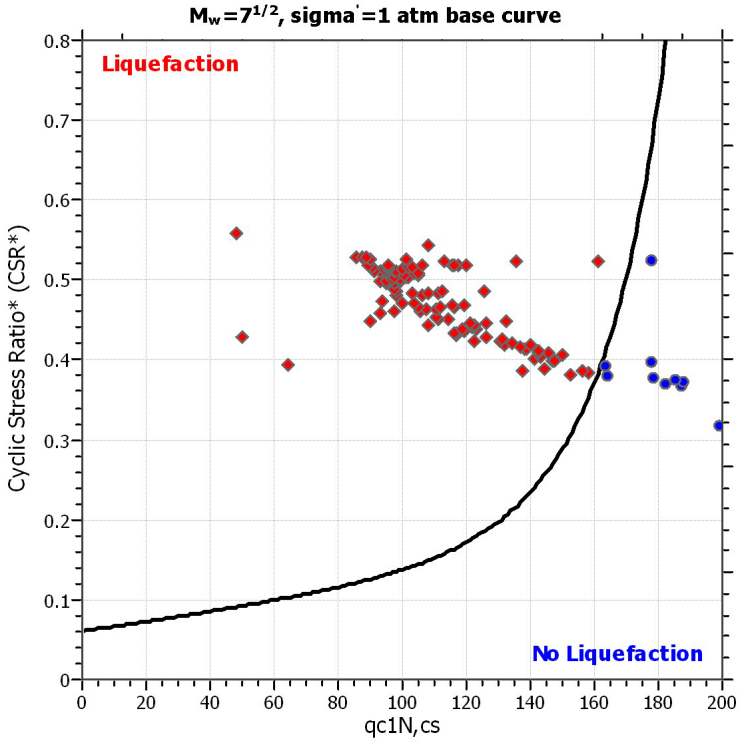
Project title : **Location :**

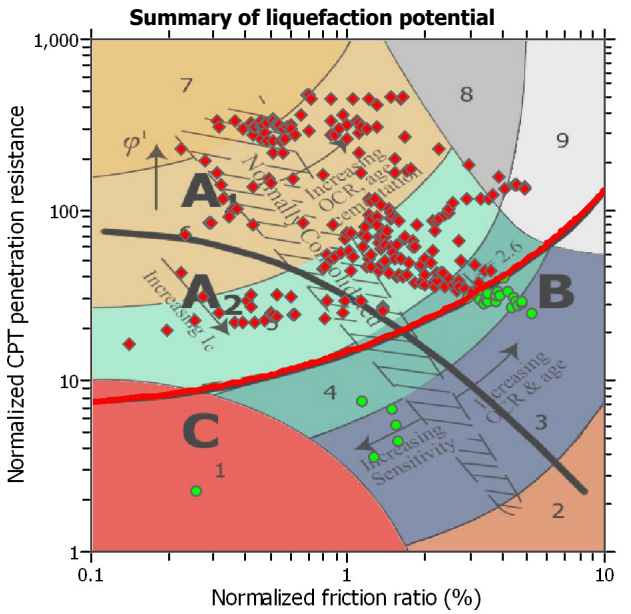
CPT file : Shelly Bay CPT1, ULS

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sand & Clay
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.53	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

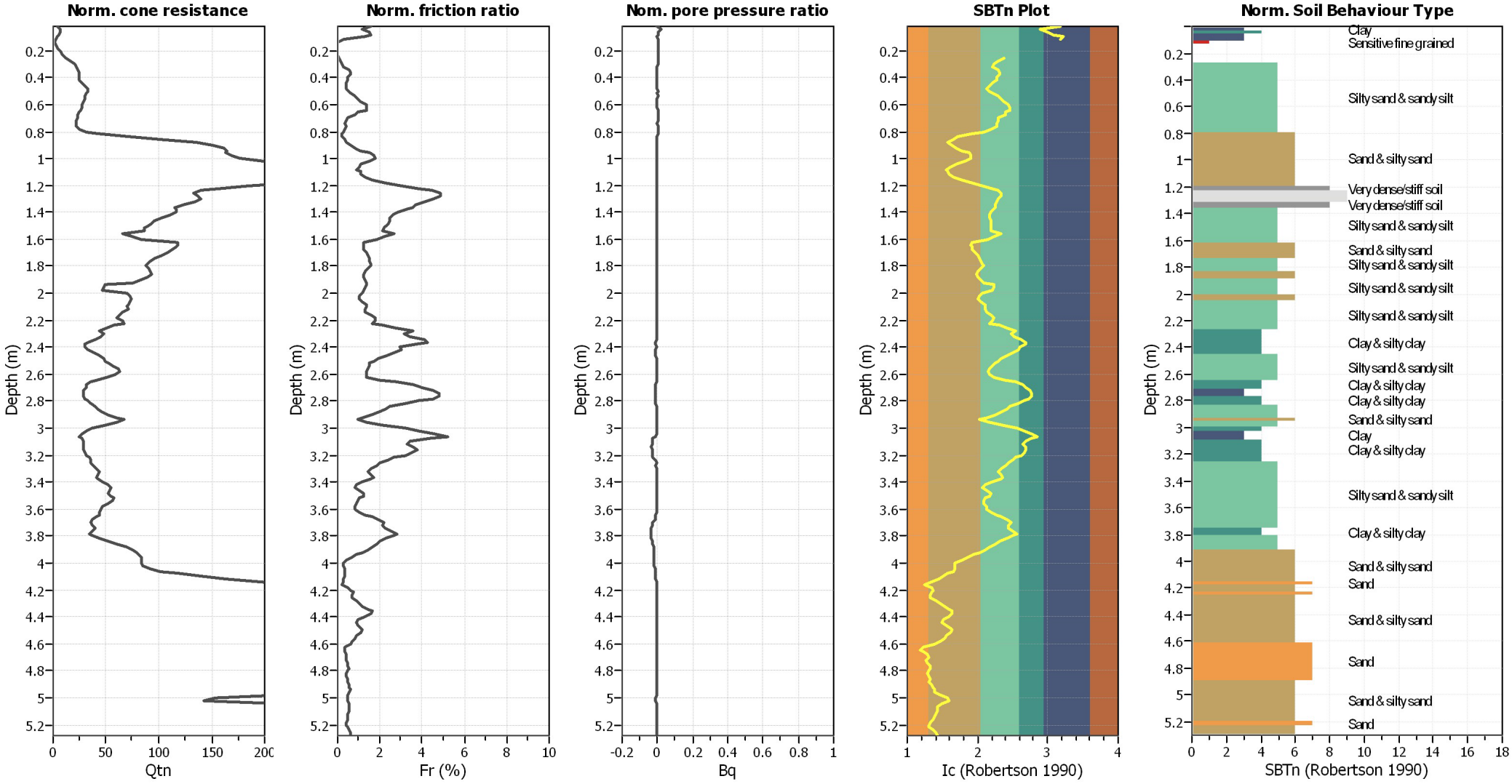






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots (normalized)



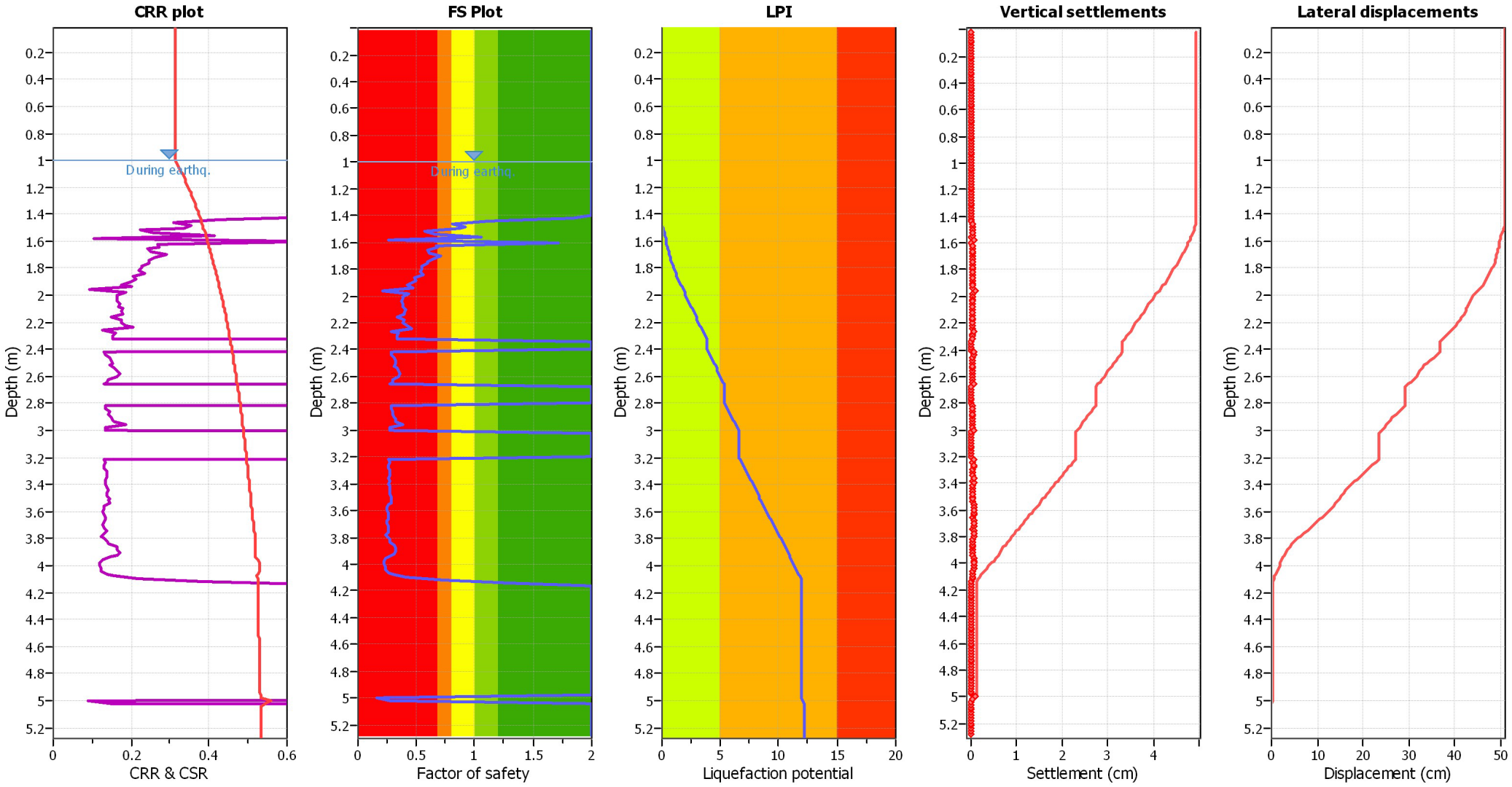
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.53	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.53	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

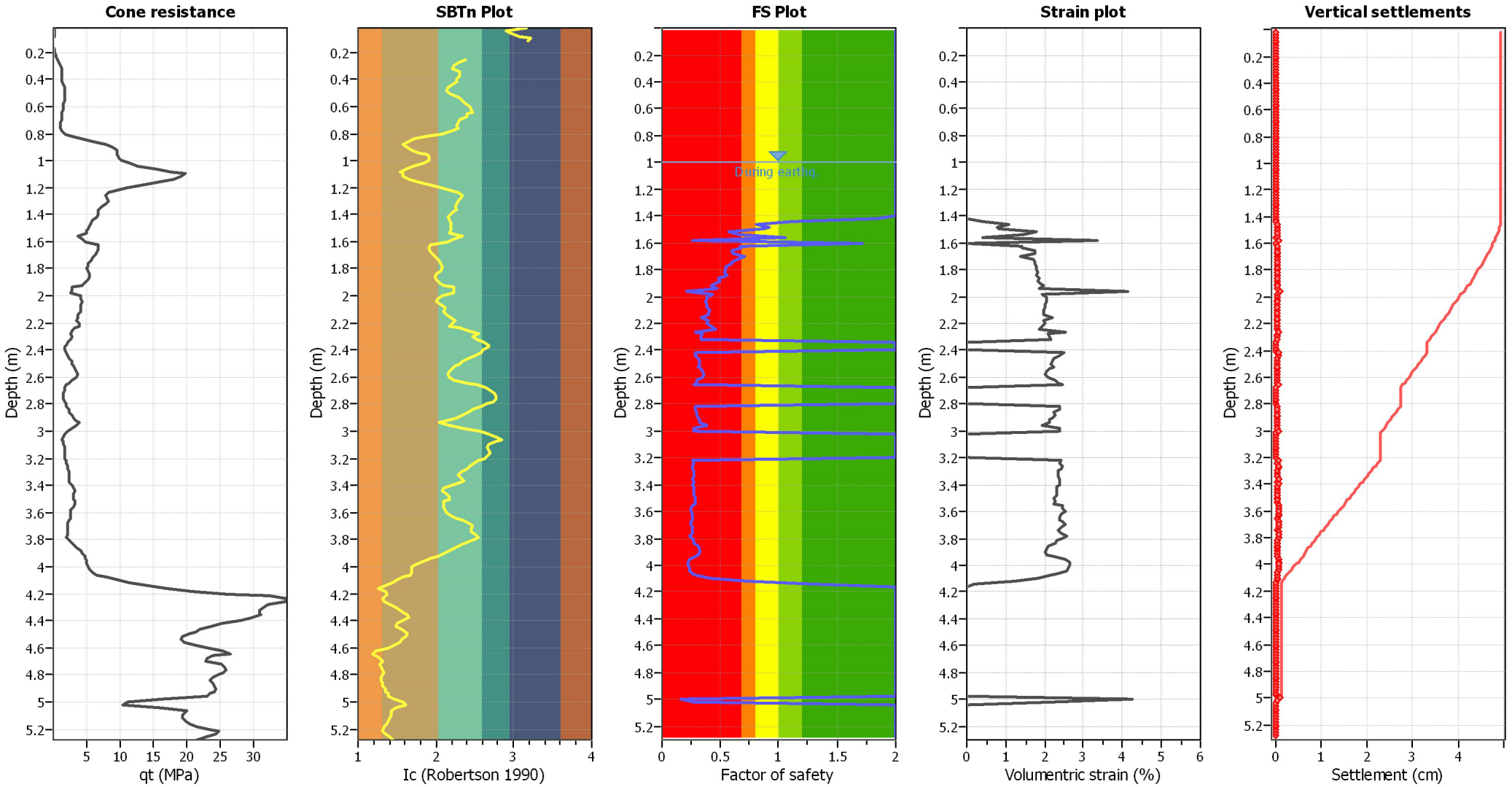
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

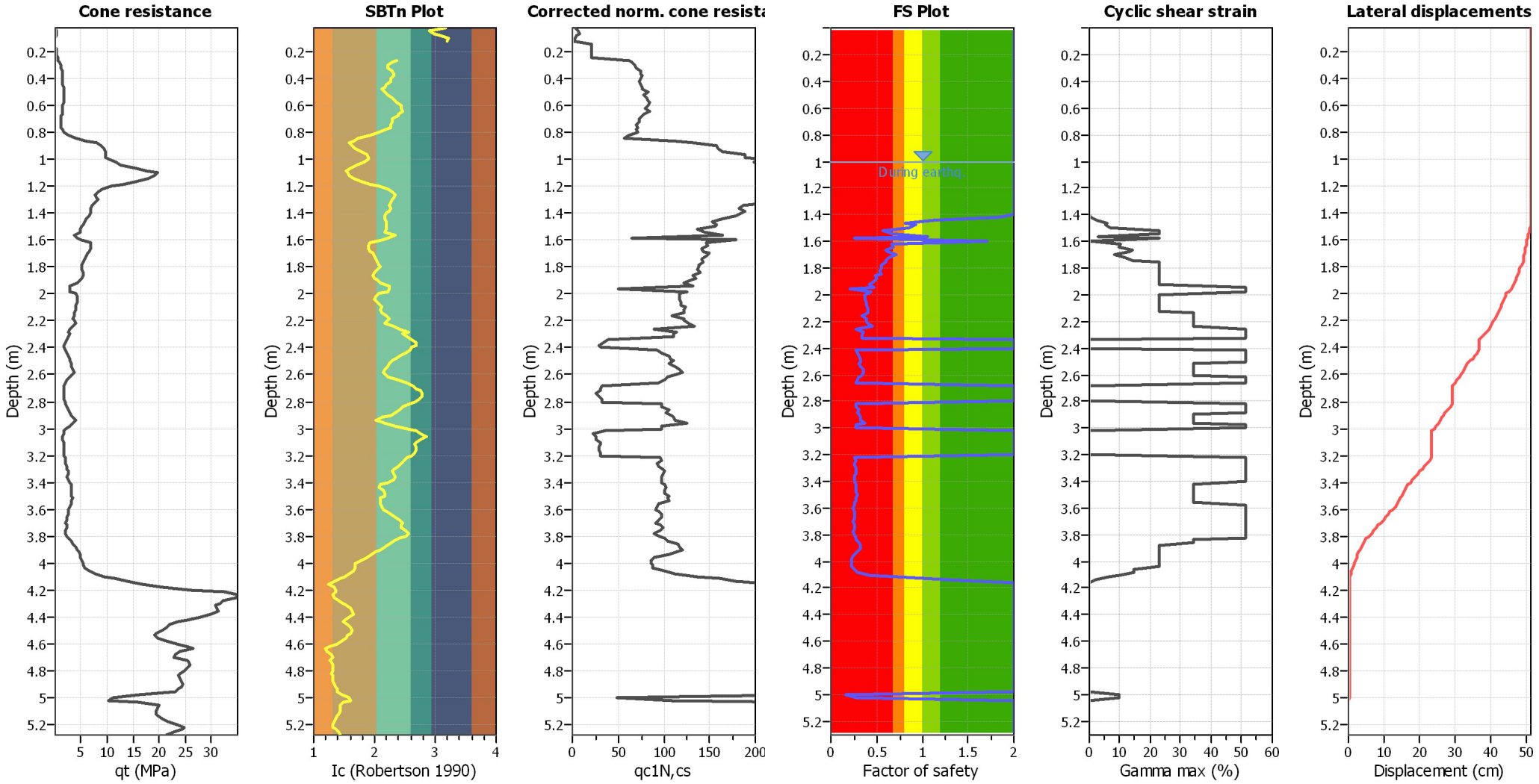
Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

Estimation of post-earthquake lateral Displacements



Abbreviations

q_t: Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c: Soil Behaviour Type Index
$q_{c1N,cs}$: Equivalent clean sand normalized CPT total cone resistance
F.S.: Factor of safety
γ_{max}: Maximum cyclic shear strain
LDI: Lateral displacement index

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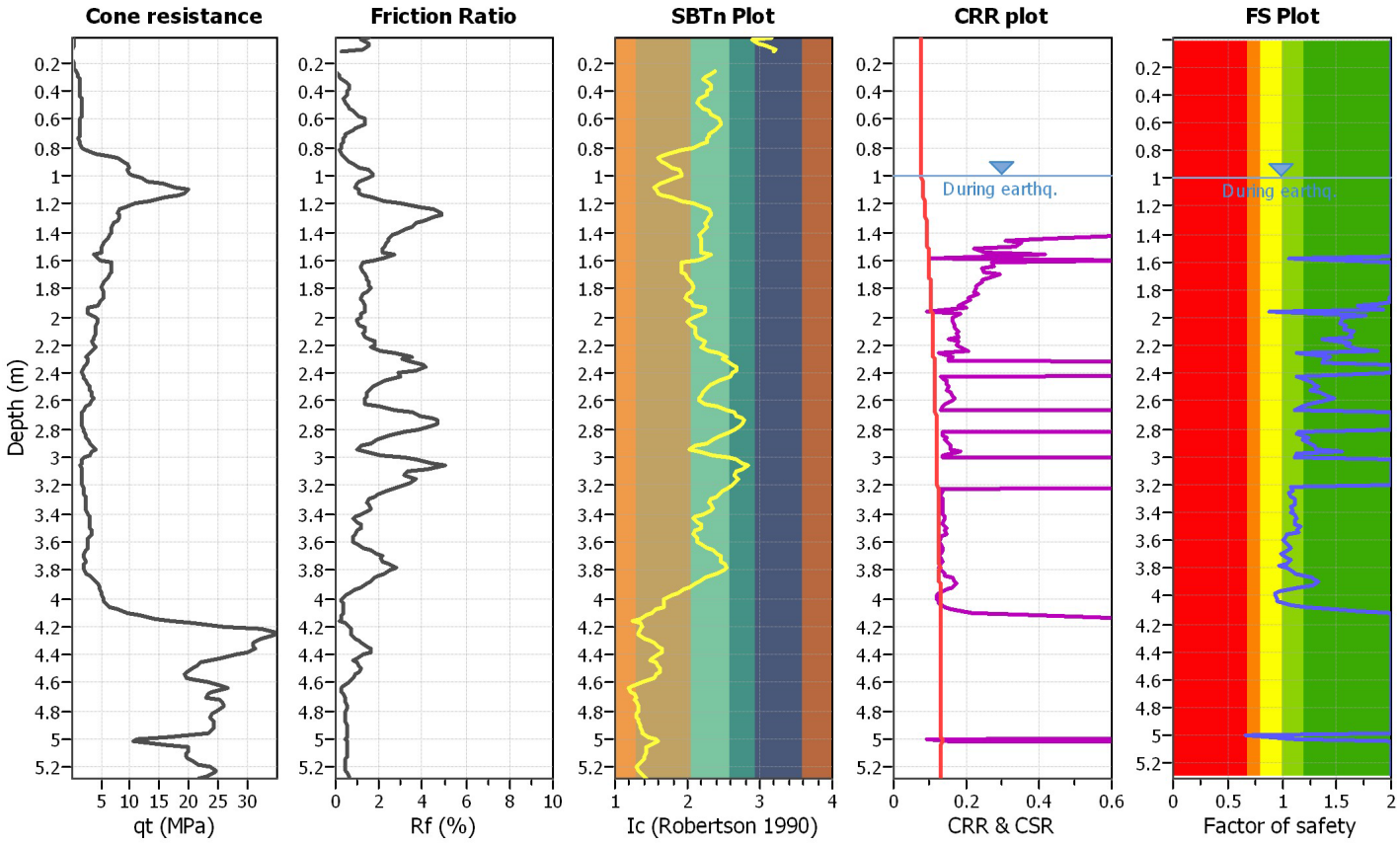
LIQUEFACTION ANALYSIS REPORT

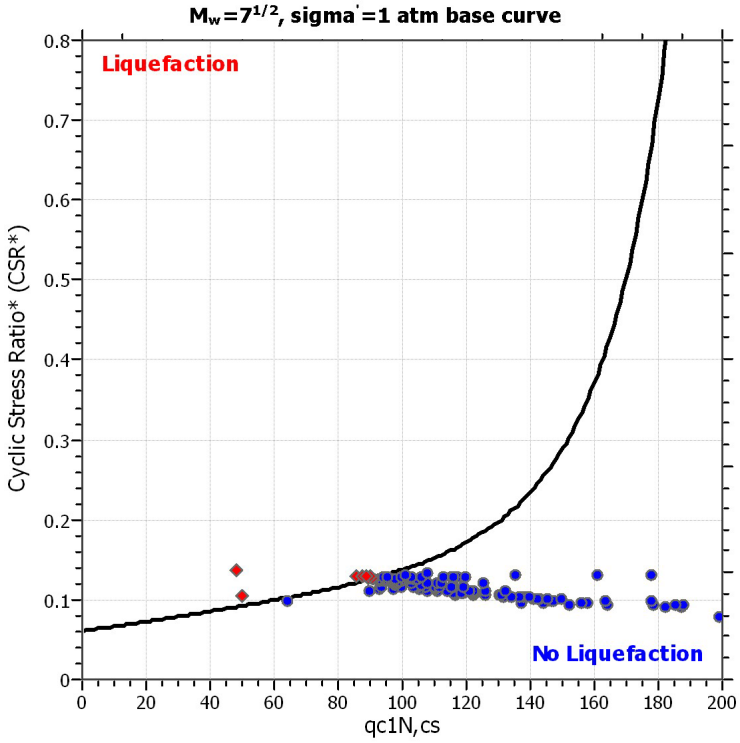
Project title : **Location :**

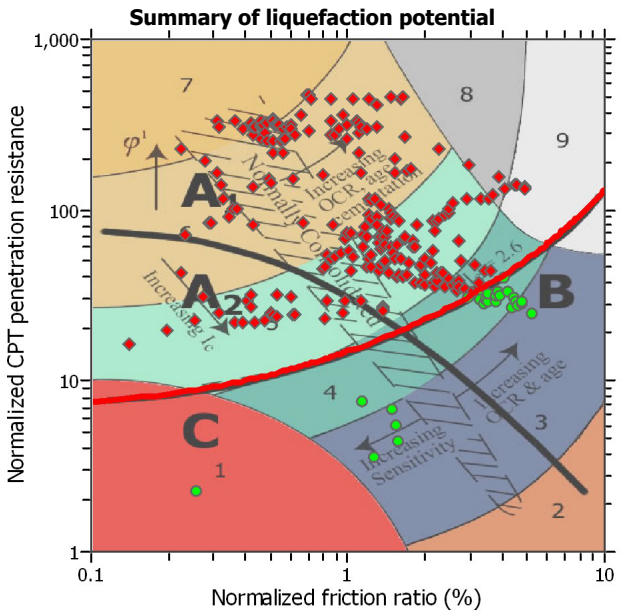
CPT file : Shelly Bay CPT1, SLS

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	Sand & Clay
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.13	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

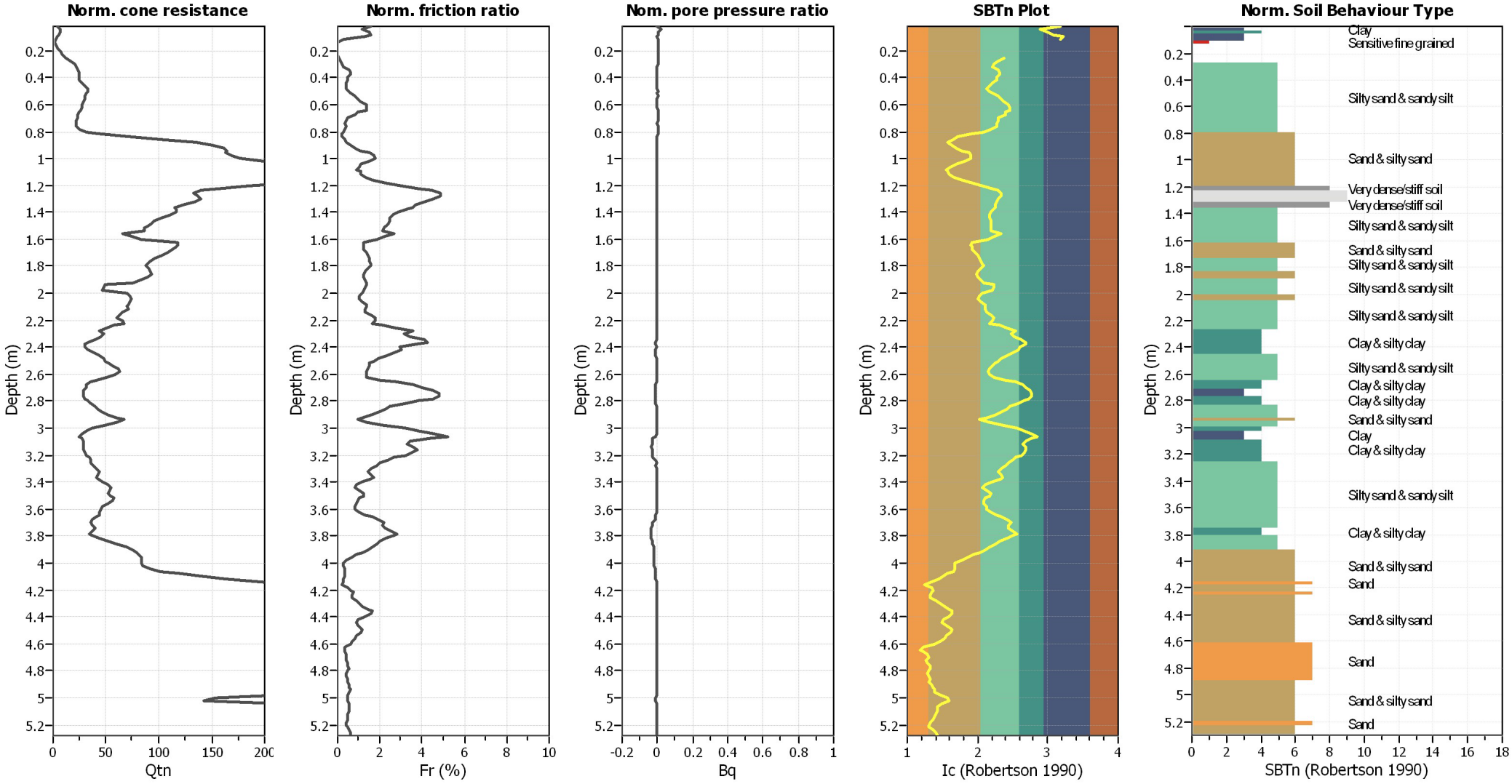






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots (normalized)



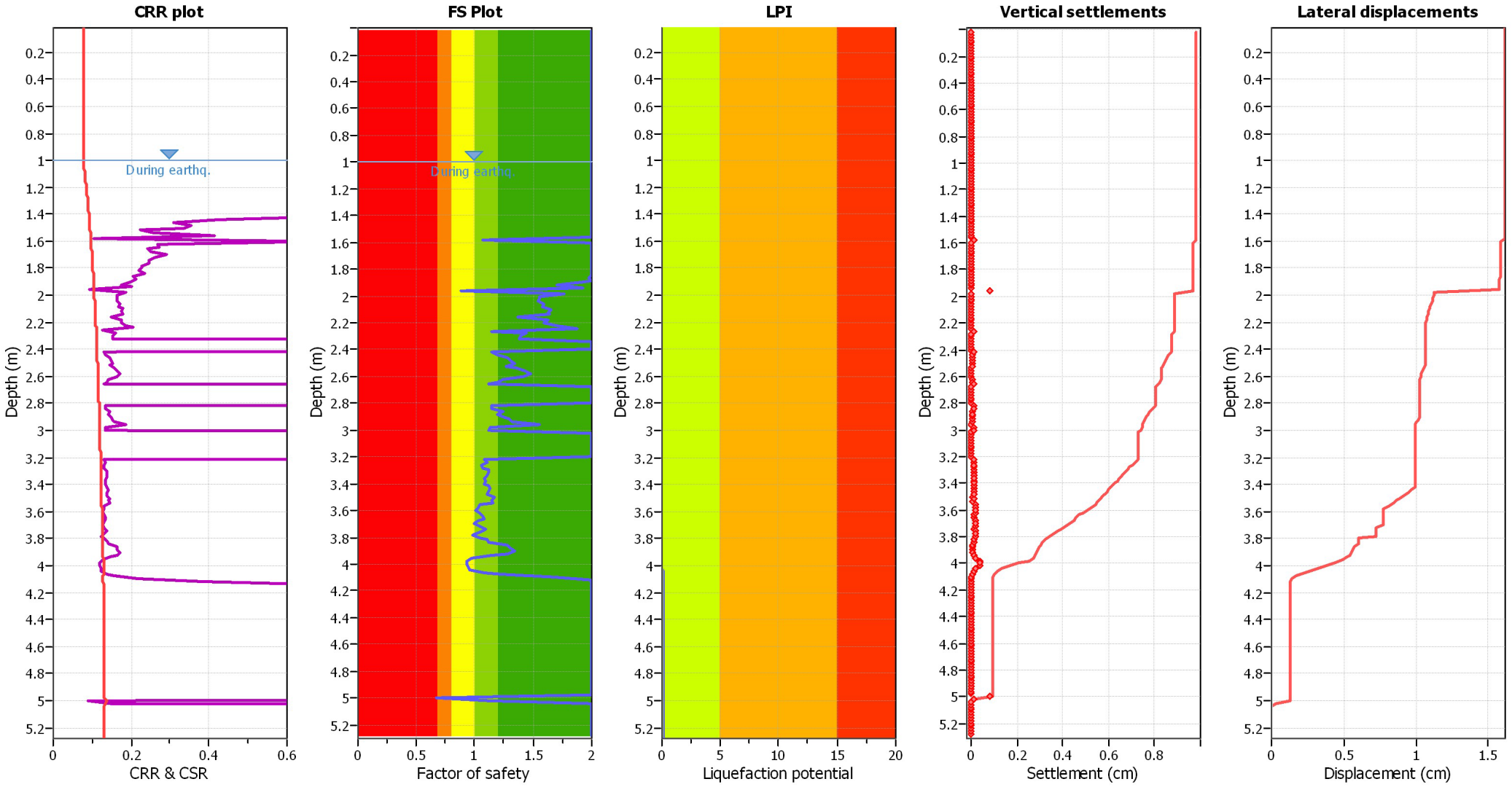
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

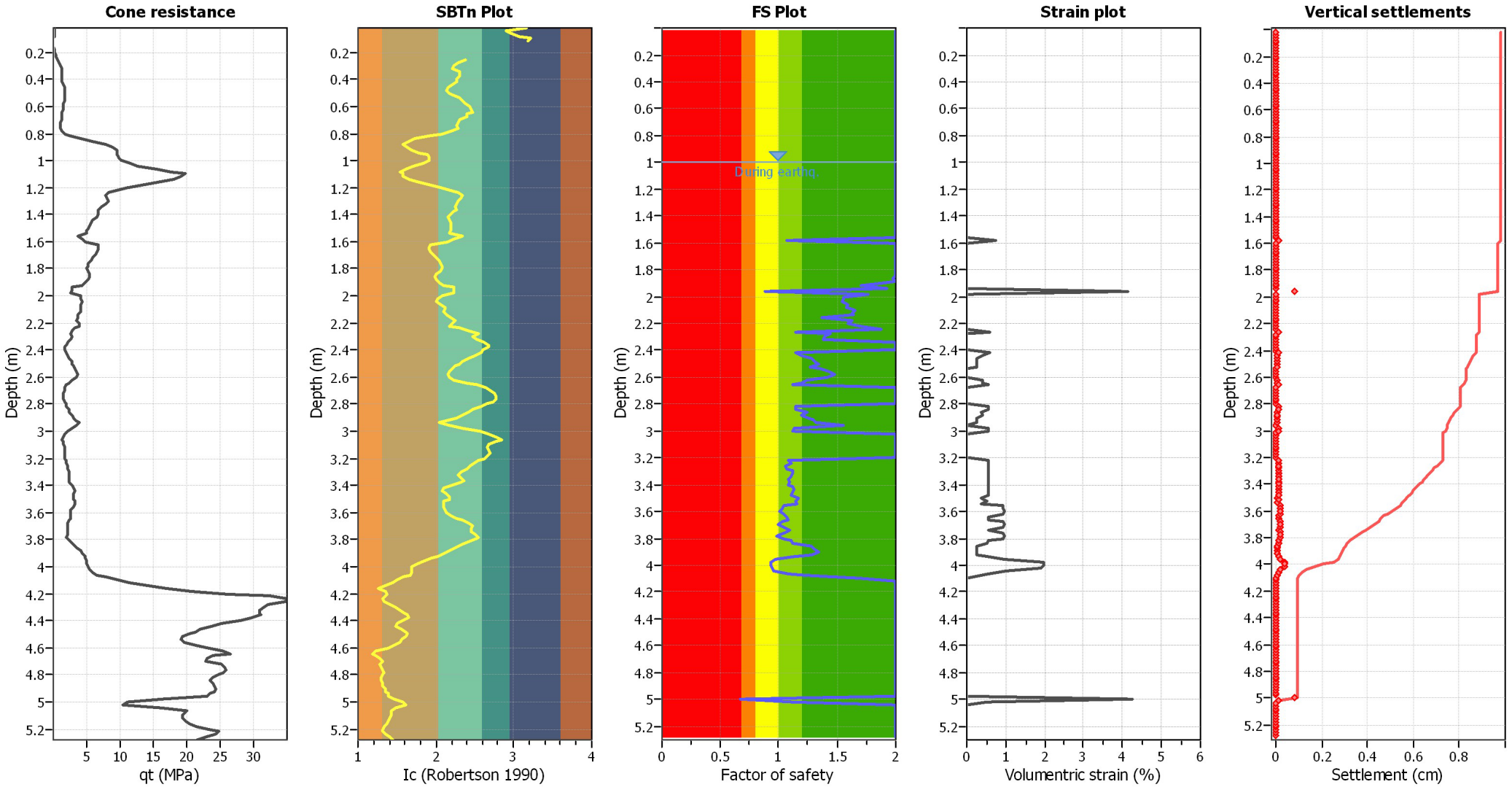
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

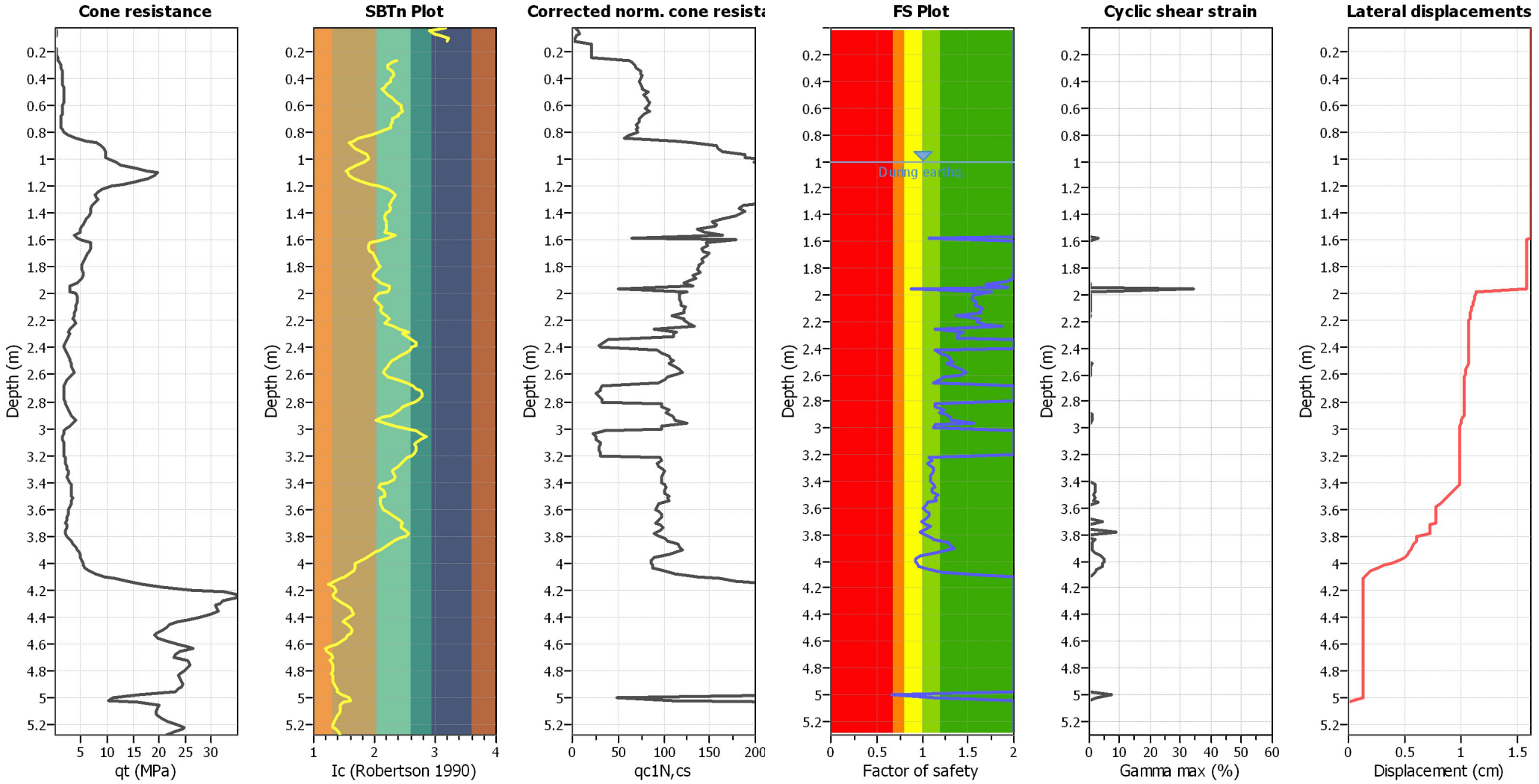
Estimation of post-earthquake settlements



Abbreviations

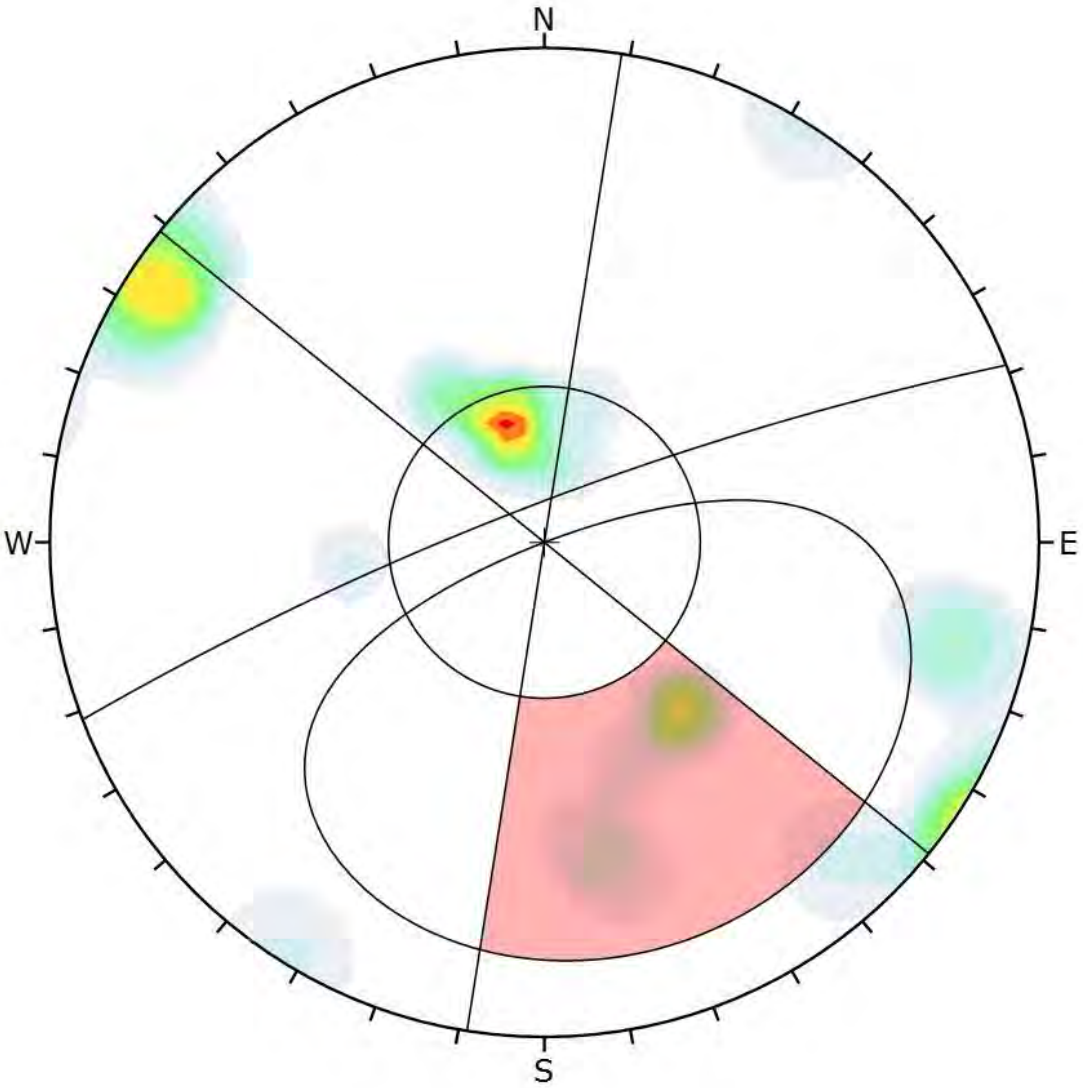
q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

Estimation of post-earthquake lateral Displacements



Abbreviations

q_t: Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c: Soil Behaviour Type Index
$q_{c1N,cs}$: Equivalent clean sand normalized CPT total cone resistance
F.S.: Factor of safety
γ_{max}: Maximum cyclic shear strain
LDI: Lateral displacement index



Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

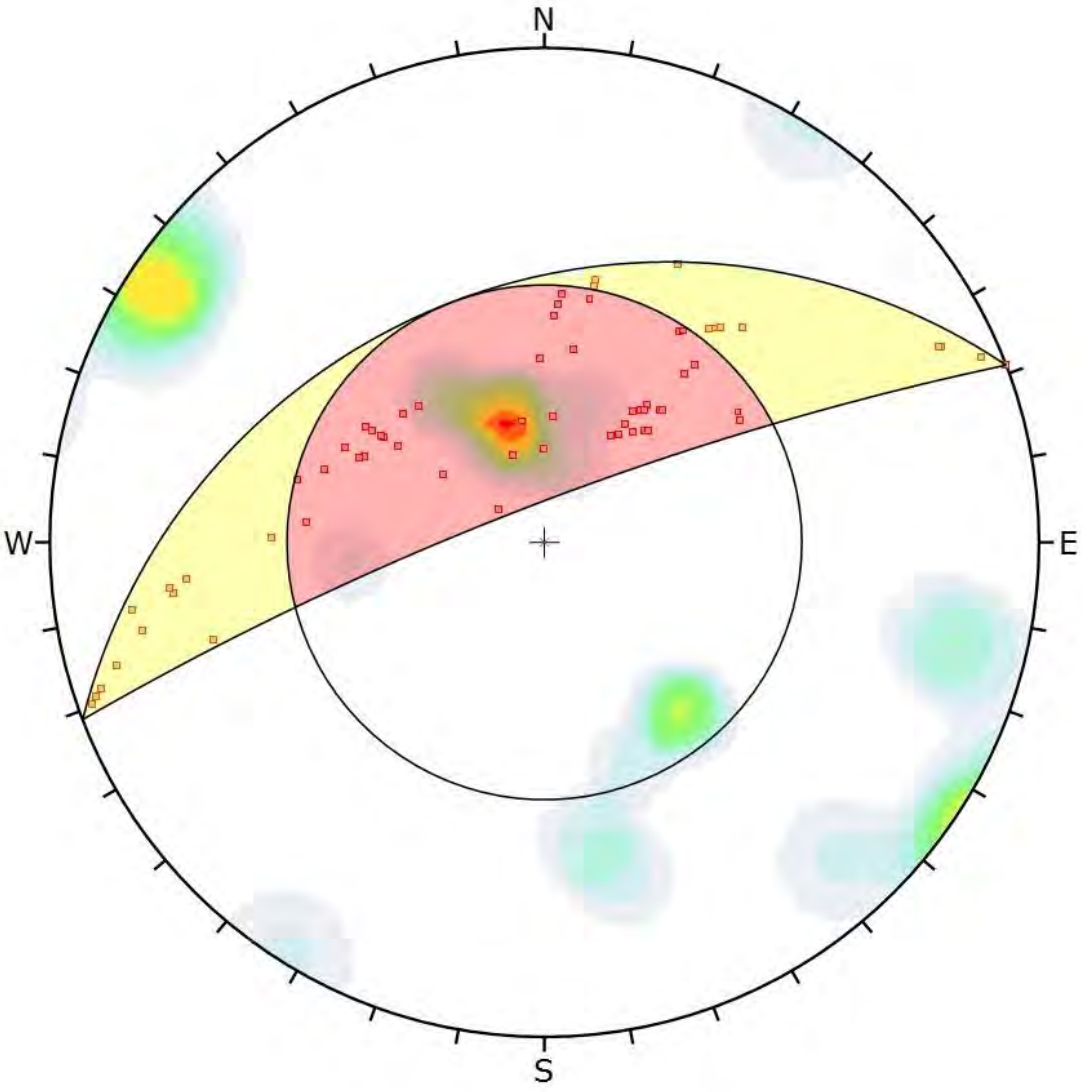
Maximum Density	18.00%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	81
Slope Dip Direction	339
Friction Angle	35°
Lateral Limits	30°

	Critical	Total	%
Planar Sliding (All)	6	25	24.00%

Plot Mode	Pole Vectors
Vector Count	25 (25 Entries)
Hemisphere	Lower
Projection	Equal Angle

Slope 1
Planar Sliding



Symbol	Feature
▫	Critical Intersection

Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

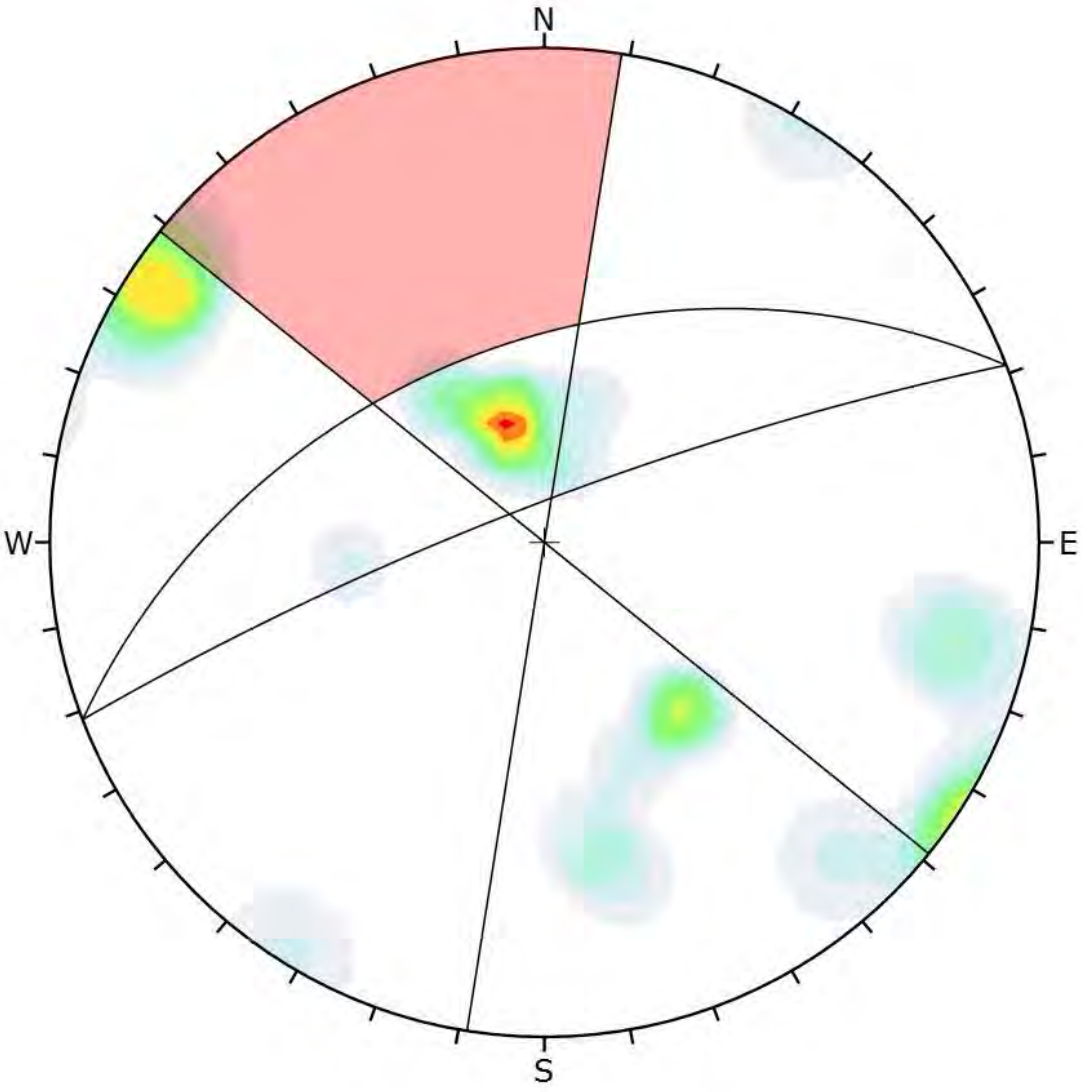
Maximum Density	18.00%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	81
Slope Dip Direction	339
Friction Angle	35°

	Critical	Total	%
Wedge Sliding	67	300	22.33%

Plot Mode	Pole Vectors
Vector Count	25 (25 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	300
Hemisphere	Lower
Projection	Equal Angle

Slope 1
Wedge Sliding



Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

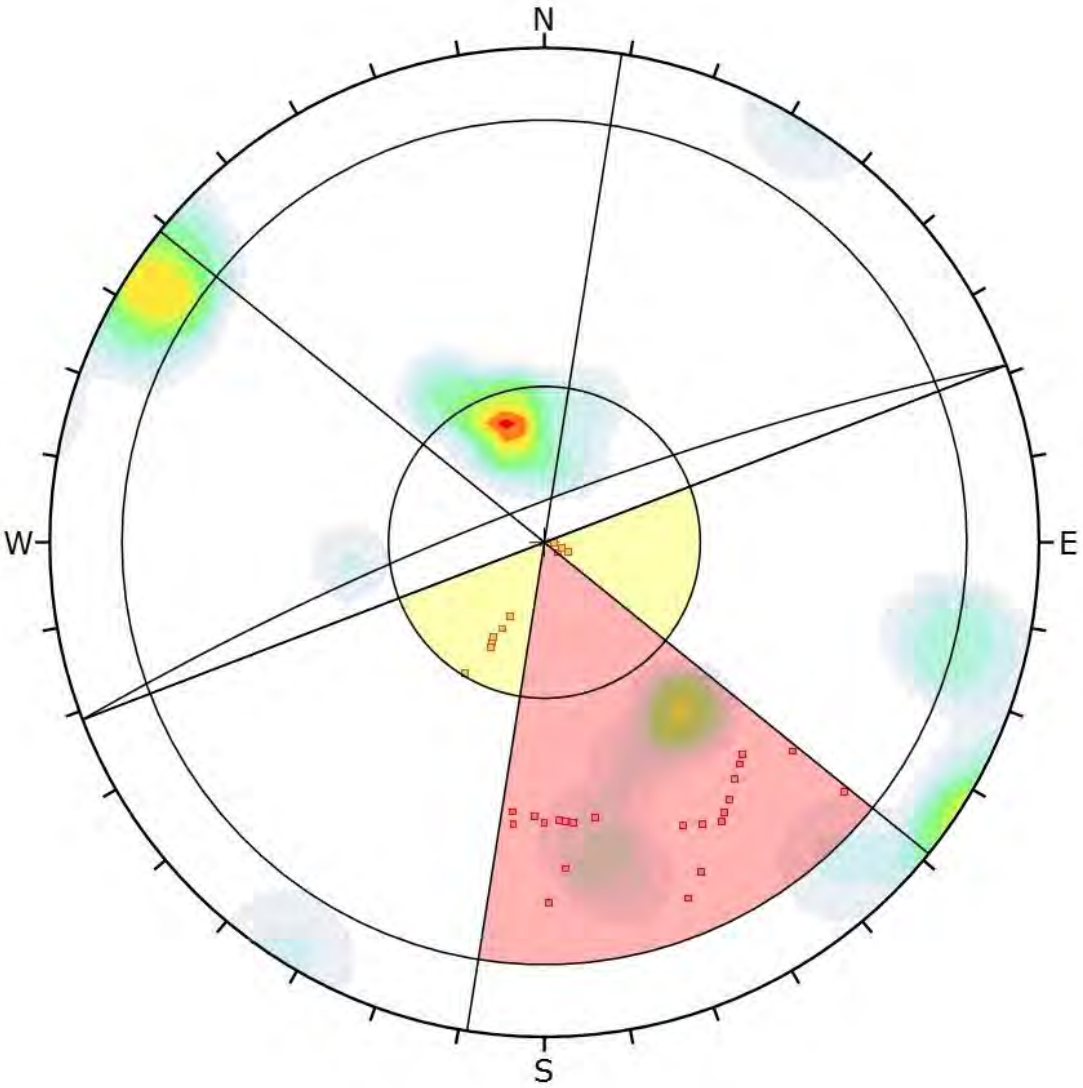
Maximum Density	18.00%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	81
Slope Dip Direction	339
Friction Angle	35°
Lateral Limits	30°

	Critical	Total	%
Flexural Toppling (All)	0	25	0.00%

Plot Mode	Pole Vectors
Vector Count	25 (25 Entries)
Hemisphere	Lower
Projection	Equal Angle

Slope 1
Flexural Toppling



Symbol	Feature
▫	Critical Intersection

Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

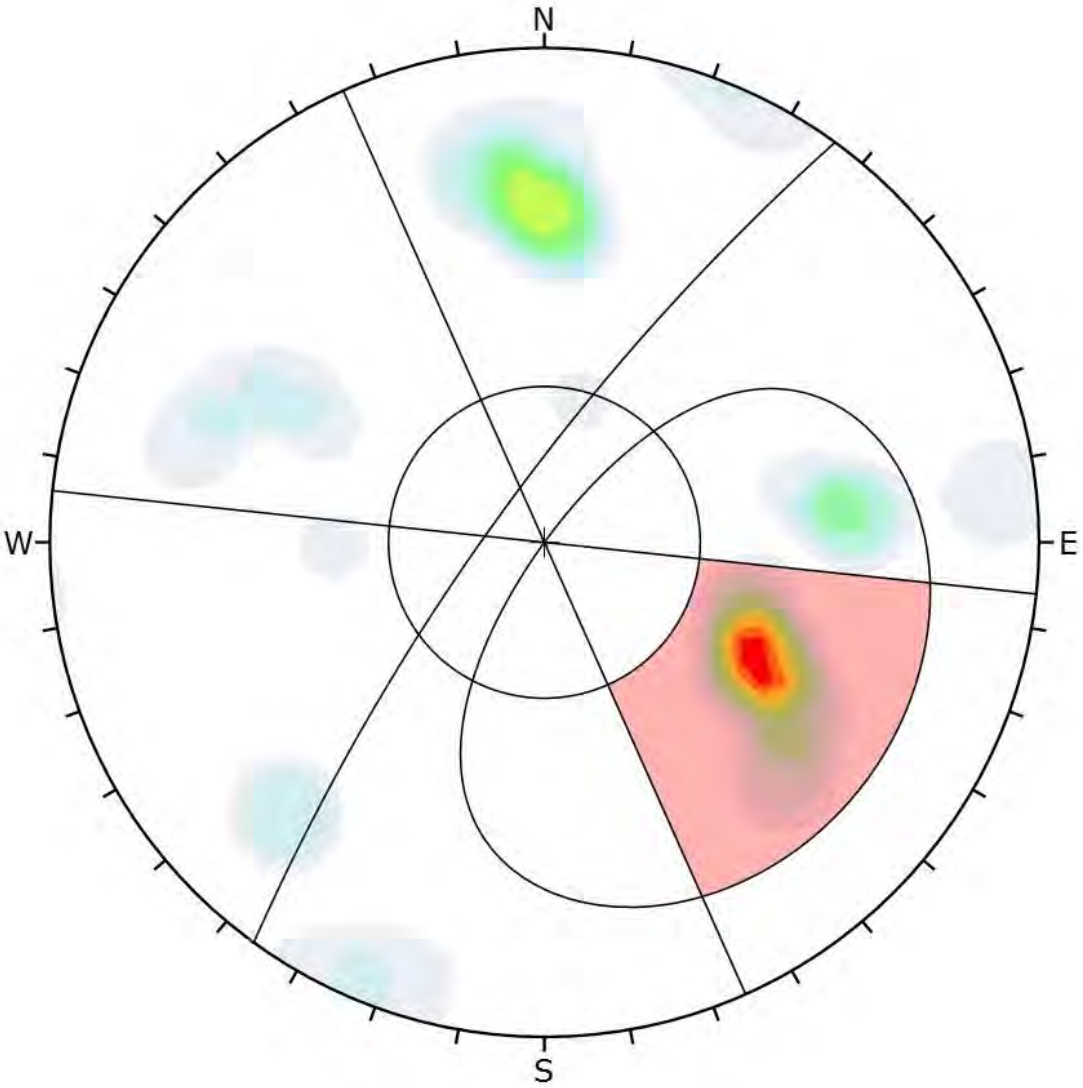
Maximum Density	18.00%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Direct Toppling
Slope Dip	81
Slope Dip Direction	339
Friction Angle	35°
Lateral Limits	30°

	Critical	Total	%
Direct Toppling (Intersection)	22	300	7.33%
Oblique Toppling (Intersection)	11	300	3.67%
Base Plane (All)	6	25	24.00%

Plot Mode	Pole Vectors
Vector Count	25 (25 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	300
Hemisphere	Lower
Projection	Equal Angle

Slope 1
Direct Toppling



Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

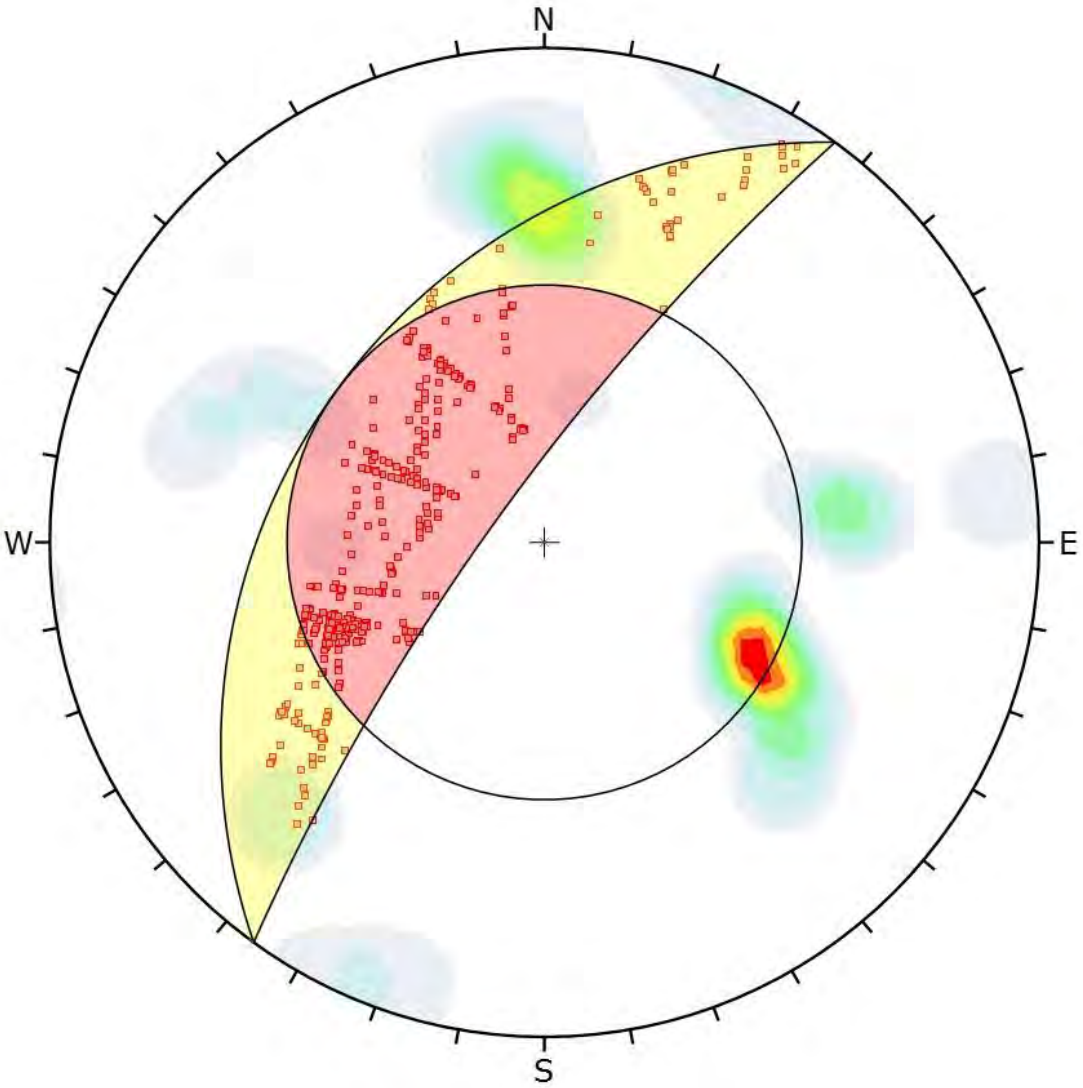
Maximum Density	18.41%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	78
Slope Dip Direction	306
Friction Angle	35°
Lateral Limits	30°

	Critical	Total	%
Planar Sliding (All)	14	37	37.84%

Plot Mode	Pole Vectors
Vector Count	37 (37 Entries)
Hemisphere	Lower
Projection	Equal Angle

Slope 5, Face 1
Planar Sliding



Symbol	Feature
▫	Critical Intersection

Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

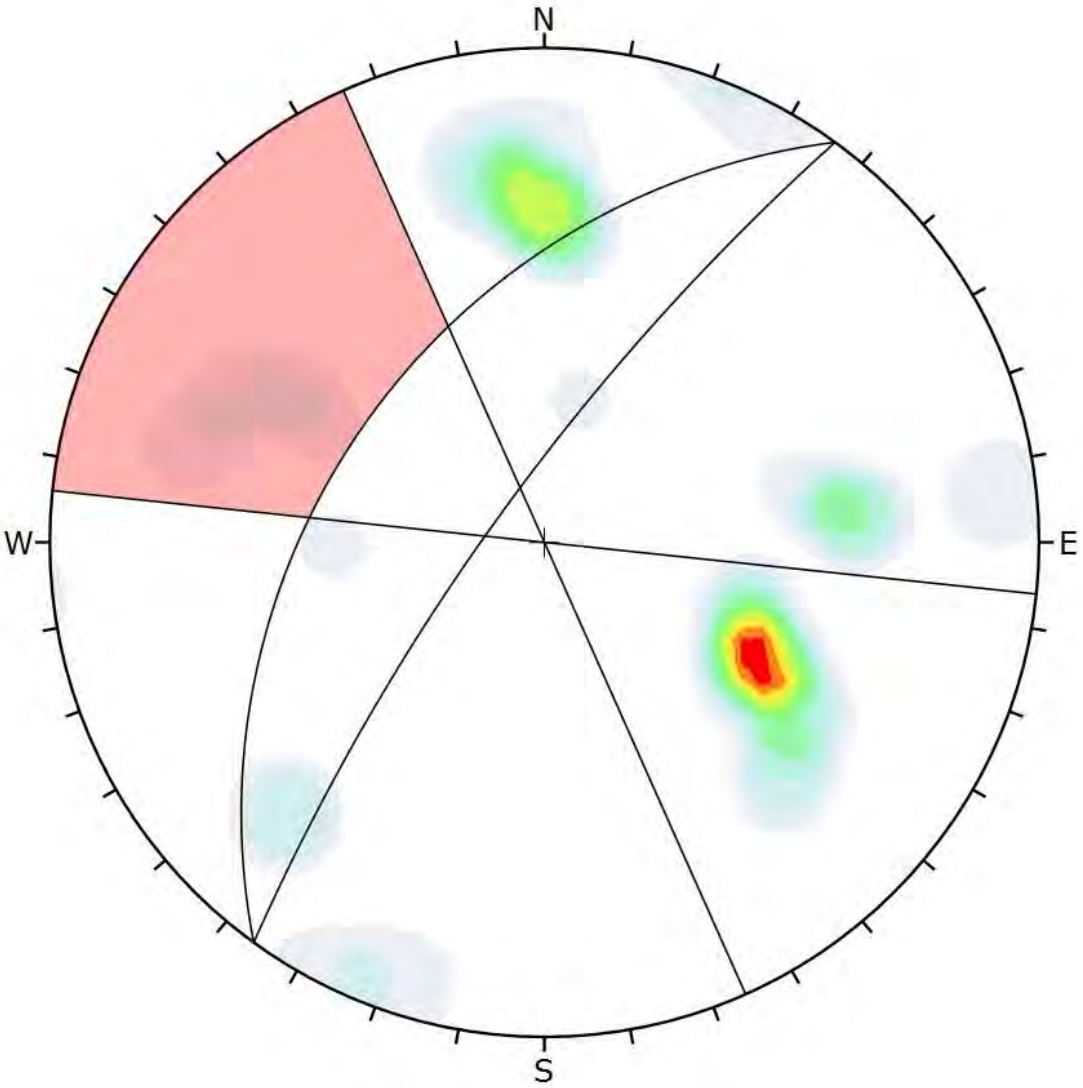
Maximum Density	18.41%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	78
Slope Dip Direction	306
Friction Angle	35°

	Critical	Total	%
Wedge Sliding	394	666	59.16%

Plot Mode	Pole Vectors
Vector Count	37 (37 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	666
Hemisphere	Lower
Projection	Equal Angle

Slope 5, Face 1
Wedge Sliding



Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

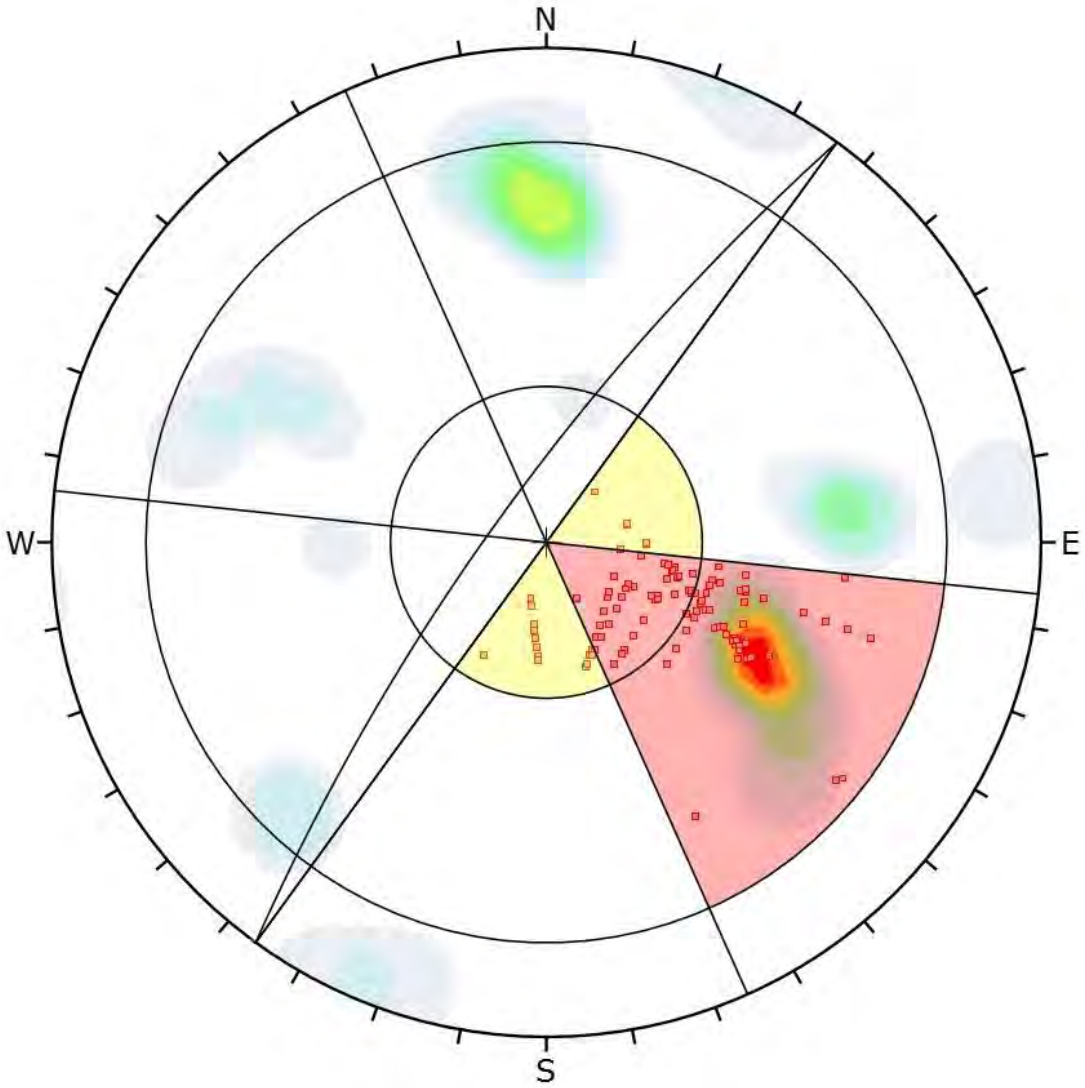
Maximum Density	18.41%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	78
Slope Dip Direction	306
Friction Angle	35°
Lateral Limits	30°

	Critical	Total	%
Flexural Toppling (All)	4	37	10.81%

Plot Mode	Pole Vectors
Vector Count	37 (37 Entries)
Hemisphere	Lower
Projection	Equal Angle

Slope 5, Face 1
Flexural Toppling



Symbol	Feature
▫	Critical Intersection

Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

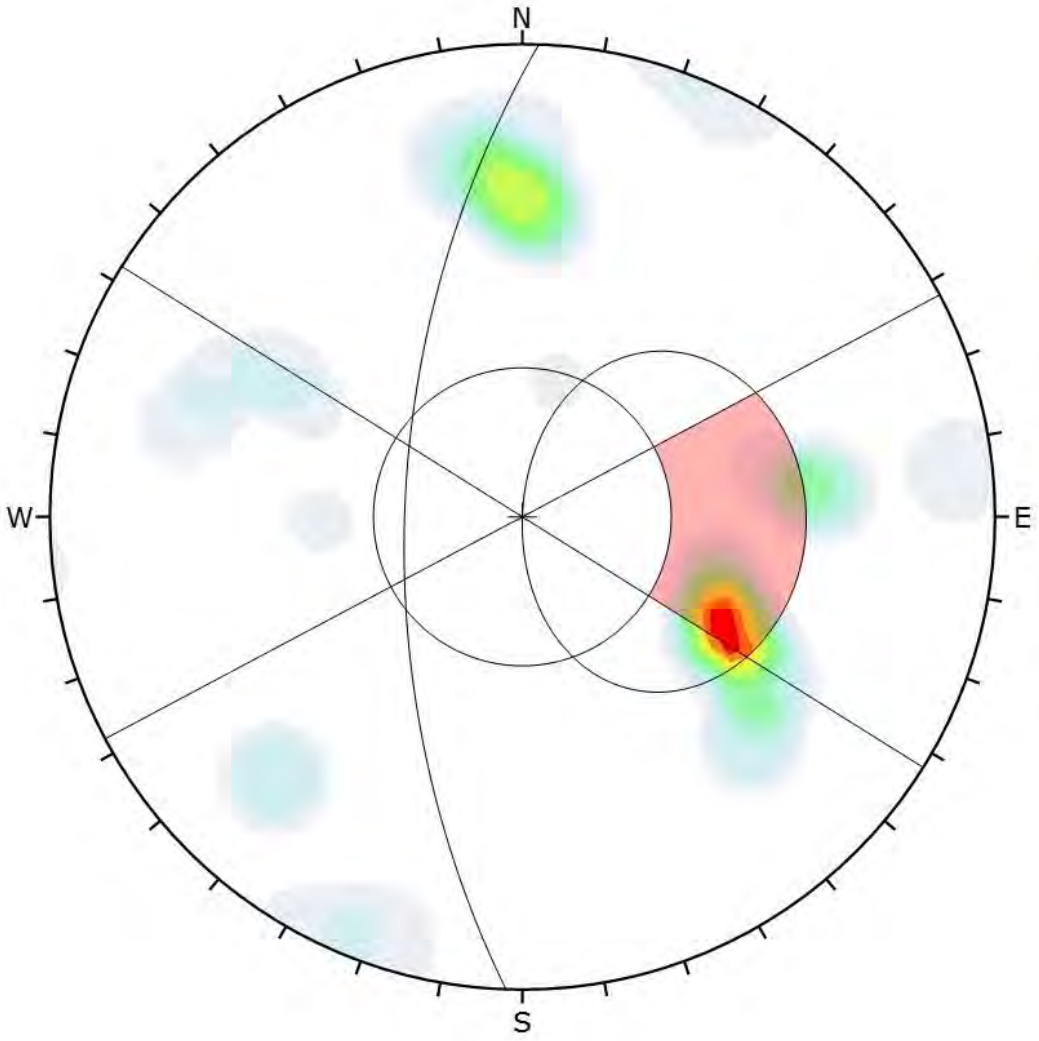
Maximum Density	18.41%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Direct Toppling
Slope Dip	78
Slope Dip Direction	306
Friction Angle	35°
Lateral Limits	30°

	Critical	Total	%
Direct Toppling (Intersection)	92	666	13.81%
Oblique Toppling (Intersection)	21	666	3.15%
Base Plane (All)	14	37	37.84%

Plot Mode	Pole Vectors
Vector Count	37 (37 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	666
Hemisphere	Lower
Projection	Equal Angle

Slope 5, Face 1
Direct Toppling



Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

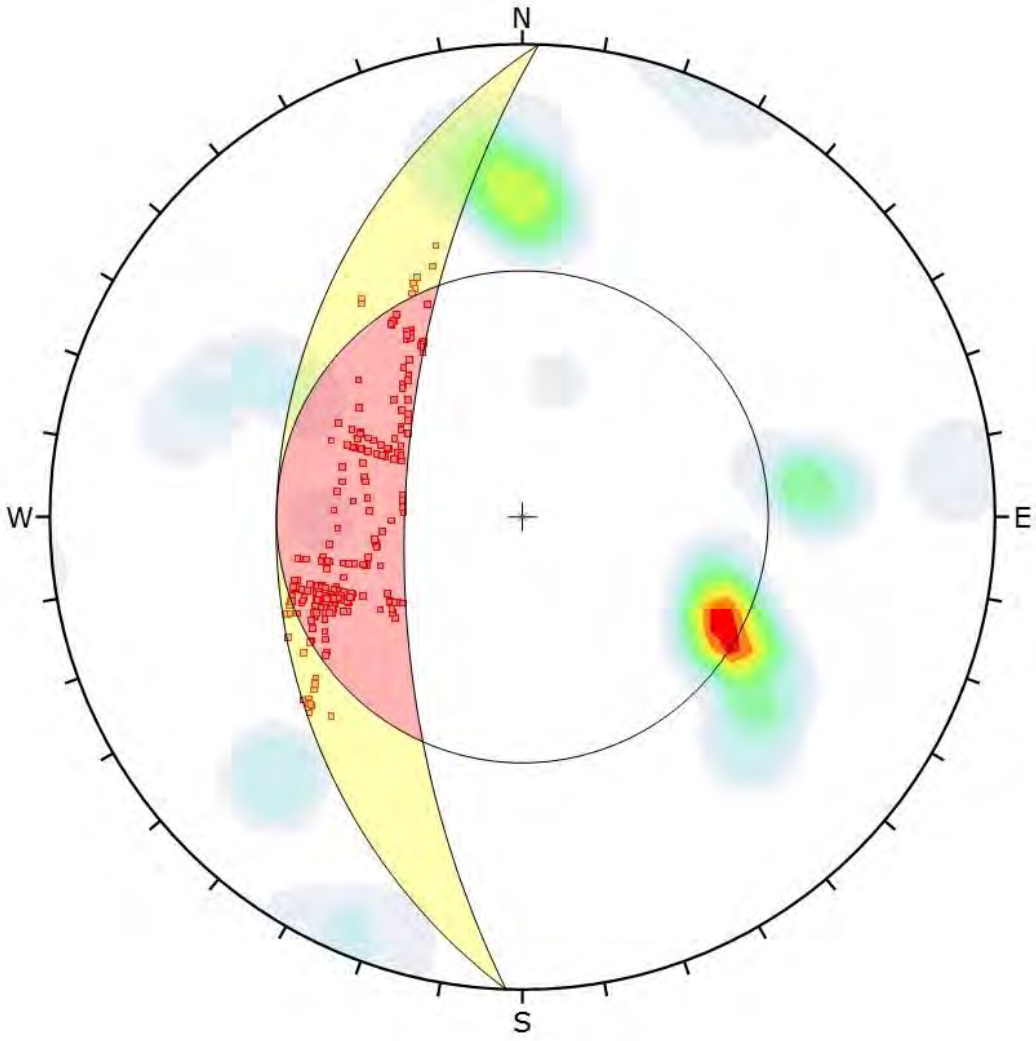
Maximum Density	18.41%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding
Slope Dip	62
Slope Dip Direction	272
Friction Angle	35°
Lateral Limits	30°

	Critical	Total	%
Planar Sliding (All)	9	37	24.32%

Plot Mode	Pole Vectors
Vector Count	37 (37 Entries)
Hemisphere	Lower
Projection	Equal Angle

Slope 5, Face 2
Planar Sliding



Symbol	Feature
▫	Critical Intersection

Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

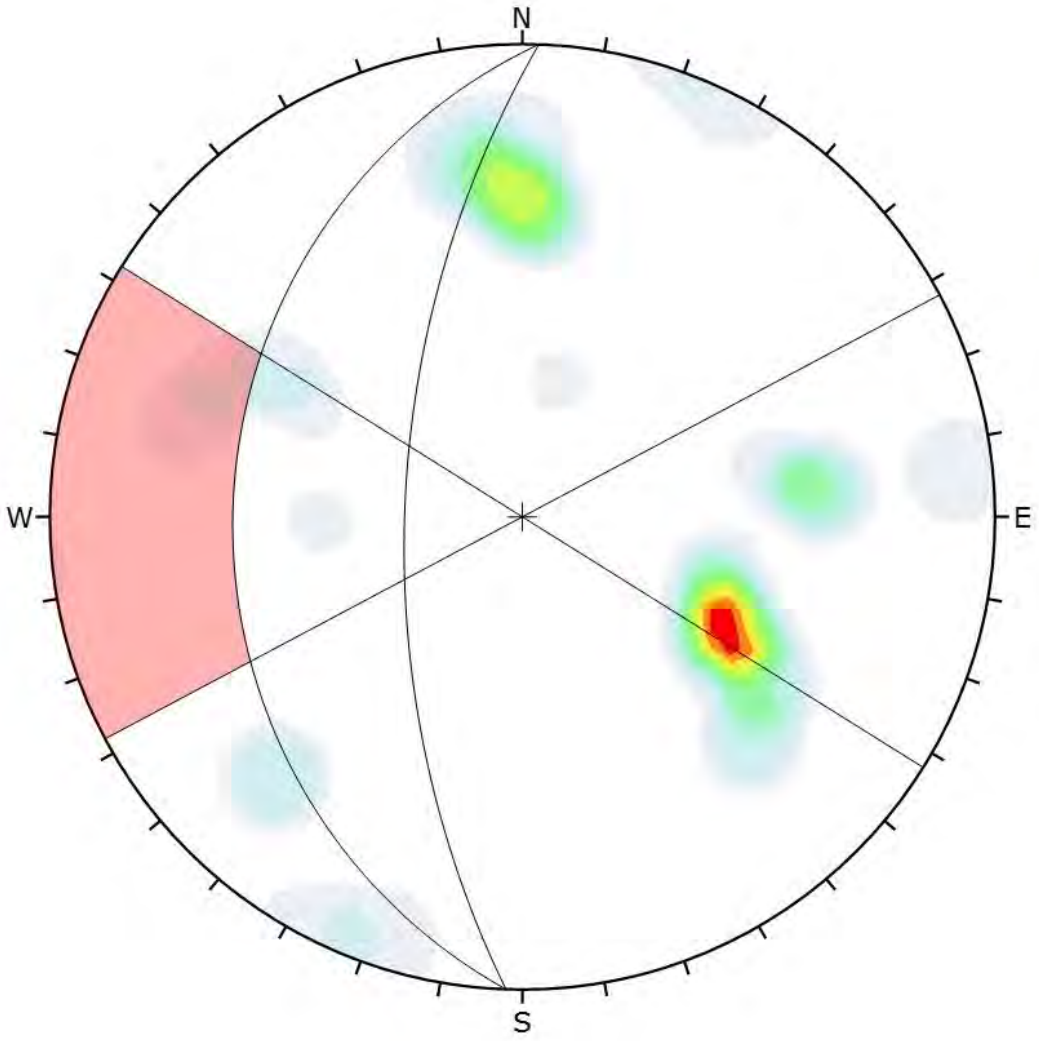
Maximum Density	18.41%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	62
Slope Dip Direction	272
Friction Angle	35°

	Critical	Total	%
Wedge Sliding	270	666	40.54%

Plot Mode	Pole Vectors
Vector Count	37 (37 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	666
Hemisphere	Lower
Projection	Equal Angle

Slope 5, Face 2
Wedge Sliding



Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

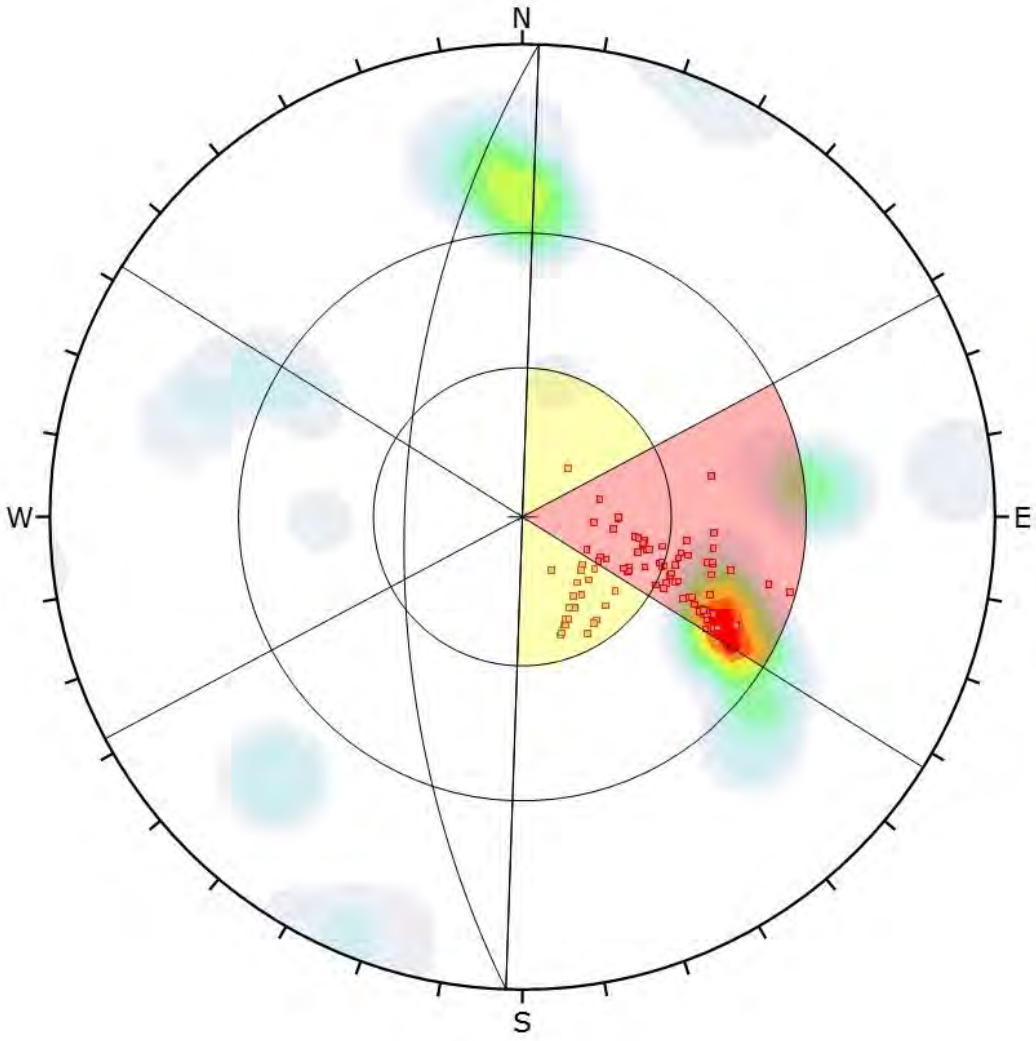
Maximum Density	18.41%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling
Slope Dip	62
Slope Dip Direction	272
Friction Angle	35°
Lateral Limits	30°

	Critical	Total	%
Flexural Toppling (All)	2	37	5.41%

Plot Mode	Pole Vectors
Vector Count	37 (37 Entries)
Hemisphere	Lower
Projection	Equal Angle

Slope 5, Face 2
Flexural Toppling



Symbol	Feature
▫	Critical Intersection

Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

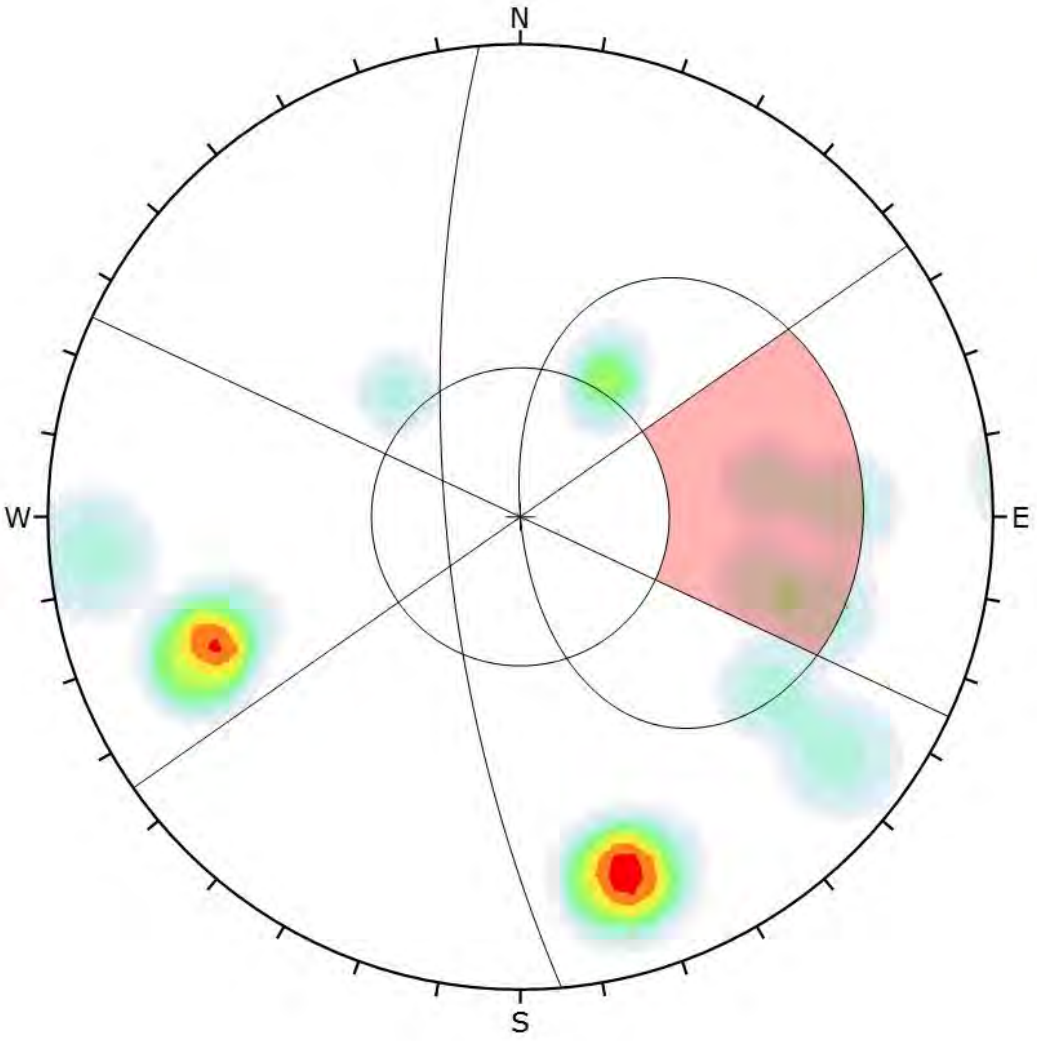
Maximum Density	18.41%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Direct Toppling
Slope Dip	62
Slope Dip Direction	272
Friction Angle	35°
Lateral Limits	30°

	Critical	Total	%
Direct Toppling (Intersection)	72	666	10.81%
Oblique Toppling (Intersection)	23	666	3.45%
Base Plane (All)	11	37	29.73%

Plot Mode	Pole Vectors
Vector Count	37 (37 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	666
Hemisphere	Lower
Projection	Equal Angle

Slope 5, Face 2
Direct Toppling



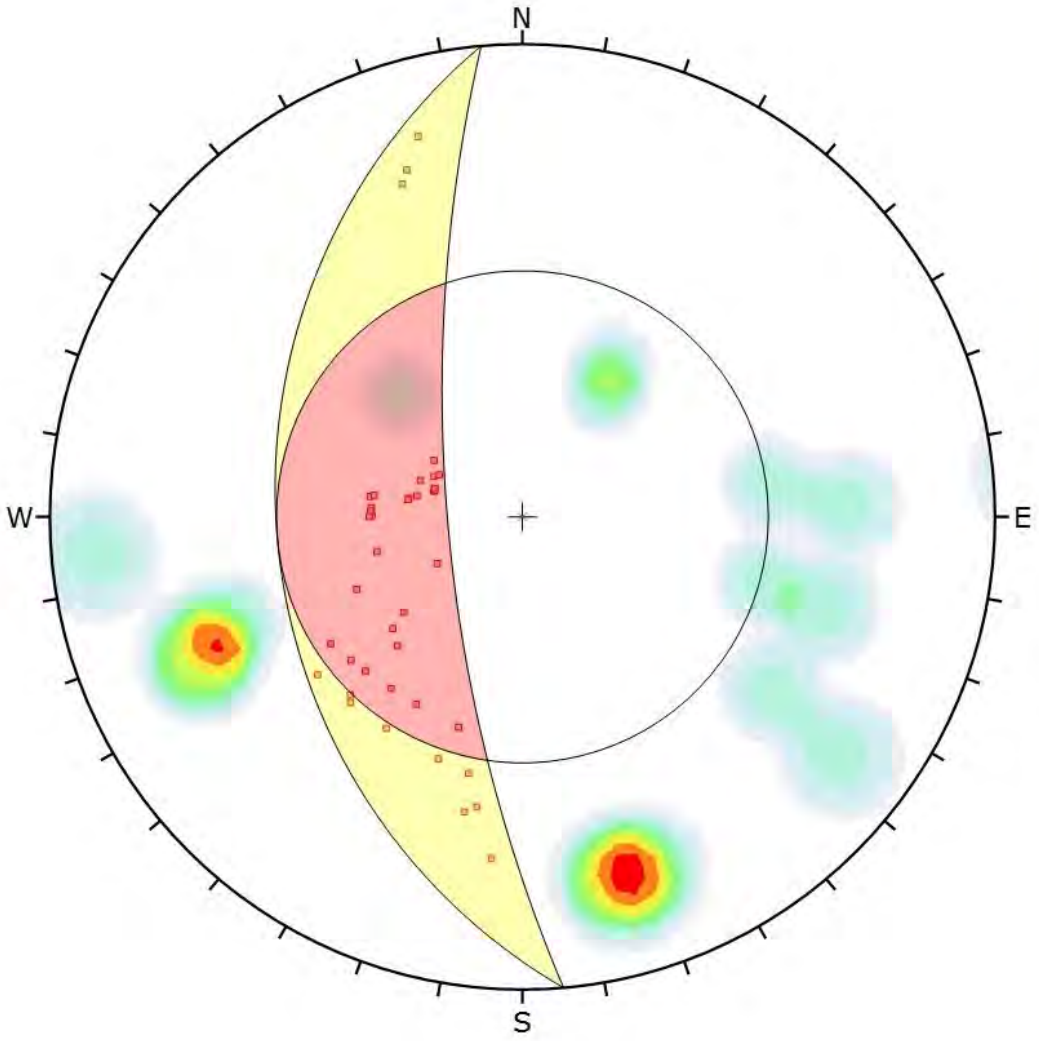
Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

Maximum Density	18.01%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Planar Sliding		
Slope Dip	72		
Slope Dip Direction	265		
Friction Angle	35°		
Lateral Limits	30°		
	Critical	**Total**	**%**
Planar Sliding (All)	4	16	25.00%

Plot Mode	Pole Vectors
Vector Count	16 (16 Entries)
Hemisphere	Lower
Projection	Equal Angle

Slope 7
Planar Sliding



Symbol	Feature
▫	Critical Intersection

Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

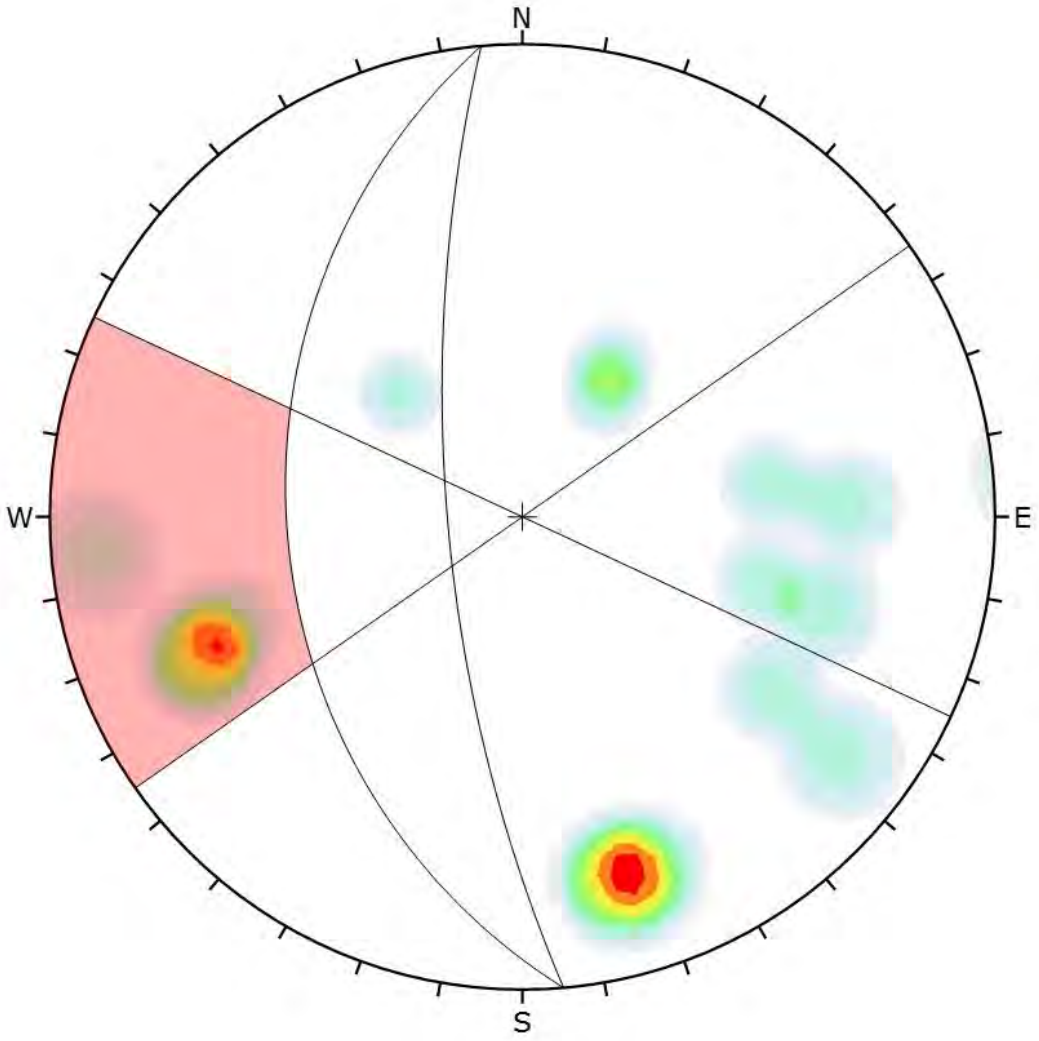
Maximum Density	18.01%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Wedge Sliding
Slope Dip	72
Slope Dip Direction	265
Friction Angle	35°

	Critical	Total	%
Wedge Sliding	43	120	35.83%

Plot Mode	Pole Vectors
Vector Count	16 (16 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	120
Hemisphere	Lower
Projection	Equal Angle

Slope 7
Wedge Sliding



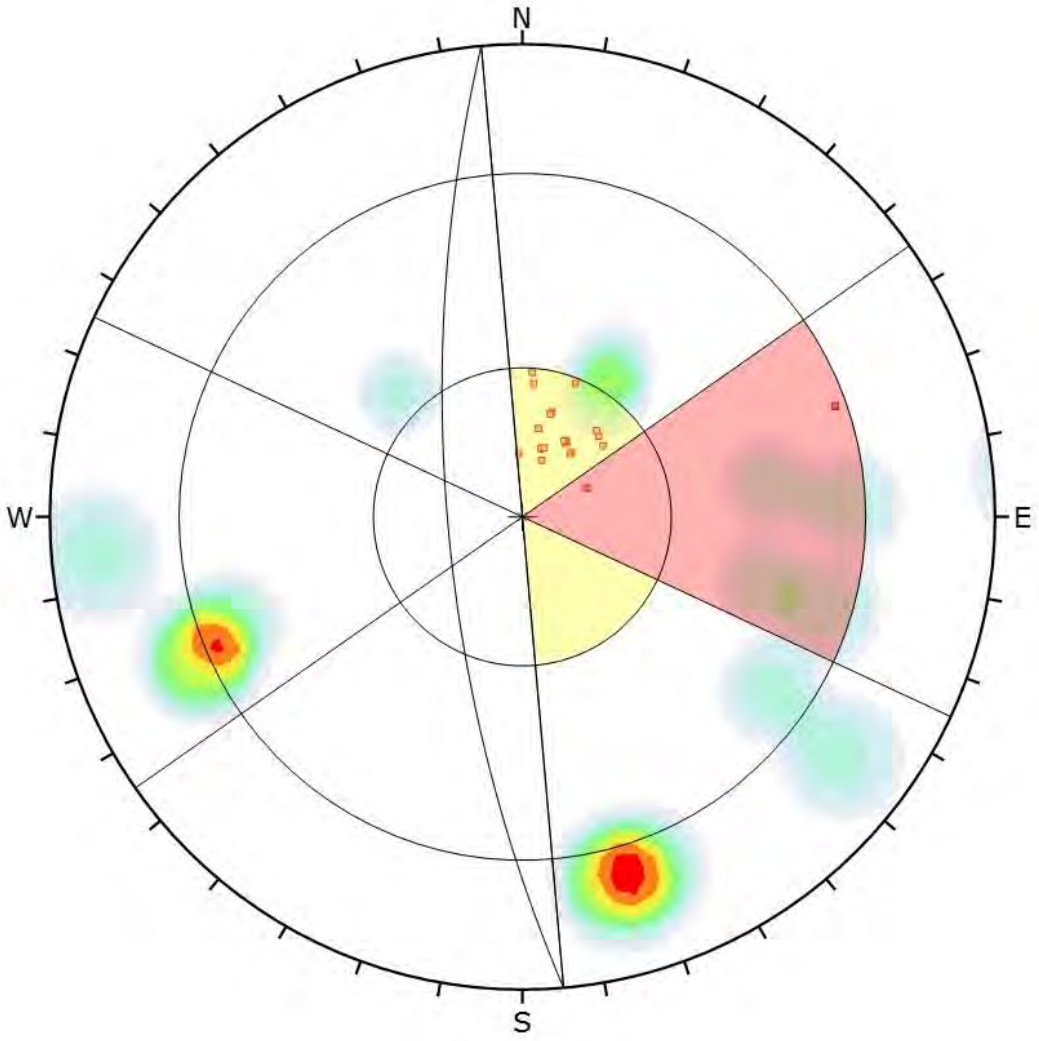
Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

Maximum Density	18.01%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Flexural Toppling		
Slope Dip	72		
Slope Dip Direction	265		
Friction Angle	35°		
Lateral Limits	30°		
	Critical	**Total**	**%**
Flexural Toppling (All)	4	16	25.00%

Plot Mode	Pole Vectors
Vector Count	16 (16 Entries)
Hemisphere	Lower
Projection	Equal Angle

Slope 7
Flexural Toppling



Symbol	Feature
▫	Critical Intersection

Color	Density Concentrations
	0.00 - 1.90
	1.90 - 3.80
	3.80 - 5.70
	5.70 - 7.60
	7.60 - 9.50
	9.50 - 11.40
	11.40 - 13.30
	13.30 - 15.20
	15.20 - 17.10
	17.10 - 19.00

Maximum Density	18.01%
Contour Data	Pole Vectors
Contour Distribution	Fisher
Counting Circle Size	1.0%

Kinematic Analysis	Direct Toppling
Slope Dip	72
Slope Dip Direction	265
Friction Angle	35°
Lateral Limits	30°

	Critical	Total	%
Direct Toppling (Intersection)	3	120	2.50%
Oblique Toppling (Intersection)	20	120	16.67%
Base Plane (All)	5	16	31.25%

Plot Mode	Pole Vectors
Vector Count	16 (16 Entries)
Intersection Mode	Grid Data Planes
Intersections Count	120
Hemisphere	Lower
Projection	Equal Angle

Slope 7
Direct Toppling

Appendix G

Risk Assessment Methodology

Measures of Likelihood

Level	Descriptor	Description	Annual Probability of Occurrence
A	Almost Certain	The event is on-going, or is expected to occur during the next year	100%
B	Very Likely	The event is expected to occur.	20% to 100%
C	Likely	The event is expected to occur under somewhat adverse conditions	5% to 20%
D	Possible	The event is expected to occur under adverse conditions	1 to 5%
E	Unlikely	The event is expected to occur under high to extreme conditions	0.2 to 1%
F	Rare	The event could occur under extreme conditions	Less than 0.2%

Measures of Consequence

Level	Descriptor	Example Descriptions (Damage to Private Property)
1	Catastrophic	Large scale damage to multiple properties
2	Disastrous	Large scale damage involving private property and dwelling requiring major engineering works for stabilisation
3	Major	Extensive damage to property but dwelling not involved
4	Medium	Moderate damage to private land
5	Low	Limited damage to private land
6	Minor	No damage

Risk Matrix

		Consequences to Property/Assets					
		1: Catastrophic	2: Disastrous	3: Major	4: Medium	5: Low	6: Minor
Likelihood	A – Almost Certain	VH	VH	VH	H	H	M
	B – Very Likely	VH	VH	H	H	M	L
	C – Likely	VH	H	H	M	L	L
	D – Possible	VH	H	M	L	VL-L	VL
	E – Unlikely	H	M	L	VL	VL	VL
	F –Rare	M	L	VL	VL	VL	VL

Risk Level Implications

Risk Level		Implications for Risk Management
VH	Very High Risk	Detailed investigation, design, planning and implementation of treatment options to reduce risk to acceptable levels: May involve very high costs.
H	High Risk	Detailed investigation, design, planning and implementation of treatment options to reduce risk to acceptable levels.
M	Moderate Risk	Broadly tolerable provided treatment plan is implemented to maintain or reduce risks, May require investigation and planning of treatment options.
L	Low Risk	Acceptable. Treatment requirements to be defined to maintain or reduce risk
VL	Very Low Risk	Acceptable. Manage by normal maintenance procedures