4SIGHT CONSULTING

LAND. PEOPLE. WATER.

ENERGY

Establishment and Operation of a Service Station and Operation of the Rolly Inn and Associated / Ancillary Activities (for both activities)

2 and 10 Brookside Road, Rolleston

Assessment of Environmental Effects

Client: Z Energy Limited

February 2020

REPORT INFORMATION AND QUALITY CONTROL

Prepared for:	Z Energy Limited c/- Tim Bailey

Author:	Michelle Kemp Senior Planning and Policy Consultant	
Co-Author and Reviewer:	Karen Blair Principal Planning and Policy Consultant	
Approved for Release:	Mark Laurenson Principal Planning and Policy Consultant	

Document Name	AA6067_Z Brookside_Assessment of Environmental Effects_v0.1f

Version History:	v0.1f for lodgement	21 February 2020







Telarc
Q-Base
Code

CONTENTS

Page

1 INFORMATION REQUIREMENTS 1
1.1 General 1
2 THE PROPOSAL 1
2.1 Service Station and Ancillary Activities 2
2.2 Rolly Inn And Ancillary Activities 11
3 BACKGROUND 14
3.1 Consent History 14
3.2 Consultation 16
3.3 Any other activities that are part of the proposal 16
3.4 Permitted activities that are part of the proposal 18
3.5 Other consent requirements 19
4 THE SITE & SURROUNDING ENVIRONMENT 19
4.1 The Site 19
4.2 Surrounding Environment 21
5 REASONS FOR THE APPLICATION 22
5.1 Selwyn District Plan 22
5.2 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 24
5.3 Overall Status of the Application 25
6 SCHEDULE 4 RMA – ASSESSMENT OF ENVIRONMENTAL EFFECTS 25
6.1 Introduction 25
6.2 Character 27
6.2 Visual Amenity Effects 29
6.2 Broader Amenity Effects: Operational Effects with the Potential for Nuisance 32
6.3 Stability and Ground Conditions 35
6.4 Transportation and Traffic 35
6.5 Risks Associated with the Use and Storage of Hazardous Substances 38
6.6 Temporary Effects 40
6.7 Retail Distribution Effects 42
6.8 CPTED 42
6.9 Environmental Effects Assessment Summary 43
7 NOTIFICATION ASSESSMENT – SECTIONS 95A TO 95G OF THE ACT 43
7.1 Public Notification Assessment 43
7.2 Limited Notification Assessment 46
8 STATUTORY ASSESSMENT 49
8.1 Section 104 of the Act 49
8.2 Section 104(1)(b) Summary 56
8.3 Section 104 (1)(c) of the Act 56
8.4 Section 104D of the Act 56
8.5 Part 2 Assessment 56
9 SECTION 108 57
10 CONCLUSION 58

List of Appendices

Appendix A Certificate of Title Documentation
Appendix B Application Plans
Appendix C Preliminary Design for Soakpits
Appendix D Babbage Geotechnical Assessment
Appendix E Z Energy Environment Management Plan for Site Works
Appendix F Assessment of the Relevant Rules of the Selwyn District Plan
Appendix G AECOM Environmental Site Assessment 2018
Appendix H AECOM Letter 24 January 2018
Appendix I Boffa Miskell Urban Design Assessment
Appendix J Marshall Day Acoustic Assessment
Appendix K Stantec Integrated Transport Assessment
Appendix L Property Economics Retail Distribution Assessment
Appendix M Assessment of Objective and Policy Provisions – Selwyn District Plan

APPLICANT AND PROPERTY DETAILS

Site Address:	**2 and 10 Brookside Road, Rolleston**
Applicant's Name	Z Energy Limited Attention: Tim Bailey
Address for Service:	4Sight Consulting Limited PO Box 911 310, Victoria Street West Auckland 1142 Attention: Michelle Kemp
Address for Fees:	Z Energy Limited PO Box 2091 Wellington 6140
Owner:	Russell Walter Charles Lilley
Owner Address for Service:	c/- 10 Brookside Road Rolleston 7614
Legal Description:	Lot 1 DP 75460 Refer **Appendix A** for the Certificate of Title documents
Site Area:	5,741m^2 (area for service station development = some 3,630m^2; area for Rolly Inn = some 1,807m^2; residual some 304m^2).
Plan Name:	Selwyn District Plan (operative 3 May 2016)
Plan Zone:	Living 1 Zone
Plan Designations, Limitations, or Overlays:	N/A
Brief Description of Proposal:	Land use consents for 2 and 10 Brookside Road, Rolleston, are sought to: 1. Establish and operate a new service station, including a carwash facility; 2. Operate the Rolly Inn (existing tavern, bottle store and food and beverage outlet and new private function facility); and 3. Carry out associated and ancillary works and activities.
Status of Land Use Consents Sought:	Non-Complying

Site and Locality Plan:



- Lot 1 DP 75460

Figure 1: Site and Locality Plan (Source: Canterbury GIS Viewer)

1 INFORMATION REQUIREMENTS

1.1 General

This application has been prepared in accordance with the requirements of Schedule 4 of the Resource Management Act 1991 (*the Act*). This Assessment of Environment Effects (*AEE*) provides an assessment of the actual and / or potential effects on the environment of the proposal and includes an assessment of the relevant planning documents and accompanies, and forms part of, the resource consent application.

The application seeks all necessary resource consents from Selwyn District Council (*SDC*) for the proposed works detailed in this application. Specifically, as the two core activities for which consent is sought will be operated by separate parties, it is requested that two separate land use consents are issued: one for the service station and establishment activities for both the service station and the Rolly Inn and one for the Rolly Inn. The reason for this is that it is envisaged that the service station consent will regulate the establishment and operation of the service station, including ancillary/ associated activities and also regulate the establishment phase of ancillary activities associated with both activities (such as demolition, installation of underground services and formation and marking of hardstand areas), while the Rolly Inn consent will regulate the continued operation of the Rolly Inn and ancillary/ associated activities such as carparking and landscaping, once those are established. As such, any ongoing conditions of consent should be applied to the activity to which they are associated. For example, the requirement to establish any parking and landscaping required by the Rolly Inn should be required via the service station consent, but the requirement to maintain that parking and landscaping should be required via the Rolly Inn consent.

There is one area of the site that is not subject of this application. This is a rectangular block of land in the northwestern corner of the site, fronting State highway 1 and adjacent to the motel development. The current intention is to incorporate it into the motel development, with that site also being owned by Mr Lilley. While this portion of the site (some 304m^2) is not subject of the application, it will remain part of the underlying property title, be maintained by the property owner and will neither be alienated by the proposed development nor require access to the State highway. A gate will be installed within the acoustic fence to provide for access between the service station development and that balance area of the site, subject to the required degree of noise attenuation being achievable. That portion of the site is also currently accessible to the motel property via a gate in the existing boundary fence. References hereafter to “the application site” (as opposed to “the site”) do not include that area.

2 THE PROPOSAL

It is proposed to:

- Establish and operate a new service station, including a carwash facility;
- Operate the Rolly Inn, including existing tavern, bottle store and food and beverage outlet, and a new private function facility; and
- Carry out associated and ancillary works and activities.

The proposed layout and design of these activities is illustrated on the plans contained in **Appendix B**, and as discussed below. A lighting plan for the service station and a landscaping plan for the application site are included as part of **Appendix B**.

2.1 Service Station and Ancillary Activities

The existing residential dwelling at 10 Brookside Road will be demolished and the area to be leased for the service station activity will be cleared.

Z Energy Limited (Z Energy) proposes to establish and operate a Z-branded service station, operated on a 24/7 basis and including shop, forecourt with canopy and car wash, at 2 and 10 Brookside Road, Rolleston. The service station is designed to provide services to passing motorists, with a key focus on motorists traveling along SH1, and the local community, including fuel, convenience retail, and a carwash service. Signage is also proposed within, and along the road boundaries, of the service station lease area. Other ancillary activities include carparking, lighting, landscaping and underground fuel storage. The maximum number of staff working at any one time will ordinarily be four (comprising forecourt concierge, two in the Z shop and a site manager).

The following sections describe these aspects of the development in more detail.

Z Highway Shop

A new service station and convenience shop will be constructed perpendicular to the Brookside Road boundary and cover an area of some 245m^2. There will be some outdoor display along the front of the shop, facing the forecourt area. Typically, this includes bulky items such as firewood and an ice box / bait bin. A spill kit is also typically stored in this location. The shop will be orientated to the east, facing into the forecourt, and will be set back from the western boundary of the application site. The setback behind the shop enables maintenance and access to the roof area as required, however lockable gates will prevent access to unauthorised persons.

The shop will be finished in Eterpan refined cladding with expressed joints along the shop frontage and Dimond Veedek cladding on the side walls. The base finishing colour is mineral brown with orange trim and the signage above the entry door will incorporate blue, orange and white. The entrance to the shop is located centrally along the shop frontage (the eastern façade). The shop frontage includes considerable glassed area, providing passive surveillance of the forecourt. The proposed height of the shop will be some 4.3[1]m from the finished level of the ground surface (this excludes the canopy, which is some 5.6m above ground level).

The external signage for the shop includes:

- One **naming sign** within a signage light box located above the entry doors and identifying the entrance to the shop, including the name of the service station. This is approximately 930mm high by 3.8m wide and 15mm in depth. It comprises white lettering on a blue background with the Z logo and is internally illuminated.
- One **community** sign within the shop frontage, adjacent the northern most windowpane. The sign is the same height as the windowpane (some 2.8m) and is some 1.7m in width. It can be internally illuminated and will depict a scene identifying with the local community.
- **Miscellaneous other safety and/or information signage** which includes HSNO signage containing HSSE information (eg: identifying where the emergency stop button and/or spill kit and/or night pay window are located).

Downward facing, exterior wall mounted lighting is proposed on the north, south and west elevations. CCTV is installed in various locations.

[1] All figures referenced are approximate and generally rounded adopting standard convention.

A rubbish compound for the service station is proposed adjacent (to the south of) the shop. Rubbish will be stored inside the shop before being moved to the rubbish compound. The compound will be screened by a 1.8m high close boarded timber fence and gate, painted mineral brown to match the shop. A loading area to the east of the rubbish compound enables the removal of rubbish. Mechanical plant will be housed behind the rubbish compound with separate access via a roller door. This will be similarly screened.

A 1.8m high rock wall feature with seating will be constructed to the south of the mechanical plant area, extending between the boundary and entry gate to the mechanical plant area. A gate will be erected between the edge of the rock wall and the fence around the mechanical plant to prevent unauthorised persons accessing the rear of the shop and/or loitering behind the wall.

Two LPG bottle swap units (SWAP 'n' Go) are proposed adjacent the rubbish compound. The units will comprise a mesh cage compliant with the HSNO Act, and associated signage to satisfy that legislation. It is proposed to store up to 30 individual gas bottles (9kg) within each unit (total storage is approximately 540kg).

Forecourt Area

The forecourt will contain 8 pump islands in a 2 by 4 configuration, forming eight lanes for refuelling. Each pump island serves all types of available fuel (eg; 91, 95 and diesel). A customer services unit comprising a small item rubbish bin, clean water and a window wash bucket will be located on each island.

The forecourt canopy will provide cover for the refuelling area. The forecourt canopy is proposed to stand some 5.6m above the level of the ground below it. The canopy edge will incorporate yellow, orange and purple and will be lit using LED technology. Under canopy LED lighting will be recessed and flush fitting. Light fittings are designed to provide a downward light pattern, with little or no light spillage from the edge fittings. Each light fitting is equipped with motion detection for auto-switch dimming to 30% of the light level, with timing on 2 minutes following detection of no customers on location.

The forecourt signage will include:

For each pump island:

- **Pump numbers** – sixteen of these signs will be installed, two above each of the pumps (one for each side) and with the bottom of the sign being some 2.6m above the raised pump island. The signs are some 200mm high by 220mm wide; consist of purple numbering on a white background and indicate the fuel pump number. The fuel pump number graphics will be located on both sides of each sign.
- **Column Mount Sign (spreader)** – eight of these signs will be installed (with graphics on both sides of the sign), one on each pump island and with the bottom of the sign being some 2.6m above the raised pump island. The signs are some 1.35m high by 1m wide. They consist of white background with the Z colours of yellow/orange and purple.
- **Leader boards** - eight of these signs will be installed. These are attached to the front of the customers' services unit (small items of rubbish collection and water bucket with window washer) that is located at the front of each pump island. The signs are some 1m high by some 0.9m wide. The signs indicate the type of fuel available and comprise of white writing on a red, green or blue background depending on the fuel type.
- **Miscellaneous other safety signage** – this includes HSNO signage and stanchion column signs containing HSSE information. It also includes signage that forms part of the pump equipment itself, for example identification of the type of fuel dispensed by each nozzle.

On the canopy:

- One **clip sign** will be located on the northern end of the eastern face of the canopy. The clip displays the Z logo and will measure some 900mm in height and 800mm in width. The clip will exceed the height of the canopy structure by approximately 260mm and is internally illuminated.

Other Services

Car grooming facilities are proposed inside of the Brookside Road boundary, comprising a carwash and air and vacuum facilities.

A carwash is positioned parallel to the Brookside Road boundary and will be set back some 2.6m from that boundary, with the setback landscaped. Vehicles will enter the carwash from the east and exit to the west. The carwash will be fitted with high sound insulation performance doors to ensure it does not exceed 84 dB L_{AE} at 10 metres from the entry/exit doors for one full cycle of the longest carwash option.

The car wash will cover an area of approximately 70m^2 and will operate during day-time hours only (07:30-20:00). The carwash will be painted in the same mineral brown colour as the shop. A 1.8m high rock wall feature will be constructed on the exterior of the Brookside Road facing wall.

The signage associated with the carwash will include:

- A **new vinyl image sign** and fascia on the northern elevation, facing into the forecourt area, and predominantly displaying a vinyl image and simple wording. Above this image will be yellow and orange fascia which is consistent with that on the other elevations. The sign's graphics will relate to the service station activity and be of the style shown below but may not be exactly the same and the images will change over time. Example image below:



The sign will have dimensions of approximately 2.5m in height, 10.2m in width and 25.5 m^2 in area. For the sake of clarity, there will be no such sign on the southern elevation of the carwash (ie: facing Brookside Road).

- Three **clip signs** will be mounted, one on each end of the carwash and one to face into the forecourt (northern elevation). The signs will comprise a purple background with the 'Z' logo as well as a white '2' and '0'. These are some 1.5m high and 1.7m wide, extend some 500mm above the roof line of the carwash building and are internally illuminated.
- The words **'entry' or 'exit'** will be displayed (as appropriate) on the façade of each end of the carwash facility, one on each side of the entry / exit.

- A free-standing **instruction** sign will be erected within the proposed landscaping island adjacent to the car wash. It will contain instructions for using the carwash and as such is intended to be read by those vehicles using the carwash facility. The sign will be internally illuminated to enable it to be read by vehicles using the carwash during the hours of darkness. Car wash instruction signage details below:



Car Wash instruction sign, single sided, illuminated

ZEL-CW-1-ISSI- 1,150 x 2,450

New air and vacuum facilities are proposed along the northern side of the carwash building, within the landscape island. The air unit is freestanding and has dimensions of some 1.4m in height above the level of the landscape island, some 390mm wide and 440mm deep. A single freestanding, non-illuminated, lollipop type sign for the air unit stands some 1.5m in height above the level of the landscape island. The vacuum unit stands at some 2m above the ground level of the landscape island and some 1m wide. Necessary identification and instructional signage is incorporated onto the unit. The vacuum unit will only be able to be operated during day-time hours (07:30-20:00). A parking space adjoins and serves each unit.

Downward facing, exterior wall mounted lighting is proposed above the entry and exit to the carwash and on the internal facing (northern) wall. This provides lighting for all of the car care facilities.

The western boundary of the application site is the only boundary that will be fenced. This will be an acoustic fence along the entire boundary, having a height of 900mm at each end for a depth into the application site of 3m and with the balance of the fence being 1.8m in height. Specifications for the fence will be as set out in the Acoustic Report (refer **Appendix J**). A gate will be installed within the acoustic fence to provide for access between the service station development and the balance area of the site, as long as the required degree of noise attenuation can still be achieved. The location of the gate would most practically be placed within the void area adjoining the northern façade of the shop, with the landscaping on the service station side of the gate being limited to paving stones or similar rather than vegetation.

Freestanding Signage

Many of the freestanding signs are illuminated, but no flashing signs are proposed.

Free standing signage to be installed along the Main South Road frontage includes:

- **Prime Sign** – one prime sign, having the dimensions of some 7.3m in height above the surface level and some 2m in width will be erected along the Main South Road frontage. The core colour scheme is

orange/yellow, purple and white. The sign also provides an indication of services available at the service station and the price of fuel. The Z logo at the top of the sign is internally illuminated, and the panelling is backlit with LED. The prime sign is double sided and is orientated perpendicular to Main South Road, to face oncoming SH1 traffic.

- **Free Standing Poster Board** – one double-sided free-standing poster board will be installed along the Main South Road frontage. The sign is some 2.4m in height above the surface level beneath it and some 2.25m high and 1.15m wide (2.6m^2). It will be internally illuminated and orientated perpendicular to Main South Road. This sign advertises goods and service related to the Z Energy service station. The advertising graphic is static but is changed from time to time.
- **Entry / Exit signs –** an entry/exit sign (as appropriate) will be installed at each crossing / vehicle accessway. Each sign is approximately 800mm high by 575mm wide (0.46m^2) and will be internally illuminated. The signs comprise various graphics appropriate to the intent of the traffic directional sign, as shown in the Plans in **Appendix B**. Predominantly they consistent of a purple arrow on a white background or the universal 'no entry' symbol on a white background (as appropriate).

Free standing signage to be installed along the Brookside Road frontage is limited to traffic directional signage only. These comprise entry / exit signs as described above.

Hazardous Substances

Z Energy proposes to install, underground, three 50,000 litre double skinned fibreglass tanks (1 x 50,000l grade 91 petroleum, 1 x 50,000l diesel and 1 x split tank comprising 20,000l grade 91 petroleum and 30,000l grade 95 petroleum). Therefore, the total hazardous substance storage at the facility will be 150,000 litres (100,000l petroleum and 50,000l diesel). The following associated works are of most relevance to the District Council:

- Excavation of the proposed tank pit (some 4 - 4.5m deep and 9m wide by 11m long) to the southwest of the internal boundary. Ordinarily a tank pit would be sheet piled to facilitate the installation of the proposed tanks however given the ground conditions an open cut technique, battered for safety, will be adopted. The Geotech Report recommends a batter of 1 on 1.25 and 1 on 1.75 for the less dense fill.
- Underground installation of the three 50,000l double-skinned fibreglass fuel storage tanks and associated infrastructure (including, but not limited to, delivery and fill lines, fill points, tank vent stack and observation wells). The tanks will be lowered into the proposed pit using a crane and anchored (via a deadman) to the ground. Dewatering is not expected to be required, with the groundwater level anticipated to be a minimum of approximately 8.0m below ground level.
- A full integrity test will be carried out on each tank prior to fuel being delivered. In short, once in position, the new tanks are filled with clean water for the purpose of integrity testing. Following the tank testing, the water will be discharged to ground soakage. The amount of water discharged will be up to that of the total capacity of the underground tanks (150,000l). The discharge will be clean water and will be released into otherwise materially dry land on a day when it is not raining and at a rate not exceeding the infiltration capacity of the land. Because there is no reticulated stormwater system servicing the site, this discharge is regulated by Environment Canterbury (*ECAN*).
- Installation of observation wells within the tank pit excavation, generally located in diagonal corners of the excavation, the lowest point of tank excavation or, if the water gradient is known, a down-gradient point. These are not drilled bores. A toby box lid is fitted over the well and clearly identifies it as such.
- Backfilling (with clean bedding material) of the tank pit and reinstatement of the surface (as required). The site is generally level and the proposed finished levels will generally be similar to those of the existing site, contoured largely to ensure appropriate drainage (refer 'Ground Works' subsection below for further information).

- Installation of remote fill points on the hardstand area to the north of the tank pit in a position where trucks can stop well clear of the canopy and pumps to refuel the underground storage tanks and exit the facility to Brookside Road to rejoin State highway 1. A light pole, approximately 6m in height and with a downward facing lamp, will be erected adjacent the remote fill area.
- Installation of an Automatic Tank Gauge (ATG) indicator adjacent the remote fills. The ATG indicator electronically measures the levels of product in the underground storage tanks. It is a thin pole like structure, having a height of some 2.5m.
- Installation of vents at the northeastern end of the landscape island associated with the car care facility. There will be three vent pipes (one for each underground tank), having an approximate diameter of 90mm each and a maximum height of some 6.0m, with a Manway Toolbox bolter to the lower back of the vent pipe frame.

Services Infrastructure

The facility will utilise reticulated wastewater and water supply, and these services are available at the boundary of the site.

There is no available connection to reticulated stormwater. Stormwater discharge will need to be either compliant with the permitted activity rules in the relevant regional plan or in accordance with regional resource consent. The one-off discharge of ballast water is likely to be permitted, while stormwater discharge will require regional consent. The below discussion on stormwater discharge is intended to show SDC that stormwater discharge is possible, rather than to provide specific details. The reason for that is, as indicated above, discharge will be in accordance with a regional consent and is therefore not something that needs to be specifically regulated in terms of quality or quantity via this land use consent or the SDC engineering department. SDC's input is essentially limited to installation (plumbing and drainage).

For the service station activity, "at risk areas", which are those areas with the potential to drain discharges containing petroleum product, (i.e. the forecourt refuelling and the remote fill areas), will be directed to a suitably sized API separator that will be installed underground as part of the drainage system to be approved by ECAN for treatment prior to discharging to land / ground soakage. The API separator is designed such that treated stormwater from the at-risk areas of a service station will meet the MfE's Environmental Guidelines for Water Discharge from Petroleum Industry Sites in New Zealand (1998) (*Water Discharge Guidelines*). – i.e. TPH 15mg/l and TSS 100mg/l averaged over the design storm event. Stormwater runoff from the balance hardstand areas and roofs at the application site similarly discharges directly to land / ground soakage, bypassing the API.

As indicated, details of stormwater disposal to ground will be included in a separate application for discharge consent to be lodged with ECAN. At this stage a preliminary design has been investigated to calculate the number and sizing of soakpits, and determine likely earthworks required (refer to Appendix C). The preliminary soakage design has been completed on the basis of 6 sub-catchments and 3 soakpits. While the soakpits will ideally be based within landscape areas to facilitate ease of maintenance, the preliminary design also offers alternative solutions. Further refinement will be required during detailed design.

Vapour Recovery

Z Energy has taken the decision to install Stage 1 and Stage 2 vapour recovery at all new builds. These vapour recovery systems reduce hydrocarbon emissions during tanker filling (Stage 1 Vapour Recovery or *VR1*) and during customer vehicle fuelling (*VR2*). All of Z Energy's tanker fleet are now suitably equipped with vapour recovery technology to facilitate VR1. While Z Energy believes that its current service station operations are compliant with regional air discharge rules, it considers that, over time, VR2 will offer a best practicable method for managing discharges to air at operational service stations. This infrastructure will

be installed as part of the underground petroleum storage installation and will be connected to the vents. This will meet the permitted activity requirements of ECAN (for air discharges / odour).

Traffic and Transportation

Vehicle Access

In order to provide effective service to passing motorists, cyclists and pedestrians, access to the service station is proposed directly to/from both Main South Road and Brookside Road. Details are provided below:

Main South Road Vehicle Access – Interim Design

The initial access arrangements have been designed to tie into Main South Road in its current form. These arrangements are considered interim because it is expected that Main South Road will be upgraded by NZTA in the medium term (detailed business case and pre implementation phases are anticipated by or around 2021).

Separate entry and exit driveways are proposed to allow left turns into and out of the service station respectively. It is proposed to construct a raised median island on the southern side of the Main South Road centreline to prevent right turns into and out of the service station. That will require the westbound traffic lane to shift around the island. A sealed 2.5m shoulder is also proposed on the service station side of the road for an informal deceleration area and general extra road width. Works within the road reserve will be subject to NZTA Engineering Approvals.

The Main South Road entry driveway has been designed to accommodate a 25m truck and trailer tanker left turn. It is noted the 25m truck and trailer is a 'worst-case' design vehicle. As shown in Figure 9 of the ITA (refer **Appendix K**), the tanker would turn left from the Main South Road through lane to enter the service station.

The Main South Road exit driveway has been designed to accommodate a medium rigid truck (Figure 10 of the ITA), given that neither the exit driveway nor the service station are generally intended for use by large trucks. The driveway has been positioned towards the western end of the application site, to provide queuing space for vehicles to wait to enter Main South Road without obstructing the fuelling bays. The exit driveway is proposed to meet Main South Road at a 70-degree angle to ensure drivers can comfortably observe and give-way to westbound traffic. Good sightlines in excess of 300m are available of westbound traffic on Main South Road.

Main South Road Vehicle Access – Future Layout

The layout of the service station has been designed to easily tie into the expected future Main South Road layout.

The service lane on Main South Road will be closer to the boundary than the current westbound traffic lane. That means the tanker, on entry, will require a wider area to turn into the service station, as shown in Figure 11 of the ITA. The landscaping between the entry and exit driveways has been set back from the entry driveway so that minimal changes will be required to that area when the service lane is constructed. It is expected an altered vehicle crossing would be constructed to suit the service station entry as part of the Main South Road upgrade work.

As shown in Figure 12 of the ITA, the 7m exit driveway width at the boundary would still be sufficient for a medium rigid truck to turn left out into the service lane. This vehicle crossing would need to be altered to allow more room for the truck manoeuvring at the time of the road upgrade.

The layout does anticipate and rely on access to/from the future SH1 service lane, to provide for efficient customer service and circulation within the facility. The position of the exit driveway may influence the

length of the service lane at the western end, to allow vehicles exiting the service lane to get back to the through lane traffic speed in the merge area and to prevent right turns in and out. It is noted the service lane island has been extended, as visible in Figure 12 of the ITA, for the service station exit driveway design.

Service Station – Brookside Road Vehicle Access

Two new vehicle crossings are proposed on Brookside Road to allow convenient access for people travelling to/from the south-western part of Rolleston.

The eastern vehicle crossing has been designed to accommodate tanker left turns and right turns from the service station, as indicted in Figure 13 of the ITA. This has been done to allow for flexibility in tanker routing. The design has allowed for kerbside car parking to be retained on the opposite side of the road, by keeping the tanker 2.5m away from the southern kerb.

Detailed design will be required with topographic information to better define the tanker paths and vehicle crossing designs. It is expected that this will form part of the Engineering Approvals required by SDC. The large splay on the exit side of the driveway could be treated with a different surface so that it is used by trucks occasionally, but ordinary light vehicles do not use it. This surfacing can be required via a condition of consent.

The western vehicle crossing on Brookside Road is proposed with a standard 7m width and is intended to be for two-way light vehicle use. It would be suitable for small delivery vehicles associated with the service station shop.

Good sightlines of at least 100m, appropriate for the 50km/h speed limit, will be available from both driveways.

New vehicle crossings will be constructed as heavy duty vehicle crossings. Again, it is expected that this will form part of the Engineering Approvals required by SDC.

Pedestrian Access

A new pedestrian path will be provided from Brookside Road to the new Z shop. The path will be positioned to the west of the application site between car parking and the landscaping along the western boundary, where it will veer northeast then north to connect to the path along the front of the shop. The new path will include lighting via appropriately spaced lighting bollards, each having a height of 1.2m.

Four new cycle parks will be positioned along the path, to the front of the river rock wall.

There will be no internal pedestrian access between the Rolly Inn and the service station. This is intended to encourage use of the Brookside Road footpath: pedestrian movement from one side of the service station to the other being discouraged.

Car Parking

In addition to the fuelling positions and spaces adjacent the car care facilities, car parking spaces are proposed in-front of the shop and along the western boundary.

Nine 90-degree spaces, including one disabled space, are proposed in front of the shop, 3 90-degree spaces are proposed between the shop and Main South Road for service station staff. For completeness the 8 90-degree spaces proposed between the shop and Brookside Road are for use by Rolly Inn staff and associated vehicles e.g. courtesy vans.

All 90-degree spaces will be 2.6m wide and the disabled space will be marked 2.4m wide with an adjacent 1.1m shared space in accordance with the NZS2890 parking standard. The combined parking space length and aisle width for all spaces will exceed 12m. Wheel stops will be installed to prevent cars overhanging the berm and/or private footpath areas. This can be required via a condition of consent.

Carwash

Five queuing spaces are provided for the carwash. These are split by a no parking area associated with the eastern crossing along Brookside Road. Two are in front of the entry to the carwash and three on the northeast side of the no parking area, adjacent the truck refuelling position. This arrangement demonstrates that it is still possible to queue while a tanker is refilling. In practice, when there is no tanker refilling, cars are likely to queue closer to the internal boundary.

Deliveries and Rubbish Removal

Refuelling tankers can enter only from Main South Road and egress onto Brookside Road, to rejoin the traffic on Main South Road. Unmarked provision is made for the refuelling tanker, adjacent to the remote fill points. It is anticipated that at peak use a tanker would visit the site 1-2 times a day, but generally delivery would be less frequent. The fuel tank fill points are located to the east of the forecourt, allowing for easy access for a tanker entering the facility. The Brookside Road vehicle crossing has been designed to accommodate both left and right turn movements. Ultimately, when the Main South Road upgrades are carried out and depending on the final design of the Brookside Road intersection, the service lane arrangement may not allow for tanker left turns onto Main South Road. In this case, all tankers would need to leave towards the south along Brookside Road. The left turn from Brookside Road to Byron Street would not be suitable for large vehicles due to the geometry of the intersection and the acute angle between the two roads. Accordingly, tankers leaving the service station along Brookside Road to the south will be required to continue along Brookside Road to the southwest to access the arterial road network (via Rolleston Drive).

Rubbish removal occurs via a truck using the loading area to the front of the rubbish storage compound. The loading area can accommodate a medium sized rigid truck and its manoeuvring requirements. Waste disposal will be managed so that it occurs during daytime hours (as defined by the noise standards). Other deliveries are anticipated to generally occur via small to medium sized truck or van. In practise deliveries are generally made from the carparks in front of the shop, although they can also be made from the loading space in front of the rubbish compound.

Landscaping

The location of the landscape areas and the specifications for their planting is as denoted on the landscape plan included as part of **Appendix B**.

Planting is to be mulched to a depth of some 75mm, with topsoil to a depth of some 400mm, or as advised by the landscaper. No irrigation is proposed.

As indicated earlier, a gate will be installed within the acoustic fence to provide for access between the service station development and the balance area of the site, as long as the required degree of noise attenuation can still be achieved. The location of the gate would most practically be placed within the void area adjoining the northern façade of the shop, with the landscaping on the service station side of the gate being limited to paving stones or similar rather than vegetation.

Ground Works

The dwelling and ancillary activities at 10 Brookside Road will be demolished, and the application site prepared for the works. This includes vegetation removal and uplift of existing hardstand / gravel areas, including as required to form the parking, paths, landscape areas and access around the Rolly Inn.

The application site will be generally level and the proposed finished levels will be similar to those of the existing site, contoured largely to ensure appropriate drainage.

Earthworks will be required across the entire application site (apart from where existing buildings and landscape areas are being retained (Rolly Inn)). The general extent of earthworks required is as described in the Geotechnical Assessment in **Appendix D**, and includes the following:

1) For pavements, stripping softer fill which could be 200 – 300mm deep or more across the redevelopment, so some 4800m^3, and refilling using clean fill giving 960 – 1440m^3 of cut to waste. Soft spots and in-situ non engineered fill could comprise 500m^3 of cut to waste;
2) For the installation of the underground petroleum storage system (*UPSS*), including pipework, approximately 600m^3 (excavation (600m^3 and fill 450m^3). For the batter required to install the UPSS, there is a need for an additional 5-600m^3 (excavation volume) resulting in a total of approximately 1,650m^3;
3) For the installation of the soakage pits (including temporary batter slopes), API pit and pipework, approximately 500m^3 and with an allowance for an additional approximately 300m^3 should it be required as part of the ECAN consent process to install stormwater detention tanks; and
4) For the remaining ground works (being the ground preparation, building (including signage) foundations, it is estimated that some 100m^3 is required as follows:
   - Highway Shop = 45 m^3 (not including floor slab)
   - Carwash = 15 m^3
   - Pump Islands = 40 m^3

Notes:

1) Site stripping from below building platforms is included in the volumes given in point 1.
2) Shallow foundation footings may comprise 600mm wide, 600mm deep strip footings along the perimeter of buildings with say 5 strip footings in the main Highway Shop building. Pump island footings could comprise 3m x 1.5m pad footings some 600mm deep.
3) Softer fill that is stripped can't be reused and will need to be removed from the site however there is potential for it to be replaced up to 700mm thick with the pit gravels (after screening to remove cobbles and ensure that GAP 45 specification is met). The top 300mm likely needs to be engineered sub-base.

All measurements are in situ.

The Environmental Management Plan for Site Works (*EMP for Site Works*, refer to **Appendix E**) details the measures that are to be implemented for the duration of the works, with an emphasis on the installation of an UPSS, and noting again that in this case the tank pit will be battered rather than sheet piled. As part of compliance with the EMP for Site Works an erosion and sediment control plan will need to be implemented by the contractor. The erosion and soil control plan will need to meet the requirements of ECAN.

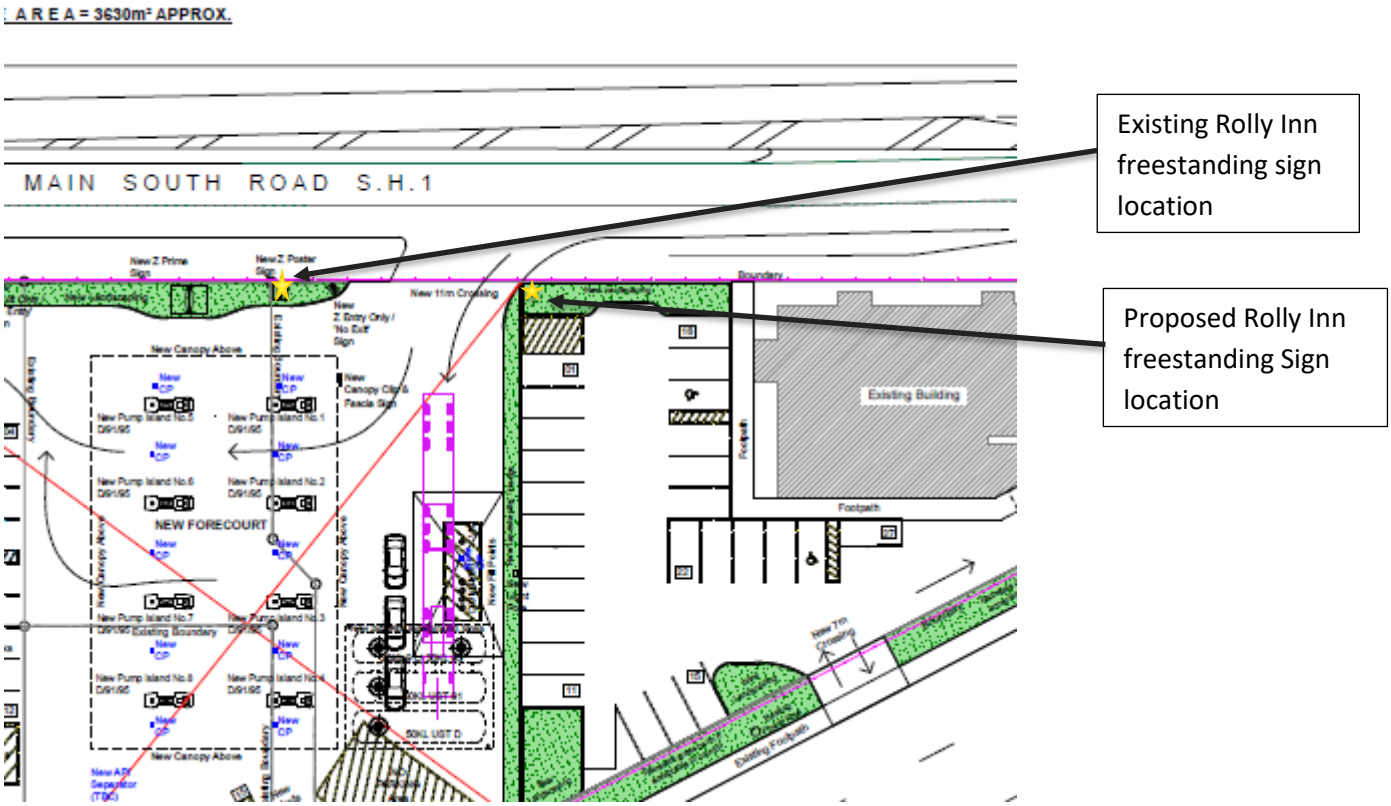
In accordance with the requirements of the EMP for Site Works and to give effect to the layout plan, the application site will be reinstated to an erosion proof state (as required).

2.2 Rolly Inn And Ancillary Activities

The Rolly Inn is existing. Current land use activities within the existing building will continue unchanged: this includes the existing tavern, bottle store and food and beverage operations. All existing signage will be retained apart from the Rolly Inn freestanding pole sign, approximately 1.8m x 1.2m, located along Main South Road (SH1) and shown within the photographs below:



The freestanding sign was approved in 1987, however due to the location of the proposed Z Energy accessway, this sign will need to be relocated and positioned closer to the Rolly Inn. It is proposed to relocate the sign within the landscaped area located at the north east corner of the Rolly Inn site. All aspects of the sign will remain the same. The existing and proposed location is demonstrated within the figure below:



The parking and access areas will be modified. A footpath will be constructed at ground level around the western, southern and south-eastern sides of the building. This will require that entrance to the building off the carpark area, which leads into the restaurant, be partially demolished and made good. The outbuildings to the west will be demolished.

The Rolly Inn building (circa 1940s) is two storeys. At ground floor level there is a Thai restaurant, a bottle store with associated "drive through" canopy and a tavern, which includes a casino area and a covered

outdoor area to the east for smokers. Ancillary activities include a kitchen, office area, storage and ablution facilities. The maximum number of patrons at this level is 150, although the "normal/average" number of patrons is around 10.

The first-floor level was damaged in the Christchurch earthquakes and currently accommodates storage, ablution and laundry facilities. Accommodation has previously been provided on this level but is not currently. It is proposed to develop a private function facility on this level, with a bar and lounge area. This could be hired out. The function facility, including a bar, would operate on a booking system, with the bar being staffed as part of the booking arrangement and food could be provided by the kitchen. The maximum number of patrons occupying this area would be 60. The function facility would operate on average two times per month. When not booked, this floor would not be occupied by the public and would only be used by staff, for example, when using the laundry facility. The function facility would be open as required to cater for a function, adopting the same hours as the bar.

The current core hours of operation, between 11am and 2am the following day for the bar and 11am to 9pm for the bottle shop, seven days a week, are to be retained. The Rolly Inn also operates outside the core operating hours and this is not proposed to change. The bar is licenced to operate between 7am and 2am the following day and the bottle store is licensed to operate between 7am and 9pm, but each operate the additional hours infrequently. Ancillary activities such as cleaning, maintenance, restocking, food and beverage preparation, administration and other business-related tasks are undertaken both inside and outside of the core hours as well as within the core hours, such that the Rolly Inn broadly operates in a 24/7 sense. Again, this is not proposed to change. There is an average of 7 staff working at any one time: the peak number varying depending on need and with an increase, generally of 2, when the function area is operating.

Rubbish / recycling is stored in waste bins / containers. These will be stored alongside the western façade of the Rolly Inn between the footpath and the Rolly Inn Building.

Car parking

35 parking spaces, including two disabled spaces (one outside the restaurant entrance and one outside the pub entrance), are proposed for the Rolly Inn. In addition to this, short-term parking will be available within the existing drive-through, which is to be retained. 27 of the parking spaces are proposed within the Rolly Inn area of the application site. These are accessed via a new 7m wide two-way crossing off Brookside Road. These spaces would be largely reserved for customers. As noted in respect of the service station proposal, a further 8 spaces are available to the Rolly Inn to the south of the service station shop. These spaces will be reserved for use by Rolly Inn staff and to provide parking for the Rolly Inn shuttle vans between use: the Rolly Inn operates 2 shuttle vans for customer pick-ups and drop offs. These spaces will be clearly marked for Rolly Inn staff parking only. If necessary, it will be possible to enforce this by adopting a (Rolly Inn) "staff sticker" attached to the windscreen and vehicles parked in an unauthorised manner can be towed.

As such, all 35 spaces are provided within the application site.

Parking spaces will be 2.6m wide by 5m deep with 6.6m or 7m wide aisles as required. The disabled spaces will be marked 2.4m wide but will have effective widths of 3.5m allowing for the 1.1m shared spaces adjacent. The shared spaces also provide convenient access for pedestrians to the buildings. A turnaround area is proposed at the end of the dead-end aisle. Hardstand areas will be formed, sealed, marked and drained.

A pedestrian crossing is to be painted east of the exit side of the drive through, providing a safe access point for staff, and others entering the Rolly Inn on foot. This will connect to the private footpath adjacent the building, in a position between the main entrance to the Rolly Inn and the bottle store. A hardstand connection between the crossing and the public footpath can also be installed across the grass berm, should

the SDC accept the offer to reinstate the grass berm to the south of the Rolly Inn. With respect to the latter, there is currently no grass berm outside the Rolly Inn and the hardstand in this area is often used for carparking, despite there being a large area of hardstand for that purpose directly adjacent the Rolly Inn. The applicant is therefore proposing that it reinstates a grassed verge in this area, should that be acceptable to SDC. This can be secured by way of condition of consent: while the condition would control works outside of the application site, it would not be ultra vires because the applicant is offering up a condition to that effect by way of the Augier principle.

Wheel stops will be installed within carpark spaces 13-26 to prevent cars overhanging the berm and/or private footpath areas. This can be required by condition of consent.

The carparking area will be lit by existing down-facing wall lighting mounted on the Rolly Inn / a lighting pole. There is no change to this.

As indicated, the existing drive through area adjacent the bottle store will be retained. The drive through offers the opportunity for customers to stop for a short period while they briefly go in and out of the bottle store. The drive through will operate on a 'one way' only circulation pattern: entry to the drive through will be via the new two-way crossing off Brookside Road, with exit via the existing crossing at the western end of Brookside Road. The western crossing currently operates as a two-way crossing, although it is only consented as an entry crossing only, and a "NO ENTRY" sign will be placed adjacent it. Access via the drive through provides for a maximum of a 7.4m long rigid truck, which would provide for the variety of vehicles currently gaining access via the drive through, including loading vehicles. Loading and unloading of vehicles can otherwise be via the parking spaces as this activity is rarely undertaken during peak periods.

Landscaping

The location of the landscape areas and the specifications for their planting is as denoted on the landscape plan included as part of Appendix B.

Planting is to be mulched to a depth of some 75mm, with topsoil to a depth of some 400mm, or as advised by the landscaper. No irrigation is proposed.

The existing landscape area, including mature trees, in the eastern (triangular) corner of the application site will be retained.

3 BACKGROUND

3.1 Consent History

The following consent history is relevant to the site. All documents referenced are a part of the public record and, with the exception of the regional consent issued by ECAN to Z Energy in 2018, are understood to be accessible via the SDC property file.

Z Energy Limited:

In August 2018 an application for the establishment of a service station, including a car wash facility, at 2 Brookside Road was lodged with SDC (resource consent number: RC185441). A decision as to notification (or otherwise) was made on the 26th November 2018 by an Independent Planning Commissioner and recommended public notification. The Council adopted the decision of the Commissioner on the 7th December 2018. The application was subsequently placed on hold by Z Energy.

In August 2018 an application for the discharge of operational stormwater into potentially contaminated land at 2 Brookside Road was lodged with ECAN (resource consent number: CRC190667). That consent was granted, and the decision was issued on the 25th September 2018.

Lilley Family Trust:

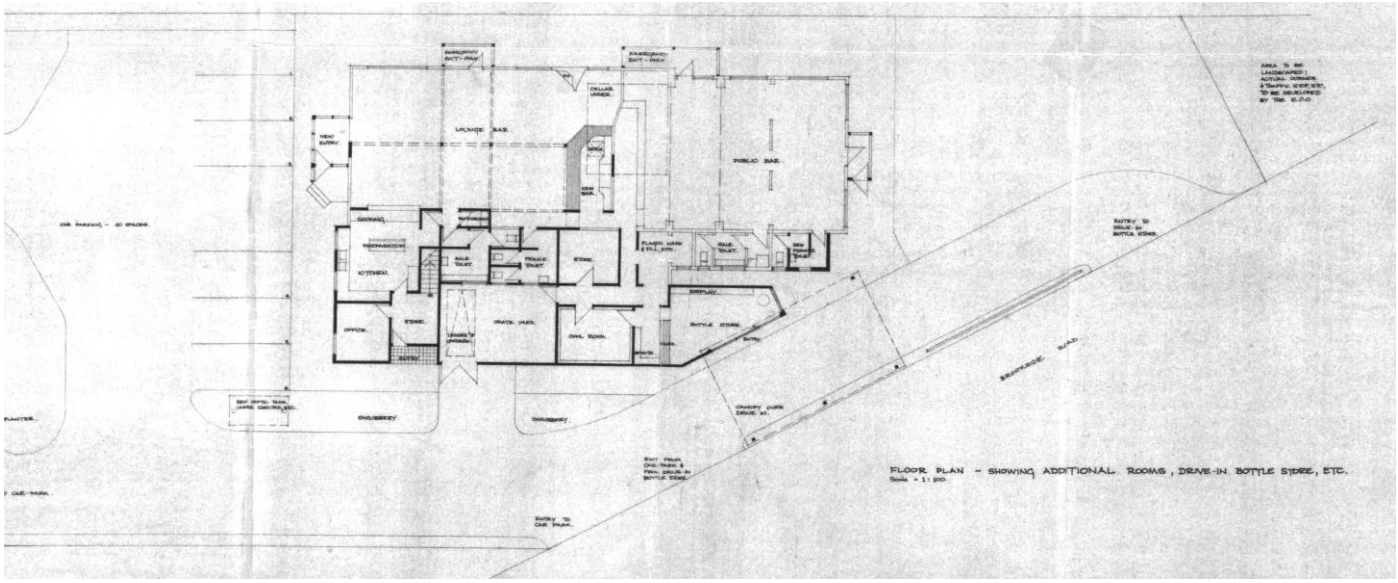
Historical aerial photographs establish that the Rolly Inn was constructed circa the 1940s, although there are no records on the SDC property file for that time. Council building consent records date back to 1967, when a bar extension was approved, with the following key improvements recorded thereafter:

- 1977 – alterations to the (existing) tavern, including the addition of the Bottle Store;
- 1978 – replumbing of the kitchen and upstairs areas;
- 1987 – new graphics on an existing sign along the eastern end of Main South Road and a new pole sign some 1.8m x 1.2m along the western end of Main South Road;
- 1993 – commercial alterations;
- 2000 – addition to the hotel;
- 2003 – commercial tavern alterations; and
- 2004 – addition of the covered terrace (smoking area).

Records of land resource consents issued are as follows:

- 085304 - establish and operate a takeaway/restaurant with the Living 1 zone (given effect).
- 2000 - R304455 – extend the tavern by 5 metres north into carpark to provide for a gaming/entertaining room (given effect).
- 2005 - R307252 - erect a liquor bottle shop (not given effect).

No resource consent was issued in conjunction with the 1997 additions to the existing tavern, suggesting that this activity was permitted at the time, and enjoys existing use rights. The plans show 40 carparking spaces provided to the west of the Rolly Inn, and two vehicle crossings: an approximately 7.5-8m entry crossing to the drive in bottle store at the eastern end of Brookside Road (approximately in the current location), and an approximately 12 - 13m two-way crossing just to the southwest of the drive through canopy, providing entry to the carparking area and exit from both the carparking and drive through areas.



1977 plans for extensions to Rolly Inn showing approved generic site layout (not to scale)

In December 2018 an application for the demolition of the existing Rolly Inn building at 2 Brookside Road was lodged with SDC (resource consent number: RC185700). A certificate of compliance authorising such activity as being permitted by the operative Selwyn District Plan was issued in January 2019.

3.2 Consultation

3.2.1 Consultation with Mana Whenua

No specific consultation with Mana Whenua has been undertaken nor is it considered necessary for the land use application.

The risks associated with the storage and use of hazardous substances will be appropriately managed in accordance with relevant non-RMA legislation and best practise. Potential contaminants from discharges of operational stormwater to ground soakage will be managed via regional resource consent. Further, groundwater is not expected to be encountered during the works and therefore no dewatering is proposed.

3.2.2 Consultation

Targeted consultation has been undertaken with SDC and NZTA.

A pre-application meeting was held between the applicant and SDC on 9 December 2019. The discussion focussed on planning process and urban design, with limited discussion as to traffic. The matters raised in relation to urban design are identified and discussed in the Urban Design Report (refer **Appendix I**).

Consultation with NZTA has been ongoing, including in respect of various iterations of the proposal, noting that the site's frontage to SH1 is also classified as Limited Access Road. To date feedback has been positive and it is understood that NZTA has commissioned a safety audit of the proposal. Formal approval cannot, however, be obtained from NZTA until the application has been lodged with SDC. Z Energy, through and with Stantec, will continue to consult with NZTA, with a view to securing its written approval to the application, concurrent to the lodgement of this application. Discussions will then continue beyond the application process, through the engineering application to NZTA for works within the State Highway road reserve (required as part of the service station establishment).

As part of its August 2018 application, Z Energy initiated consultation with a number of neighbours prior to lodgement of its application, securing a number of written approvals. However, the consultant planner processing the application on behalf of SDC would not accept those written approvals as valid, despite deficiencies being addressed and a legal opinion to the contrary: that process frustrated both the application and many of the neighbours. Accordingly, for this application, a decision has been made not to formally consult with those parties until after the application is lodged. Where it is practicable and the neighbours are willing, the intent is to secure written approvals. The parties consulted will align with those that are identified in the notification assessment in Section 7 of this AEE.

3.3 Any other activities that are part of the proposal

Clause 2(1)(d) of Schedule 4 of the Act requires the applicant to identify other activities that are part of their proposal. This is intended to capture things which need permission or licensing outside of the Act, for example, activities under the Building Act 2004 or the Hazardous Substances Regulations under the Health and Safety in the Workplace Act 2015 (*HSWA*).

From 1 December 2017 the rules around managing hazardous substances that affect human health and safety in the workplace were transferred from the Hazardous Substances and New Organisms Act 1996 (*HSNO*) to the Hazardous Substances Regulations under the Health and Safety in the Workplace Act 2015 (*HSWA*). The rules and duties to mitigate risks posed by hazardous substances now sit under:

- HSNO for non-work, public health and environmental risks; and specific requirements on importers and manufacturers of hazardous substances.
- HSWA (including the Hazardous Substances Regulations) for work risks.

A stationary tank that is part of a stationary container system must meet certain criteria.

- The tank must be designed to an approved standard.
- The design for the tank must be approved by a compliance certifier.
- The tank must either be built to an approved design by an approved fabricator or treated as a one-off and individually approved.
- The tank must be installed according to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Z Energy will ordinarily comply with:

- *Below Ground Stationary Container Systems for Petroleum – Design and Installation HSNOCOP 44, Environmental Protection Agency, May 2012*[2]*; and*
- *Below Ground Stationary Container Systems for Petroleum – Operations HSNOCOP 45, Environmental Protection Agency, May 2012*[3]*.*

Because the new Health and Safety at Work (Hazardous Substances) Regulations 2017 (the *HSW Regs*) replace the previous HSNO regulations for the workplace, over time some existing HSNOCOPs will no longer be valid. Some HSNOCOPs have already been replaced by safe work instruments, some will be replaced with Work Safe Approved Codes of Practice and others will be replaced by guidance from WorkSafe. The applicability of either depends on the stage of transition. Accordingly, Z Energy proposes to meet its duties under the HSWA and HSW Regs, as their application is relevant at the time.

In any event, further regulation of hazardous substances is not considered to be required via the RMA.

Furthermore, and as relevant, the following codes of practice will be complied with:

- *Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites In New Zealand (MfE, August 1999); and*
- *Environmental Guidelines for Water Discharges from Petroleum Industry Sites in New Zealand (MfE, December 1998).*

Under the asbestos regulations, removal of more than 10m^2 of bonded asbestos (non-friable) in one job requires a licence. The licensing system for asbestos-related work is aimed at ensuring people working with asbestos have the necessary skills and experience to keep themselves, and others, safe. This is administered by WorkSafe and does not need to be further regulated via the Act. Note that the Z EMP for Site Works (refer **Appendix E**) requires a contractor to consider whether asbestos is likely to be encountered and to implement procedures discussed in Section 16.1. These requirements complement and supplement the asbestos regulations.

Trade waste is any liquid discharged into the wastewater (sewer) system from trade premises during commercial or industrial processes. Trade waste is not necessarily toxic but can be harmful if discharged directly into the sewer without first having removed problem substances. Z Energy has service stations located throughout New Zealand and all of these provide ready to eat foods and beverages which include operation of an automated coffee machines. A number of its sites also have active automated car wash facilities. Trade waste consent will be required pursuant to the SDC Trade Waste Bylaw 2016 to authorise the following activities, unless any are deemed to be permitted activities under the Bylaw:

- Service station with a car wash and a café serving ready-to-eat foods and beverages;
    - Preparation of food. Cleaning utensils and food preparation areas;

[2] This code of practice provides a means of compliance with the design and installation stages of the stationary container system for petroleum.

[3] This code of practice applies to the operation of below ground stationary container systems for petroleum substances.

- The washing of vehicles and wash down area via automatic carwash with water reclaim system; and
- General cleaning of building and discharge of windscreen wash water.

Relevant to the consideration of the trade waste permit will be standard mitigation measures built into Z Energy's facilities as relevant, such as the interception of sediment, TSS, hydrocarbons and other floatables; biodegradability and solubility of detergents; recycling of water to reduce water volumes discharged to trade waste.

3.4 Permitted activities that are part of the proposal

The existing dwelling located at 10 Brookside Road will be demolished as part of this application. There are no rules within the Living 1 Zone framework relating to the demolition of buildings (other than Rule 4.16.1 – Permitted Activities: Buildings and Sites of Significance to Tangata Whenua). Demolition of that dwelling is permitted and can be carried out irrespective of whether the proposal proceeds.

No other discrete parts of the land use proposal are permitted activities in accordance with the district plan, and in any case the balance of the activities and works proposed are integrally related. This includes the partial demolition and making good of the Rolly Inn entrance way, which is also permitted and can be carried out irrespective of whether the proposal proceeds. Integral individual aspects of the proposal that are permitted are identified in the rules assessment in **Appendix F** of this application.

Aspects of the proposal are permitted in accordance with the relevant regional plan. This includes the discharge of ballast water and the air discharges associated with the service station.

The Canterbury Land and Water Regional Plan (*LWRP*) sets out how ECAN is going to manage land and water resources throughout the Canterbury Region. An assessment of the LWRP has determined that compliance can be achieved with the following relevant rules:

- Rule 5.175 which regulates earthworks over aquifers. Compliance with this rule is achieved because the site is not over the Coastal Confined Gravel Aquifer System and while the site is located over an unconfined or semi-confined aquifer, there will be more than 1m of undisturbed material between the deepest part of the excavation and the seasonal high water table level and nor will there be any excavation within 50m of a surface waterbody.
- Rule 5.181 which regulates the storage of hazardous substances. Compliance with this rule is achieved because the requirements relating to the management of hazardous substances will be met (eg: inventories, inspections and product loss investigations); the hazardous substances to be stored on site are not located within a community drinking-water protection zone; the storage of hazardous substances shall not be within 20 m of a surface waterbody or a bore used for water abstraction; and while the site is over an unconfined or semi-confined aquifer, the site is not within 250m of a known active fault.

The Canterbury Air Regional Plan (*CARP*) sets out how ECAN is going to manage air pollution throughout the Canterbury region. An assessment of the CARP has determined that compliance can be achieved with the following relevant rules:

- Rule 7.32 which regulates dust generating activities – land development. The proposal does not involve the construction of a 3-storey building. While during the construction phase it will involve the creation of an unsealed surface greater than 1000m^2, a dust management plan will be prepared and implemented (refer to the requirements of the EMP for Site Works in **Annexure E**) and will be implemented by Z Energy contractors as required for the duration of the works to ensure that any dust created does not generate an offensive of objectionable effect, beyond the boundary of the site.

- Rule 7.53 which regulates the discharge of contaminants into air, including vapour ventilation and displacement, from the storage or transfer of petroleum products (including liquefied petroleum gas). The site will be operated in accordance with good practice to minimise discharges to air as far as practicable. In particular, vapour recovery systems are proposed to collect vapour which is released during the filling of the tanks by fuel tankers (VR1) and when fuel is being dispensed on the forecourt (VR2). The proposed vents are still required and will cater for the discharge of vapour associated with the tanks 'breathing' with temperature change, or when being filled. The vents have been located in a position that is, in accordance with experience at other sites, unlikely to generate a concern. In the event there is a discharge of odour beyond the site boundaries, this rule requires an odour management plan be prepared and implemented to manage any discharge of odour beyond the boundary of the property.

3.5 Other consent requirements

There is no reticulated stormwater available at or within proximity to the site. Regional consent will be required for the discharge of stormwater to ground (noting that the existing consent granted is not adequate for the amended proposal).

4 THE SITE & SURROUNDING ENVIRONMENT

4.1 The Site

The site is located on the corner of Main South Road (State Highway 1) and Brookside Road. The location of the site is shown in the Site and Locality Plan in **Figure 1**.

The site encompasses some 5,741m^2, with some 3,630m^2 to be utilised for the proposed service station development plus some Rolly Inn carparking, and some 1,807m^2 to be utilised for the Rolly Inn. As described earlier, a rectangular portion to the west of the service station will be retained by the owner of the site and is not included within the application site. That portion has an area of some 304m$^{2.}$ All three areas are identified in **Figure 2** below.



Figure 2: Core Activity Areas (source of base map: Canterbury GIS Viewer)

The application site is a triangular piece of land situated between Brookside Road and Main South Road. The site comprises the 'Rolly Inn' building to the east, with associated car parking to the west of the Rolly Inn building. The unmarked car parking area comprises a large flat hardstand area. The Rolly Inn activities include a licensed tavern, food and beverage outlet and liquor store. The main pedestrian entrance to the Building is from Brookside Road, but there is also pedestrian entrance to the Thai Restaurant off the western end of the building. Two freestanding permanent signs and various sandwich board signs are located along Main Road South advertising the Rolly Inn. Two mature trees exist within the landscaped area at the northeastern corner of the site. This landscaped area is bordered by a timber fence which curves around the corner of the site and runs along a portion of both Main South Road and Brookside Road.

There is an existing residential dwelling located in the western portion of the site. This is a discrete residential activity including a fully fenced grassed curtilage where there are a selection of mature trees and vegetation. The land to its rear is undeveloped.

The topography of the site is generally flat. The geotechnical characteristics of the site are described in detail in the Babbage Geotechnical Assessment Report, dated 17 January 2020, (**Appendix D**). That report includes a geotech investigation and recommendations on foundations for various structures. The investigation found that the site was predominantly underlain by dense to very dense sandy fine to coarse gravels, with varying degrees of silt and cobbles – that material generally appeared to be well-graded. The assessment indicates that groundwater in the area is likely to be deeper than 8m below ground level, based on site investigations and local boreholes.

The site has road frontage to both Main South Road and Brookside Road (northern and southern boundaries respectively). There are four existing vehicle crossings across Brookside Road into the application site. Two of these accessways serve as drive through access to the Rolly Inn Liquor Store, with one also serving as access to the car parking area for the Rolly Inn. A third vehicle access provides direct access to the established car parking area and a fourth provides access to the residential dwelling. There is no existing access to the site from Main South Road.

An Inter-City bus stop is located within the State Highway 1 road reserve, outside the Rolly Inn.

Certificate of Title

The Certificate of Title (*CT*) recognises that the State highway frontage is Limited Access Road (LAR).

A Consent Notice is registered against the CT, noting that at the time of a title amalgamation giving rise to the site, reticulated service connections were only provided to the boundary of the site, and that these would need to be connected within the site at the later time of development.

An historical easement is illustrated on the site diagram in the CT (as 'A'). The interests on the CT indicate that there is no current easement registered against the title. It is therefore understood that this is an historical easement that was part of the former underlying title arrangement (and in that capacity it facilitated access from Brookside Drive to former CT 762448 prior to the amalgamation of the sites into the one current title).

There are no other restrictions on the CT that are considered materially relevant to the proposal (the CT and a copy of the Consent Notice are attached as **Appendix A**).

4.1.1 Potential Contamination

2 Brookside Road (broadly inclusive of 2-6 Broadside Road prior to amalgamation) is included within the ECAN Listed Land Use Register (*LLUR*). The LLUR records indicate a preliminary site investigation was undertaken for 6 Brookside Road in April 2015 (no. INV148339) and two detailed site investigations (DSI) undertaken for 2 Brookside Road in June 2018 (by AECOM, refer **Appendix G**) and August 2018 by Engineering Design Consultants (*EDC*).

The assessment undertaken by EDC in August 2018 found one, shallow sample exceeded the commercial/industrial land-use criteria for lead. Subsequently, the LLUR was updated to identify the site as a category I (that is, 'any other land') HAIL activity, although it was noted that was yet to be reviewed. Further analysis by AECOM has concluded that the site is not HAIL, including that no known HAIL activities have been undertaken on 10 Brookside Road (refer to Section 5.2 of this AEE, and the AECOM letter in **Appendix H**).

4.2 Surrounding Environment

The immediate surrounding areas encompass a mixed-use environment comprising residential and commercial land uses. The Rolleston Fire Station is located to the west of the site (at 4 Chaucer Street). A cluster of commercial activities extends further west beyond the Fire Station and currently includes a fish

and chip shop, real estate agency, dairy and takeaway. Opposite the site (to the south) on Brookside Road is a veterinary practice (3-5 Brookside Road) with the remainder of the area to the south and southeast comprising undeveloped land and/or residential dwellings. 7 Brookside Road is a large, relatively flat undeveloped site. 9, 13 and 15 Brookside Road are occupied by residential dwellings.

The Rolleston Highway Motel adjoins the site directly to the west alongside Main Road South, and that site wraps around the back of and to the west of the cluster of commercial activities, where the vehicle access is located.

There is a railway line on the far side of Main Road South. Land to the north of the State highway (and to the north of the railway line) is a mixture of farmland and industrial development.

There is commercial development to the east of the Brookside Road and State highway 1 intersection, including a BP service station and a KFC fast food outlet. The site is in close proximity to the Rolleston Town Centre which, notably, has no access to the State highway (refer the Core Retail and Retail Fringe Precincts).

5 REASONS FOR THE APPLICATION

5.1 Selwyn District Plan

The site is zoned Living 1 in the Selwyn District Plan (*the District Plan*) and is located within a predominantly residentially zoned area (similarly the Living 1 zone). The site is bordered by State Highway 1 (which is within the Inner Plains zone) along the northern boundary, and the Living 1 zone along the western boundary. Opposite the site, along Brookside Road (southern boundary), is also zoned Living 1 zone. These zones are illustrated in **Figure 3** below.

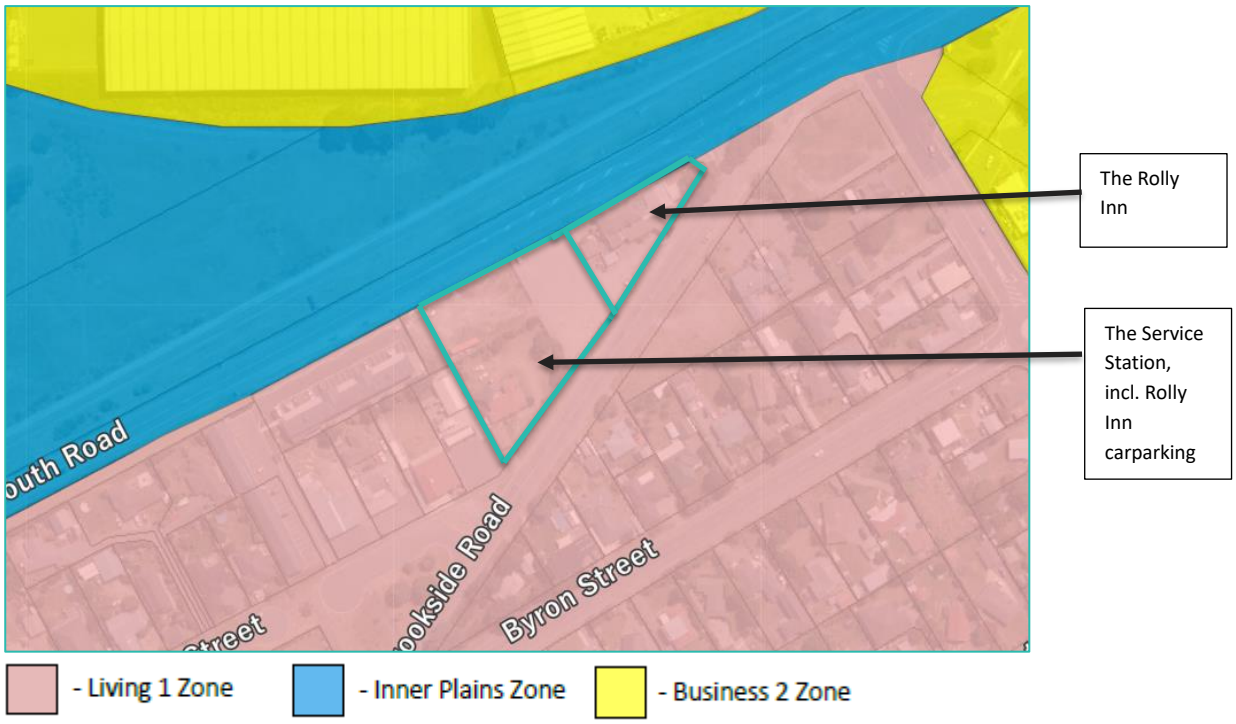


Figure 3: Selwyn District Plan Zone Map (Source: GIS Viewer)

There are no additional overlays, controls or designations relevant to this application. Notably, the site is not within an Outline Development Plan area nor identified as being of any cultural significance or heritage value.

An assessment of the proposal against the relevant provisions within the District Plan has been undertaken and a detailed analysis of the rules is provided in tabular form in **Appendix F**. The following reasons for triggering land use consent are identified:

- **Discretionary Activity Consent – Living Zone Rules Status of Activities** - Rule 1.1.2(e) Service Stations are listed as a Discretionary Activity (except for those located on a site which has vehicular access onto any road in Prebbleton other than Springs Road – refer to Rule 1.1.3.2.)
- **Discretionary Activity – Rule 2.1.1.6(a) – Earthworks exceeding 2000m^3**. Discretionary Activity Consent required in accordance with Rule 2.1.8.
- **Discretionary Activity Consent Required – Rule 4.2 Permitted Activities - Buildings and Landscaping.** Rolly Inn does not comply as only part of the boundary between the roads and the existing Rolly Inn building will be landscaped.
- **Restricted Discretionary Activity – Rule 4.9.2 Buildings and Building Position –** The carwash (being an accessory building) is located within 4m of the Brookside Road boundary failing to comply with the setback criteria. [the existing Rolly Inn building is also within 4m of the SH1 boundary.]
- **Restricted Discretionary Activity – Rule 5.3.1 – Vehicle Crossings -** Failing to comply with the following vehicle crossing requirements.
  - **E.13.2.2 Distance of vehicle crossings from intersections** - Service station Main South Road entry vehicle crossing approximately 70m from Brookside Road. Rolly Inn Brookside Road vehicle crossings approximately 22m and 55m from Main South Road.
  - **E13.2.4 Vehicle Crossing Design** - Four vehicle crossings for the service station across two frontages. Two vehicle crossings for the Rolly Inn. More than 7m spacings between all vehicle crossings. Tanker entry and exit vehicle crossing widths exceed 7m.
  - **5.3.1.4 – Access from the State highway** - It is proposed to access the service station directly from the State Highway which has an 80km/h speed limit.
- **Discretionary Activity - 5.5.1 Permitted Activities – Vehicle Parking and Cycle Parking.** Failing to comply with the following vehicle parking criteria:
  - **E13.1.5.2 Loading and Manoeuvring** – Marked loading space will not obstruct car parking but will obstruct part of the footpath from Brookside Road to shop front. Tank filling will not obstruct pedestrian access.
  - **E13.1.9 On-site Manoeuvring** - Some additional manoeuvring may be necessary in the 27 space carparking area for the Rolly Inn.
  - **E13.1.10 Queuing Spaces** - No queuing space available at Rolly Inn car park.
- **Discretionary Activity – Rule 5.5.1 – Permitted Activities - Parking Spaces to be Provided** – Failing to comply with the following number of spaces:
  - **E13.1.1.1 and Table E13.1(a)** – The Rolly Inn calculation is for 46 spaces whereas 35 are provided.
- **Discretionary Activity – Rule 5.5.1.7 Cycle Parking** - No cycle parking is proposed at the Rolly Inn.
- **Discretionary Activity – Rule 7.1(5) and (6) Outdoor Signs General –** Failing to comply with the signage criteria (5) A number of proposed signs will exceed 2m in height and are not attached to a building and (6) some signs, including the prime sign, poster board, air sign, LPG panel sign, carwash sign, and the Rolly Inn freestanding sign to be relocated will exceed 1m^2 in size.
- **Discretionary Activity – Rule 7.2(2) and (3) Outdoor Signs Directional.** The proposed directional signage will exceed 0.6m^2 net display area and includes arrows, but also includes the universal 'No Entry' symbol (which is neither an arrow nor the word "entry or exit"). **Restricted Discretionary Activity**

– 7.5(2), (3), (4) and (7) Outdoor Signs and Strategic Roads. (2) The proposed prime sign, poster board and Rolly Inn Freestanding sign proposed to be relocated will be erected along the northern boundary and are directed at Main South Road resulting in more than one sign. (3) and (4) The proposed prime sign and Rolly Inn freestanding sign (to be relocated) will have varying letter height and words / characters: at a minimum it is considered that the character restriction will not be met. (7) The proposed signage will be set at right angles / perpendicular to Main South Road but will not be angled off the direction of traffic by 50 degrees.

- **Discretionary Activity – Rule 10.6.2 – Noise** – Failing to comply with night-time noise limits, including the night-time L_{max} limit which could be exceeded at times when a heavy vehicle (e.g. fuel tanker) accesses the site and uses its park brake. The Rolly Inn continuing to exceed the night-time noise levels at 7 Brookside Road (vacant site) and 3-5 Brookside Road (Veterinary Clinic).
- **Non-Complying Activity – Rule 8.1.1.1 - Storage of Hazardous Substances** - Failing to comply with the hazardous substances criteria. Appendix 9 Table E9.2 provides for an upper limit of 1,000 litres of diesel. There is no upper limit for petroleum in underground storage or for LPG in the Living zone. **Discretionary Activity Consent** is required for the storage and use of petroleum underground and of LPG.
- **Discretionary Activity – Rule 10.8.1.1 – Scale of Activities -** Failing to comply with the scale of activities criteria. (1) all staff will live off site, (2) the GFA of buildings that are not dwellings exceeds 300m^2 and (3) Vehicle movements onto the state highway will exceed 40 per day and potentially 4 heavy vehicle movements per day on occasion. Vehicle movements will also exceed 20 per day onto Brookside Road and 2 heavy vehicle movements per day on to Brookside Road.
- **Discretionary Activity – Rule 10.9.1.2 – Hours of Operation -** Failing to comply with the hours of operation criteria as the hours of operation of the new service station are 24 hours per day, 7 days a week. The ordinary core hours of operation of the existing Rolly Inn and the new function facility are between 11am and 2am the following day, seven days a week and for the existing bottleshop between and 11am to 9pm, seven days a week. The bar is licenced to operate between 7am and 2am the following day and the bottle store is licensed to operate between 7am and 9pm, but each operate the additional hours infrequently. Ancillary activities occur both within and outside of the ordinary core hours of operation and therefore the Rolly Inn also operates on a 24/7 basis.

Notwithstanding the triggers for consent listed above and/or non-complying activity status, because resource consents are issued for an activity, not for the individual non-compliances associated with the activity, this application for resource consent is considered to include any and all non-compliances that arise irrespective of whether they are identified and /or listed above.

5.2 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

In May 2017 AECOM conducted fieldworks at 2 Brookside Drive, Rolleston, and prepared a limited Environmental Site Assessment (ESA) in 2018 (refer **Appendix G**). At that time, it was proposed to demolish the Rolly Inn and to erect a service station. A review of site history as part of that ESA did not identify Hazardous Activities and Industries List (*HAIL*) activities, the site was not included on the ECAN Listed Land Use Register (*LLUR*), and therefore the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (*NESCS*) was not considered to apply. A total of nine soil samples were collected and analysed for a range of potential contaminants, including metals. The results of which complied with the applicable standards under regulation 7 of the NESCS for commercial/industrial land-use. The AECOM ESA refers to a Preliminary Site Investigation (PSI) by Engineering Design Consultants, April 2015, for 6 Brookside Road, Rolleston, which

concludes that on a review of historical information it was more likely than not that a HAIL activity has not occurred on the site and that no environmental contamination is anticipated on site.

Subsequent to AECOM preparing its ESA, Engineering Design Consultants Limited (*EDC*) also completed an environmental investigation in 2018 at 45 Main South Road, which included sampling at the site. The EDC report was not undertaken by or on behalf of Z Energy. One of 24 samples taken as part of that assessment analysed for lead. The report noted that the sample was located between a shed and the entrance to restaurant, in the yard area and appeared to be a thin veneer of fill (50 mm). The natural soil at 100 mm depth beneath the elevated surface sample was below the SCS but approximately one order of magnitude higher than the background concentration for lead.

ECAN subsequently listed the site on the LLUR under HAIL category "I – Any other land" with site category "yet to be reviewed" as a result of the EDC investigation. AECOM has considered its position with regards to its ESA, the subsequent EDC Report and the revised LLUR entry. For the reasons specified in its letter dated 24 January 2020 (refer **Appendix H**), AECOM has concluded that:

"It is not considered that HAIL category I Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment applies as the presence of lead does not present an unacceptable risk to human health. Neither remediation of the lead impacted soil or subsequent soil validation is required. In the absence of a HAIL activity having occurred on the site, the [NESCS] is not considered to apply."

Furthermore, for completeness AECOM has considered the portion of land to the west of the previous AECOM investigation area, being the residentially developed land and the land immediately behind that, and has concluded that a review of the LLUR on 20 January 2020 did not identify any HAIL activities at the additional piece of land included as part of the development and that therefore the NESCS is considered not to apply.

In the context of the above, the considered conclusion of AECOM is that no NESCS consent necessary, even with the lead sample result that EDC found. As such, additional soil sampling is considered unnecessary and the application can proceed on the basis of the existing DSI and limited ESA for the wider site.

5.3 Overall Status of the Application

The activities subject of this resource consent are interrelated and as such, it is considered appropriate to apply the principle of bundling. Overall, resource consent is required for a **non-complying activity.**

5.3.1 Non-Complying Activities – s87A, s104B and s104D

As a non-complying activity, there is no limitation in the matters that can be considered providing they are resource management related. The consent authority may grant consent with or without conditions providing the requirements of s104D are met or may decline to grant consent. If the requirements of s104D are not met, then consent must be declined.

6 SCHEDULE 4 RMA – ASSESSMENT OF ENVIRONMENTAL EFFECTS

6.1 Introduction

As this application is for a non-complying activity, relevant effects that the council can consider are unlimited. Having reviewed the relevant plan provisions, visited the site and taking into account the matters that must be addressed by an assessment of environmental effects as outlined in Clause 7 of Schedule 4 of

the Act, it is considered that the actual and potential environmental effects associated with the matters listed below warrant consideration as part of this application.

- Character
- Visual Amenity
- Broader Amenity
- Stability and Ground Conditions
- Transportation and Traffic
- Risks associated with Storage and Use of Hazardous Substances
- Temporary Effects
- Retail Distribution Effects
- CPTED

An assessment of the effects associated with these matters, that corresponds with the scale and significance of the effects that the activity may have on the environment, is provided below in the remaining parts of section 6. Clause 7(2) of Schedule 4 of the Act notes that the requirement to address matters in the assessment of environmental effects is subject to the provisions of any policy statement or plan. The relevant documents have been assessed in Section 8 of this report and that assessment is matched to the specific policy provisions of relevance in **Appendix M**.

6.1.1 Existing Environment

The effects of the activity are to be assessed against the "existing environment". This includes the future state of the environment upon which effects will occur, including:

- The environment as it might be modified by the utilisation of rights to carry out permitted activities; and
- The environment as it might be modified by implementing resource consents that have been granted at the time a particular application is considered, where it appears likely that those resource consents will be implemented.

In this case the existing environment is as described in part in Section 2.2 and in Sections 3.1 and 4 Section 4 of this report. Most notably, the Rolly Inn (commercial facility) has been lawfully established and it is considered that the effects that must be discounted include those associated with the Rolly Inn building, the hours of operation of the Rolly Inn, noise and lighting, activity generated, effects of the freestanding signage along the boundary of Main South Road, as well as the movement of vehicles to and from the site and the operation of the established vehicle crossings onto Brookside Road.

There are no known, yet to be implemented, resource consents.

6.1.2 Permitted Baseline

The permitted baseline is relevant to both the assessment under sections 95A – 95G and section 104 of the Act. Under these sections, a consent authority *may* disregard an adverse effect of the activity on the environment if a relevant national environmental standard or the Operative District Plan permits an activity with that effect. This is the permitted baseline. It is only the adverse effects over and above those forming a part of the baseline that are relevant when considering an application.

The purpose of the permitted baseline test is to isolate and make irrelevant, the effects of activities on the environment that are permitted by the District Plan. When applying the permitted baseline, such effects

cannot then be taken into account when assessing the effects of a particular resource consent application. The Council has a discretion to apply the permitted baseline.

The permitted baseline has been defined by case law as comprising non-fanciful activities.

It is understood that the intent of the SDP is not to require resource consent for the demolition of existing buildings within the district or for the removal of vegetation on the application site. As demolition of the residential dwelling and ancillary activities (eg: vegetation and fence removal) can be undertaken at any time, irrespective of the proposal proceeding, it is considered that should be applied as the permitted baseline.

In this case, permitted activities in the Living 1 zone are not simply residential activities, but include a wide range of activities compliant with the applicable standards unless they are specifically identified as requiring consent. Service stations are specifically identified as discretionary activities. Service stations are vehicle orientated activities with specific operational requirements that distinguish them from many other commercial activities.

Accordingly, for the purposes of this analysis, it is considered that the permitted baseline should not be applied, except to the extent that the demolition of the residential activity at 8 Brookside Road and any vegetation removal is permitted.

6.1.3 Other considerations

Sections 95D(d)-(e) and 104(3)(a) of the Act require that assessments must disregard:

- Trade competition, or the effects of trade competition; and
- Any effect on a person who has given written approval to this application.

Trade competition is relevant to this application, and its effects have been specifically disregarded in the Retail Distribution Analysis in **Appendix L**.

No written approvals have been obtained at the time of lodgement, though some are expected to be obtained post lodgement and adverse effects on those parties who give written approval will need to be disregarded.

6.2 Character

This site is zoned Living 1 which is classified as a Township Zone within the District Plan. Living 1 areas are described within the District Plan as '*areas that are managed to maintain environments that are most pleasant for residing in. Activities in Living Zones have effects which are compatible with residential activities and amenity values*'.

Whist zoned Living 1, the character of this particular area contains a strong element of commercial development and activity due to historical development, its accessible location within the road network and the presence of the State Highway. The unique character of the area is particularly influenced by the presence of the Rolly Inn which was built in the 1940s and is proposed to be retained as part of this application. To put the surrounding environment into context: the Rolleston Fire Station is located to the west of the site, commercial activities located in close proximity include a cluster of local shops west of the Fire Station, and the Rolleston Highway Motel. On the opposite side of Brookside Road, to the southeast, is a veterinary practice (3-5 Brookside Road). Like the other commercial activities in this location, the activity will service the local community, despite being predominantly designed to service travellers on the State highway. The remainder of the area to the south and southeast comprises undeveloped land and/or residential dwellings: 7 Brookside Road is a large, relatively flat undeveloped site, while 9, 13 and 15 Brookside Road are occupied by well-established residential uses (generally single house lots).

The Living 1 zoning of the locality acknowledges that inherent mix of commercial and residential activity and reflects the desire for its character to remain a mix of residential and low scale commercial activity.

Recognising the acceptability of that mix, the application site has a lesser amenity value for residential activity than many, and the proposed development is considered an appropriate use of the site, while not compromising the mixed-use character of the area. Indeed, a service station development involves a well-recognised regime of buildings (including canopy), signage and hard-standing areas. It combines elements of industrial (simplicity and geometry), commercial (shop, signage) and residential (scale and landscaping) design that distinguish it from many other activities which neatly fall to be categorised as distinctly commercial, industrial and/or residential. As such service stations can be appropriate in the majority of zones, being vehicle service activities that serve users of the roads to which they are annexed, predominantly the arterial roads, and which include ancillary retail activities to serve the local community.

Whilst it is acknowledged that the removal of the existing residential dwelling at 10 Brookside Road will add to the non-residential character of that side of Brookside Road, that particular site is isolated between the Rolly Inn and the Fire Station, and the State highway has a significant influence on the undeveloped land to its rear. Service stations are often found in residential environments and in this case, notably, the southern side of Brookside Road would remain predominantly either residential or vacant (with a potential for residential).

The presence of the State highway has been and remains hugely influential in defining the character of the land around the site. The characteristics of a service station development have a strong link to functionality and to the road corridor. The service station is what is known as a "Highway Offer" – that is, it is designed to predominantly serve vehicles using the adjacent State highway. As such, it is anticipated that the majority of traffic entering the service station will do so via Main South Road. It is not considered likely that Brookside Road (via Byron Street) will be a primary route to access the service station, and nor is the service station expected to substantially change the character of the residential area by markedly changing the travel pattern of commuters through the residential environment.

Service stations have a good level of acceptability in fringe and/or high traffic environments where there is a transition between building form and function, where a major transport route is integral to their location and to the nature of the service provided and/or at a zone interface. This includes fringe residential / commercial environments. This service station is within such an environment, being located on SH1 and the fringe of the urban residential environment, which has a mixed use character. The scale of building development on the application site will be low and the service station is designed to provide services, including fuel and convenience retail predominantly to passing motorists, but also to the local community.

It is considered that the proposed development will contribute to a high-quality urban environment through building design (form, scale and location) and landscape treatment and the new service station will connect well with its surroundings. The signage will not dominate or appear visually out of character with the overall visual environment, which includes pockets of signage of similar scale to the east along Main South Road.

An Urban Design Assessment (UDA) has been undertaken by Jane Rennie, Urban Designer/Senior Principal (Boffa Miskell) (**Appendix I**). The purpose of the UDA is to assess the key urban design considerations and, in that regard, provide specialist advice and an opinion of the development from an Urban Design perspective. Given the site's current use, location adjoining SH1 and its double road frontage, Ms Rennie considers that the site is well suited to a service station use, subject to managing any amenity effects that may arise on the nearby properties. Ms Rennie considers that the proposal is acceptable from an urban design perspective. To avoid repetition, Ms Rennie's summary and conclusions are provided within the following section (6.3 Amenity).

In this particular environment, it is considered that the service station would be consistent with and complement the character of the area and the environment will be maintained to ensure that it remains

pleasant for living in. Accordingly, the proposal will result in effects that are compatible with the existing environment and it is considered that the effects on the character of the area will be minor.

6.2 Visual Amenity Effects

The proposal seeks to improve the appearance of the application site through introducing modern buildings, formalising car parking arrangements and increased landscaping and is expected to result in an overall improvement to amenity. The proposed layout will not affect the amenity values of the surrounding streets, in part because of the predominant orientation and relationship to SH1. The potential impact of the proposed layout will be mitigated by the placement of the buildings on the application site, the scale of the buildings, the proposed landscape treatment including tree planting, and the absence of fencing along the street boundaries.

The service station will have the high standard of development and maintenance that is associated with corporate branded development. Z Energy's corporate colours will be adopted, primarily an earthy "mineral brown" for the building facades with feature colours primarily being orange and blue. The use of the feature colours aids recognition but does not dominate. Landscaping that includes specimen trees is proposed along the Brookside Road frontage in seeking to promote a greener, residential edge.

The proposed convenience shop and the carwash facility are single storey with a relatively small footprint. Singularly and in combination these have a residential style. The forecourt canopy is open. These buildings will not generate adverse effects of shadowing or domination on the footpath, road or neighbouring properties. There is a single point of entrance to the shop with a direct line of sight between the entrance to the building and the forecourt area. The facility will be adequately lit, and security cameras are used to provide passive surveillance of areas where visibility is impaired.

The design, appearance and interface of the development has been assessed within section 5.0 of the Urban Design Assessment. Some key passages in relation to the assessment of effects on amenity inform this assessment and are provided below:

> *The main retail store is setback approximately 25 metres from the Brookside Road frontage and will be seen largely at an oblique angles from the residential properties opposite. The rubbish and air conditioning compound adjoining the southern façade of the store will be screened by a 1.8m high timber fence and gates that will be painted the same colour as the shop. The location of the store in conjunction with street frontage landscape comprising five trees will minimise the visual impact of the main building as seen from the street. The rear of the store will adjoin the Rolleston Fire Station site and an undeveloped portion of the Rolleston Highway Motel fronting SH1. Given the height of the store at approximately 4 metres it is not inconsistent with the scale of single storey buildings in the vicinity. As such, it is not considered necessary to establish specific landscape mitigation beyond the acoustic fence. The carwash will align with the southern boundary, setback approximately 5m metre from the footpath edge mid-way along the Z Energy site frontage. The elevation fronting Brookside Road will incorporate Eterpan cladding (fibre cement board) finished in 'mineral brown' paint colour and a 1.8m high river rock wall feature along the bottom half of the elevation. This will create visual interest along the rear of the carwash facing the street. There will be no carwash billboard along the southern side of the building.*
>
> *The proposed forecourt canopy will sit behind the carwash building and will be approximately 5.6 metres in height and 19 metres in length and will be illuminated. The landscape strip alongside the carwash comprising 4 medium scale trees and low level shrubs/planting will help to partially screen the development from the residential properties located opposite, which are also set back*

from the street frontage with partially front boundary fencing. The use of recessive colours where possible also helps to reduce the commercial appearance of the buildings from the wider area.

…

The reconfiguration of the Rolly Inn frontage to Brookside Road will both formalise vehicle access into and out of the site, but [sic] *also improve the visual appearance of the site. The existing established trees on the corner of Brookside Road and SH1 will be retailed* [sic] *and additional trees proposed between the main entrance and the Z Energy site. It is recommended that the grass berm within the road reserve is reinstated, if this is acceptable to Council, in further improving the appearance of the street frontage. Street trees within the berm would also be advantageous in improving the quality of the streetscape. Signage along the residential interface is limited to small entry and exit signage at the two vehicles entrances along Brookside Road.*

To Urban Design Assessment concludes:

From an urban design perspective, the proposal is considered to be an improvement to the current amenity of the site given it is partially vacant and uncared for and there is limited on-site landscaping. The commercial use of the site is also considered appropriate given its frontage to the State Highway.

The proposed layout of the Z Energy site, with the location of the retail store aligning with the internal boundary with the Rolleston Fire Station and Motel sites and the carwash aligning with Brookside Road is a pragmatic way to address several site constraints. Careful consideration has been given to landscape treatment of the Brookside Road frontage to address the residential context through planting that will provide a good level of screening mitigation. The addition of a stone wall along the carwash façade avoids the development of a blank wall along the street frontage, creating visual interest through use of local vernacular materials.

A direct pedestrian pathway from Brookside Road will provide a dedicated route for pedestrian and cyclists visiting the retail store and a small seating area adjoining a stone wall will create a feature along the southern extent of the store. The use of recessive colours where possible helps to reduce the commercial appearance of the buildings from the wider area.

The reconfiguration of the Rolly Inn site will improve on site access and the overall visual amenity of the site, including new trees along part of the Brookside Road frontage. A hedge will separate the two sites restricting any movement between the two and encouraging pedestrians to utilise the footpath. It is recommended that the grass berm within the road corridor is reinstated and ideally several street trees introduced to further enhance the quality of the streetscape.

In conclusion, the proposal is considered to be acceptable in urban design terms.

While noting the erroneous reference to the residual area of the site being 'an undeveloped portion of the Rolleston Highway Motel fronting SH1', the Urban Design assessment and conclusions above are concurred with and adopted. In addition, we agree with other comments made in the Urban Design Assessment that the 1.8m river rock wall and seat adjoining the cycle parks will provide a place to rest, visual interest and a focal point referencing the local area as you approach the store. A river rock wall feature is also, appropriately, incorporated into the carwash building facing Brookside Road.

The Urban Design Assessment focusses on the effects of the signage located near the residential development interface. Additional signage along the State Highway frontage and within the service station is part and parcel of vehicle orientated activities, including service stations.

Signage at service stations is important because motorists need to make their decision to enter the service station prior to reaching its access points. As such, the proposed signs visible from the State highway are an important aid to the early identification of the facility by motorists. Recognising this and acknowledging that the facility is predominantly intended to serve vehicles using the State highway, free standing identification type signage is proposed along the State highway frontage. Such signs consist of the minimum number of elements that will give clear and complete messages to motorists as they approach the facility. The proposed signage is consistent with Z Energy's national corporate signage regime, which promotes a total image for the facility, being clearly recognisable as the "Z" brand. When viewed from the State highway (and beyond) such signage will be viewed either at distance or for a relatively short period, and always in the context of the broader service station activity.

Signage along Brookside Road is limited to entry and exit signage only.

The balance of the signage is associated with the operational aspects of the facility, such as at the pumps, along the proposed shop front and at the car facilities. These signs contain a wider variety of information and are located and designed primarily to serve persons already within the service station. They assist in internal circulation, to meet health and safety commitments and in site operation.

A Z clip sign will be attached to the proposed forecourt canopy. That sign is higher than the fascia of both the forecourt canopy and the proposed Z shop. However, this is not significant, and visually the sign continues to be viewed as an integral part of the canopy and overall built development. This is similar for the clip-on signs mounted onto the carwash facility. Such signage is simple and designed to assist with immediate recognition of the facility.

As an overall package, the signage is clearly and recognizably associated with a service station activity and will be viewed in the context of the development as a whole and is therefore a relatively small component of a larger varied background.

Signage associated with the Rolly Inn is existing and the only change is the relocation of a free standing sign. The relocated sign is otherwise existing (in terms of scale and content) and will be in a location clearly associated with the Rolly Inn and distinct from the service station activity.

The Rolly Inn building will be retained, but the area around it redeveloped and improved. A footpath has been included around the majority of the perimeter of the Rolly Inn building and a connection to Brookside Road has been provided for. This will support direct pedestrian access to the Rolly Inn and to building entrances from the north, west and south. Building access to the north is emergency exit only. The reconfiguration of the area around the Rolly Inn building will improve access and overall visual amenity, including new trees being planted along part of the Brookside Road frontage. A hedge will separate the two core activities on the site, restricting any movement between them and encouraging pedestrians to utilise the footpath. The hedge will also considerably soften the appearance of the hardstand areas within the application site. It is recommended within the Urban Design Assessment that the grass berm within the road corridor is reinstated and ideally several street trees introduced to further enhance the quality of the streetscape. Subject to SDC's approval, the applicant has offered that as a condition of consent.

In an overall sense it is considered that the actual and/or potential adverse effects on visual amenity will be on the lower scale of minor.

6.2 Broader Amenity Effects: Operational Effects with the Potential for Nuisance

Noise

Z Energy proactively manages the potential for noise nuisance to be generated at its sites. Responsibility for on-going management of noise at the service station is allocated to specific people via their position on a shift. These responsibilities are identified as part of a person's job description for which training shall be given and performance shall be measured. All staff will be instructed in the need to operate in a quiet and reasonable manner. This education procedure is included in the normal Health and Safety instruction programmes, both as part of induction training and ongoing staff training programmes.

The matters that are specifically addressed via job descriptions are as follows:

- Movement of any signage, goods or equipment around the service station. Emphasis is placed on managing noise on the hardstand areas (forecourts in particular) as far as is reasonably practicable. This includes requesting vehicle owners to turn down or switch off loud in-car entertainment systems, and encouraging patrons not to loiter within the forecourt area;
- Rubbish collection and disposal;
- On-going operation and maintenance of mechanical plant; and
- Management of contractors (including cleaners) at the service station.

There will be no piped music played externally on the service station.

Waste disposal is potentially an activity that causes contention which, in addition to being managed through Z Energy's internal procedures, can easily be managed in daytime hours and that forms part of the proposal.

A noise assessment has been prepared by Marshall Day Acoustics (*MDA*) to inform this application and is attached as **Appendix J.**

The Acoustic Report acknowledges that the noise standard in the District Plan is not met, and also that the noise standard in the District Plan references the superseded NZS 6802: 1991. In assessing the impacts of the non-compliance, the Acoustic Report also takes into consideration the more up to date NZS 6802:2008, and the World Health Organisation (WHO) Guidelines for Community Noise (Berglund, Lindvall and Schwela, 1999). The Acoustic Assessment concludes that the L_{Aeq} standard adopted in the 2008 NZS and in the WHO Guideline is a better metric for assessing the noise effects of this activity that the L_{A10} parameter adopted in the 1997 NZS. The Acoustic Report also identifies that night-time (early morning) ambient noise levels are currently well above the District Plan night-time noise limit, primarily due to traffic on State Highway 1 and Brookside Road, and concludes that based on the relatively high noise levels in the area, it is considered that a relaxed day and night-time noise limit is appropriate for the site. In our experience, the assessment of the effects of noise should be based on current standards appropriate to the use proposed and the background noise should be taken into account when determining the acceptability of noise emissions. Experience at other service stations has identified that passing traffic often already masks noise from service station operations located on a busy road. The ambient noise environment at this location is heavily influenced by the traffic using SH1 and the service station is likely to generate most noise when the traffic flow on the adjacent road is heavier (ie: when the ambient noise levels are already high).

The Acoustic Report predicts that the District Plan:

- daytime noise limit of 85 dB L_{Amax} will be achieved at all surrounding properties;
- noise limits, which use the L_{A10} parameter, will be exceeded at all surrounding properties during night-time hours;

- night-time noise limit of 70 dB L_{Amax} could be exceeded at the following properties at times when a heavy vehicle (e.g. fuel tanker) accesses the site and uses its park brake:
    - 3-5, 4, 6, 7, 9, 11 Brookside Road; and
    - 10, 12, 14, 20 Byron Street.

Having regard to those predictions, the ambient noise and the metrics in the three documents discussed above, the Acoustic Report concludes that:

- the potential adverse noise effects of noise emissions from the proposed activity during the day will be consistent the WHO guideline value for minimising the onset of moderate annoyance and well below the existing ambient noise levels from traffic on the local roading network, and will thus be acceptable;
- when there are no heavy vehicle movements on site, the District plan noise limits will be achieved and noise emissions from the proposed service station would be largely inaudible over existing noise from the local roading network. As such, the potential adverse noise effects of noise emissions from the proposed activity at night, even though these are relatively low, will be acceptable;
- when there is a heavy vehicle movement on site the predicted noise levels of 45 dB $L_{Aeq(15min)}$ at the nearest dwellings are consistent with the WHO guideline value for minimising the onset of sleep disturbance with bedroom windows open and well below the existing ambient noise levels from traffic on the local roading network. Such emissions will be acceptable.

We further note that the situation referred to in bullet point 3 above will not occur very often at all: the proposed site is not set up for heavy vehicles (aside from fuel deliveries) and heavy vehicles will generally favour the truck stop located at 25 Hoskyns Road, which is around a kilometre away on the opposite side of State Highway 1.

A Rolly Inn noise survey shows that even on a Saturday evening (in this case the Saturday evening before Christmas 2019), noise levels in the vicinity of the Rolly Inn and the proposed service station site are dominated by traffic on State Highway 1 and Brookside Road. Rolly Inn patrons are audible at times, but relatively quiet compared to noise received from traffic on State Highway 1. The Acoustic Report identifies that the morning and evening peak hour of use for the service station does not coincide with the busiest times for the Rolly Inn (Friday and Saturday nights), and that noise emissions from the service station during peak hours of use will be greater than that produced by the Rolly Inn. Accordingly, the Acoustic Assessment focuses on service station noise emissions.

The activities undertaken within the Rolly Inn are well controlled and the facility manages potentially unruly behaviour by operating in accordance with the host responsibility code. Most activities are carried out within the building, and the smokers' area is on the eastern side of the building, away from the closest undeveloped land and residential neighbours. Existing use of the Rolly Inn exceeds the night time noise criteria and this would continue.

Waste disposal can readily be managed in daytime hours and that can be conditioned for the Rolly Inn.

The additional private function facility will only operate within the existing core operating hours, so there will be no extension to the hours when the facility will be open to the public. The proposed private function activity does not include provision for voice or music amplification. Any music playing within the private function area will need to comply with the current noise standards. A condition to this effect can be imposed. It will also, of necessity, be reasonably low, or it will affect the enjoyment of patrons of ground floor activities. The same principle generally applies to the need for music on the ground floor to be reasonably low when there are functions – otherwise it will affect the enjoyment of the use of that space.

For completeness neither the Rolly Inn nor a service station are particularly sensitive to the effects of noise.

Accordingly, it is considered that the actual and/or potential adverse effects of noise will be minor.

Dust

Sealing the majority of the unbuilt areas of the application site post-construction will mitigate the potential for longer-term dust nuisance. Accordingly, less than minor nuisance or adverse effects will be generated.

Odour

In this case, the forecourt is well separated from adjoining sites and is well ventilated – being open on three sides. Fuel is to be stored underground and a vapour recovery unit is to be installed. Health and safety requirements relating to air discharges must be met by the service station facility, to ensure the safety of staff and customers. Assuming this satisfactorily manages the internal application site effects, it follows that off-site effects should also be satisfactorily managed. Indeed, odour problems from vents at service stations are uncommon.

No sources of odour will be generated by the additional activity at the Rolly Inn.

Accordingly, it is considered that any odour effects will be less than minor.

Lighting

Lighting has been designed to comply with the standards in the District Plan and a condition requiring confirmation of this, once operational, can be imposed if it is required. That is considered suitable given that lighting levels are typically something that can be changed relatively simply – for example by reducing the intensity of the light emitted via changing the bulb or refocusing the angle of the fitting, rather than by removing or relocated hardware.

The immediate environment is not one that is typically 'dark'. SH1 is, in this location, lit and the residential area is also lit at night.

There is an existing light pole located near the western façade of the Rolly Inn near the Rolly Thai entrance. This security light currently provides lighting to the existing car park. In addition, there is existing security lighting positioned in appropriate locations around the Rolly Inn building. We are not aware of any current issue with this lighting and as such it is proposed to retain all existing lighting (or replace it on a like for like basis) which will provides sufficient light to the car parking area and entrances to the building without causing a nuisance.

The service station will similarly be artificially lit and visible at night. This provides safety for customers and staff. Landscaping and the site layout, including the orientation of the shop, mitigate the potential effect on residential dwellings. A lighting plan for the service station is included in the plan set at **Appendix B**.

The specification, design and location of the lighting minimises light spill. None of the illuminated signs will flash or move, thereby causing a potential distraction. The luminaires in all external building mounted lights, and on the light pole are downward facing, with a specific focus on the service station facilities, rather than the wider site or beyond the site boundaries. The luminaires will be positioned, mounted and directed in such a way that light coming directly or indirectly from them will not distract or endanger to motorists or annoy occupants of other sites. Thus, the lighting is designed to promote safety without causing a nuisance.

With respect to the under-canopy lighting, recessing the LED lamps into the luminaire bodies reduces the potential severity of the brightness effect. LED technology provides the luminance necessary for the brand identification, visibility, appearance, safety and ambience of the service station at night, without the hotspots usually encountered with fluorescent or neon lighting. The under-canopy lighting is motion sensitive and is designed to dim down in times where there are no vehicle movements picked up on the sensors and increase in brightness when motion is detected.

The pedestrian path between Brookside Road and the service station shop will be well lit by low (approximately 1.2m in height) bollard type lighting, ensuring safe passage along that route.

The potential effects of lighting will be less than minor.

6.3 Stability and Ground Conditions

The Geotech Report has been prepared by Babbage and is provided within **Appendix D**. The subsurface conditions across the site are reasonably consistent with no significant geotechnical hazards identified. Groundwater is not an issue at the site and is expected to be deeper than 8m from the surface. There is considered to be no risk of liquefaction at the site even following a substantial earthquake. With respect to NZ1170.5 definitions, the soils beneath the site would be designated as class D: Deep or Soft Soil.

It is expected expect that some additional geotechnical testing will be required as the Highway Shop building is in an area void of testing. This would likely comprise a handful of shallow tests (test pits) in the vicinity of the new Z Highway Shop to confirm shallow ground conditions. A condition requiring this is not considered necessary as this will be required to support the Building Consent process in any event.

With regards to the underground storage tanks, the standard penetration tests (SPTs) undertaken show very high field values, typically 60+, within the natural sandy gravels with occasionally lower values in the upper 2.0m of the soil profile. Because of the density of the sandy gravels and the presence of cobbles, the installation of sheet piles is likely to prove to be problematic at this site and the excavation for the tank pit will be via an open cut. Given the results of the SPTs, Babbage considers that a minimum angle of internal friction of the natural sandy gravels will be 45°; in order to maintain a short term factor of safety of 1.2 for temporary slopes, batters should be cut no steeper than 38.7° (1 vertical : 1.25 horizontal). Constructing batter slopes requires additional earthworks which has been provided for within the earthwork calculations. All works will be undertaken in accordance with the recommendations of the Geotech report and Z Energy's EMP for Site Works (refer **Appendix E**).

Further discussion and specific geotechnical recommendations are provided within section 9 of the Geotech report (refer **Appendix D**). In summary there are no concerns with the stability or ground conditions that would result in any discernible adverse effect.

6.4 Transportation and Traffic

An Integrated Transportation Assessment (ITA) for the proposal is included at **Appendix K**.

The proposed development is not expected to generate adverse transportation effects on the receiving transport environment including for the following reasons:

- Network Effects - Due to the nature of service stations, the majority of vehicles visiting the facility will already be travelling on the road network either directly past the site or nearby, and hence the amount of additional traffic generated by the proposed development is forecast to be minimal and within the daily variance in traffic flows that would be experienced in the future.
- Vehicle Crossing Width – Vehicle crossings for non-residential activities have a maximum permitted width of 7m. The two vehicle crossings which have been designed to accommodate the tanker entry and exit movements are wider than 7m. All other vehicle crossings are proposed at 7m wide to comply with the rule. The entry vehicle crossing on Main South Road is proposed at 11m wide to accommodate the tanker tracking. There is no footpath or pedestrian demand along the SH1 site frontage, so pedestrian safety is not a concern and it is considered essential to design the vehicle crossing to conveniently accommodate the tanker. The eastern service station vehicle crossing on Brookside Road is also proposed at 11m wide to accommodate potential tanker left turns and right turns. There will be negligible adverse effect on pedestrian safety arising from the non-compliance, with good visibility to

the low number of pedestrians using the footpath available for exiting drivers. The vehicle crossing construction on Brookside Road will reinforce that pedestrians on the footpath have priority over driveway vehicle movements.

- Site Accesses - The site accesses to the service station and the Rolly Inn are anticipated to operate safely and efficiently with the traffic volumes and patterns forecast.
- Vehicle Crossing Numbers - One vehicle crossing per site is permitted in a residential zone. Four crossings currently exist on Brookside Road and form part of the existing environment. Four vehicle crossings for the service station are proposed across two site frontages and two vehicle crossings are proposed for the Rolly Inn. The vehicle crossings proposed recognise the demand generated by the activity and will provide flexibility for users of the proposed service station and avoid additional traffic movements through particularly the Main South Road / Brookside Road intersection.
- State Highway access - As outlined, it is proposed to have direct left-in / left-out access to the site for westbound traffic on Main South Road. The design of the vehicle crossings and changes to Main South Road to accommodate access have been discussed with NZTA and it has not raised any concerns at this stage with the access.
- Circulation - There is ample space within the service station forecourt to accommodate associated activities including refuelling of vehicles, car parking, car wash facilities, filling of the underground fuel tanks by petrol tankers, and use of the air / water station and the loading bay;
- Tanker Wagons - The service station does not include a truck stop. Therefore, the only 'large vehicles' accessing the facility (and subsequently using the Brookside Road/ Bryon Street intersection) are anticipated to be tanker wagons accessing the service station to refuel the underground petroleum storage tanks. This will only occur periodically (depending on fuel demands at the service station) by experienced tanker drivers and is not considered likely to cause any significant effects given the frequency. The routes the tanker wagons travel can be, in some instances, altered depending on the surrounding road network and the time of day / night the delivery is to occur, but that is in response to traffic conditions on the day, and usually a set route is adopted.
- Carwash Queuing - It is possible to queue for the carwash during a tanker delivery such that there is no need to restrict delivery times or car wash operations, as both can operate in tandem if necessary. It is acknowledged that cars may well queue closer to the internal boundary when deliveries are not in progress. Service station staff can erect cones around the delivery area when a delivery truck is due, to avoid any congestion when the tanker arrives at the site, although on the basis of experience, Z Energy does not consider that would be common.
- Pedestrians to the Service Station - The development will appropriately cater for pedestrians. A pedestrian path leading to the service station shop has been included. The location of the pathway is ideal for residents approaching the service station from the west as it will not require pedestrians to cross over a vehicle crossing. The service station would be operational on a 24/7 basis, will be adequately lit and security cameras are used to provide passive surveillance of areas where visibility is impaired. There will be good visibility for existing drivers to any pedestrians on the footpath on Brookside Road and pedestrian safety will be maintained, including through the installation of wheel barriers;
- Pedestrians to the Rolly Inn – A path and crossing will provide direct, convenient access from Brookside Road to the Rolly Inn, and from the carpark area to the main entrance.
- Pedestrians to SH1 - There are no known key desire lines for pedestrians between Brookside Road and SH1, and there is no pedestrian footpath along SH1 or crossing point to its other side in the immediate vicinity. Cycle parking is proposed alongside the pathway for those that will arrive by cycle.
- Signage – Signage designed to be viewed from off-site will not obstruct road-users, pedestrian traffic or information important to public safety, or distract road users, and all signage is simple, legible and

communicates information clearly. The proposed signage is standard for service stations throughout the country. The illuminated signs will not flash or revolve. Signage associated with the Rolly Inn is existing: the only change relates to the relocation of one of the freestanding signs to a position closer to (and more directly associated with) the Rolly Inn building.

- Bus Stop - The bus stop on SH1 outside the Rolly Inn site is not known to be part of the wider public transport network in Rolleston. It is currently used infrequently but regularly by Intercity Buses and the Rolly Inn from time to time, but the sanction for that use is not known. NZTA will ultimately be responsible for the decision as to whether it is retained as part of the upgrade to SH1 but in any event, it is unlikely to be obstructed by the entry driveway to the service station.

  Carparking – The Rolly Inn is proposed with 27 car parking spaces on-site for customers and 8 spaces to the south of the service station shop that will be used for Rolly Inn staff only. Staff members will be familiar with the layout of the application site and will know that the preferred pedestrian route to the Rolly Inn is along the Brookside Road footpath.

  The provision of a total of 35 parking spaces for the Rolly Inn has been assessed as non-compliant, but sufficient to service the activity. A car parking supply requirement of 46 spaces has been calculated on a split of 'retail' (bottle store) and 'food and beverage' (restaurant and bar) activities on the ground floor and the function room on the first floor being assessed as a separate 'place of assembly' activity. This is considered the appropriate method for calculating a minimum car parking requirement since the function room operates separately and differently to the ground floor activities. Appendix C of the ITA (**Appendix K**) contains a summary of the calculations. Alternative methods for calculating the minimum parking requirement, resulting in a possible requirement of 41 or 56 spaces but where the method has been discounted, are also outlined in Appendix C of the ITA for completeness. In any event, carparking has been found to be adequate for the activities proposed. An assessment of the appropriateness of the car parking supply, including having regard to a car parking survey carried out at the Rolly Inn across the week of 15-21 June 2018, concludes that regardless of District Plan compliance or otherwise, the proposed supply of 35 spaces will be sufficient to accommodate most, if not all, car parking demands across the year. Ordinarily, it is not considered an efficient use of resources to provide on-site car parking to meet maximum parking demands on the very busiest days/nights of the year. It is noted that the function facility would operate infrequently and that there would be some kerbside car parking available in front of the Rolly Inn and also in front of the service station.

  Parking for the service station meets the district plan requirements.

In summary, as is typical for service stations, most traffic generated by the proposed service station would already be on the road network and passing the site. The small increases in traffic volumes generated by the service station would not be expected to affect this.

A number of matters of District Plan non-compliance across the service station and the Rolly Inn activities have been assessed within the ITA. It has been concluded that the access arrangements to both are appropriate and will operate safely and efficiently. Furthermore, NZTA has been consulted in respect of the proposed Main South Road arrangements. The service station has sufficient car parking to meet the District Plan minimum provision, while the Rolly Inn will be provided with enough car parking to more than meet its parking demands during most days/times of the year.

The ITA from Stantec concludes that the proposed development can be supported from a transport perspective. We have reviewed the assessment and concur with its conclusions. It is considered that from a transportation and traffic perspective, the effects of the development are less than minor.

We are mindful of the recent announcement of the Government's commitment to Rolleston infrastructure works: to the proposed flyover from Rolleston Drive through to Hoskyns Road / Jones Road which the Government had previously been put on hold and to the upgrading of the four intersections along SH1 between Burnham and Rolleston. We have discussed these with Stantec to confirm that they will not have

any impact on the proposal. Stantec has advised that it has been aware that the proposed flyover proposal was in the pipeline and that its progression would not its analysis. As most service station visits are made by traffic already passing the site, the ITA has very much been focused on the accesses to the service station and the immediate surrounds. Further, as is outlined in the ITA, the service station has been set up to be able to still work if the separated service lane arrangement on Main South Road is adopted by NZTA. Accordingly, those possible projects have no material impact on what's being proposed by Z in the application.

6.5 Risks Associated with the Use and Storage of Hazardous Substances

The recent Resource Legislation Amendment Act 2017 (*the Act*) has removed the explicit function for Councils to control hazardous substances from the RMA. The Act recognises that policy and decision-makers should consider what controls already exist in other legislation to avoid regulatory duplication. In the case of hazardous substances, other legislation such as the Hazardous Substances and New Organisms Act 1996 (*HSNO*) – to the extent is still applies – and the Health and Safety at Work (Hazardous Substances) Regulations 2017 (*HSW Regs*) are considered to adequately control the potential effects associated with the storage of hazardous substances.

The tanks (including all necessary works) have been designed and will be installed and operated within established legislative requirements and non-regulatory codes and guidelines, including the HSNO Act 1996 and associated Regulations.

The proposed tanks will all be double-contained, steel manufactured to an Environmental Protection Agency approved specification. Additionally, bunding and/or containment is not required for a double-skinned tank (exclusions from HSNO for underground tanks with integral secondary contaminant) because the second skin on the tank acts as an internal spill contaminant system. Compliance will also be achieved with the Z Energy Limited Specification for the installation of aboveground fuel tanks.

Physical Mitigation:

Standard physical mitigation procedures include locating the pumps on concrete islands and the nozzles being fitted with breakaway couplings, which automatically cut off fuel supply in emergencies. This minimises any spillage resulting from careless operation or damage to nozzles. Falls across the forecourt into the various sumps will help direct any spills to the drainage system (API separator).

Furthermore, the shape of the concrete base of the pump islands themselves have been designed to minimise the likelihood of any vehicle conflicts with the fuel dispenser that could give rise to the accidental release of the hazardous substances stored and used. The vehicle approach is located to allow safe and efficient movement of vehicles with good sight lines.

Safety:

Health and safety risks will be mitigated through compliance with Worksafe requirements. Under canopy lighting will be provided to ensure that refuelling can occur safely during dark conditions.

Discharges:

All discharge points having the potential to drain discharges containing hazardous substances (petroleum product) will be connected to the proposed API separator (i.e. the service station forecourt and remote fill points). The separator will comply with the relevant performance standards in MfE's *Environmental Guidelines for Water Discharge from Petroleum Industry Sites in New Zealand* (1998) and provides containment of refuelling surfaces and is designed to contain a 2,500 litre spill – which is considered to be the maximum credible spill (from tanker delivery). Discharge from the API will be to land / ground soakage.

The surface of the refuelling areas (drainage area) will be concrete. The underground tanks provide their own containment system (being double skinned). An automatic tank gauge system will be installed in the tanks, allowing Z to remotely monitor the level of fuel in the tank. Observation wells are generally located in diagonal corners of the excavation, the lowest point of tank excavation or, if the water gradient is known, a down-gradient point. The well liner must terminate in a secure cap designed so that it is impossible to connect any hose coupling to the well or allow any other substances down it. These wells facilitate observational monitoring around and down gradient from the potential hydrocarbon source - which can then determine whether there are any concentrations of petroleum hydrocarbons in groundwater. An observation well is not pumped. Observation wells are part and parcel of a series of measures and equipment designed to detect loss of hydrocarbons from the system. This includes monitoring of the interstitial space of the underground tanks, Automatic Tank Gauging systems, ports from which a tank can be dipped manually and the implementation of reconciliation procedures There are no adverse cumulative or synergistic effects associated with the use and storage of hazardous substances. The day to day operation of the service station will not result in the bio accumulation of hazardous substances.

Spill Mitigation:

In the event of spill emergencies appropriate containment and clean up measures are taken. Z Energy's corporate procedures are adopted and implemented at every Z Energy facility.

In the event of a major spill from a petrol tanker or a faulty pump, all tanker drivers and relevant service station personnel are trained in the location of the interceptor, including the manual shut off valve, and are required to take immediate actions to contain the spilt product. This includes the location and operation of centralised controls for the shutdown of all pump islands. The area of the spill is isolated.

A spill kit is located in an immediately accessible location (in this instance, along the convenience shop frontage). Where spill kit material is used, materials are replaced immediately.

The proposed emergency produces in the event of a spill will form part of the materials approved by ECAN via the application for stormwater discharge. They are not required to be consented via Selwyn District Council as Environment Canterbury may require a variation to these procedures. For information purposes however, these emergency procedures typically include:

1) Activate emergency stop button and isolate power
2) If serious or more than 5 litres spilt, PHONE 111 for the fire brigade
3) Keep bystanders away
4) Stop or shut off spill source and contain using spill kit if safe
5) Close interceptor/sump outlet valve (under blue or red lid)
6) Instruct people to put out any ignition sources i.e: enforce the no smoking and no starting of engines protocol
7) Ensure fire extinguisher easily accessible in case of fire
8) Phone Z Energy 0800 474 355 and press 1 for emergencies
9) Notify management via the call tree (HSNO Board)
10) Complete incident report and copy to Z Energy

Maintenance:

The consent holder will have authorised maintenance contractors who inspect and maintain the forecourt, the drainage systems and the API. Service station staff conduct more frequent visual inspections and keep

the drainage separators clear of any surface debris and will contact the authorised contractors for any unscheduled maintenance requirements.

Transportation of Hazardous Substances On and Off the Application Site:

Hazardous substances have to be transported to where they are used. There will be few if any routes over which hazardous substances could be transported without going through, for example, a sensitive environment. While main transport routes are generally used this may not always be possible. Ultimately some decisions on specific transportation routes will need to be made according to the prevailing conditions on the day (e.g.: traffic flows, accidents, etc.). The safe transportation of hazardous substances is addressed through legislation other than the RMA and should not be achieved through controls on individual land use consents affecting activities that are legitimately are able to be safely accommodated and the fuel delivery vehicles will enter and exit the application site in a forward direction (rather than reversing off-site).

LPG:

LPG will not be stored in bulk at the application site, but rather in pre-filled bottles within wire cages. This is both efficient and safe. These cages are provided to meet the HSNO requirements in terms of isolation and construction.

6.6 Temporary Effects

The ground preparation (including demolition) and construction works are expected to take approximately 16-18 weeks (barring unforeseen circumstances). The period over which the ground preparation and construction effects will be experienced is therefore relatively brief and any resultant short-term effects on any other party will be less than minor and within tolerance levels associated with development anticipated by the Plan and located on a main traffic route. The works will generate additional truck movements, for a relatively short period of time, primarily for soil, hardstand and existing building material removal and also for materials delivery (including the new tanks, building materials, canopy, signage, landscaping, clean fill, concrete). SH1 is a main route, designed to carry high traffic volumes, including trucks.

All truck movements will be indirectly controlled by the restriction on hours of work and given the location of the site immediately adjacent to SH1 it is considered that the bulk of the additional traffic generated during earthworks (and during later stages of the construction process) will have less than minor adverse effect in the context of temporary effects on the road environment and potential effect on the residential roads. Traffic movements associated with the construction phase will not adversely affect the function of the road network, including access and traffic movements, subject to a temporary construction entry or entries being clearly marked and appropriately constructed and noting that the speed reduces in this section of the road. A Construction Traffic Management Plan will need to be prepared and implemented by the contractor and this can be required as a condition of consent. Key outcomes of this will be to prioritise earthmoving trucks and/or other heavy traffic to use the State highway access and to manage the works to ensure that sufficient parking (either on or off-site) is provided for the Rolly Inn patrons during construction, when the Rolly Inn will still be operational. This may well include off-site parking, such as roadside and parking at the vet practise outside of normal and/or peak operating hours, and/or use of the shuttle service.

The earthworks are to be undertaken in one stage (though there may be sub-stages), which is appropriate given the nature and size of the development. All trucks / plant carrying excavated materials off-site will be securely covered and will proceed directly to landfill.

Works will be carried out in accordance with the procedures in Z's EMP for Site Works (refer **Appendix E**), with the exception of batter instead of sheet piling. This is not a common practise but is adopted where there are particular ground constraints. Z Energy has had experience with this practise previously, for example for aviation tanks on the plains, and it is also adopted by other Oil Companies when required. The

EMP for Site Works is generally designed for the management of potentially hydrocarbon contaminated sites, but adopting the methodologies and mitigation measures within, to the extent that they apply to an effectively clean site (for example the process of removing soils and fill, on-site soil management, and the requirements for off-site soil disposal) means that the works are unlikely to result in adverse environmental effects. Compliance with the EMP for Site Works will ensure that tank installation, including earthworks, is completed in a safe and efficient manner, with the least possible disruption.

Human health and safety will be addressed through compliance with the Health and Safety at Work Act 2015, which protects the safety of individual workers, as well as other standard procedures. As required by health and safety legislation, a comprehensive Health and Safety Plan is developed prior to commencement of works and all contractors review this prior to starting at the site. Each operator at the site must be inducted in terms of health and safety requirements (including hazards) at the site, and each person is then required to confirm (by signature) that they have understood these requirements. No additional controls are considered necessary given that the NESCS is not triggered.

Groundwater is not expected to be encountered during the works (and therefore, no dewatering required).

The environmental effects of stormwater runoff from earthworked land will be minimised by the use of sediment control measures appropriate to the circumstances and scale of the operation and designed to capture and manage sediment within the site. An erosion and sediment control plan is required by Sections 5.1 and 9.0 of the EMP for Site Works. In the Canterbury Region, this needs to implement the Environment Canterbury Erosion and Sediment Control Guidelines (2007) and to ensure compliance with either the relevant standards in Rule 5.94A of the ECAN Land and Water Regional Plan (permitted activity standards for construction Stage Discharges) or a relevant construction stage stormwater consent (Rule 5.94B of the ECAN Land and Water Regional Plan). No further regulation is considered necessary by the SDC. All erosion and sediment control measures are to be operational prior to any other works commencing on the application site and will be maintained and monitored daily, such that sedimentation or contaminants will not be allowed to enter any drains, channels or soakage systems. Once works have taken place the exposed areas of the application site will be resealed or landscaped.

Imported fill may be temporarily stockpiled in a designated, clean area on the application site (as required). All imported fill is required to be free of contaminants. The same precautions described as above to avoid dust/siltation/odour etc. will be adopted for any clean fill material stockpiled on the application site.

The EMP for Site Works is designed to mitigate against associated (temporary) air quality and noise nuisance. This includes dust and noise.

The contractor is required by Section 4.5.2 of the EMP for Site Works to operate an effective dust suppression regime. A variety of measures can be adopted to manage dust during construction works, as outlined in Section 12 of the EMP for Site Works.

It is proposed that construction noise be kept to a minimum (refer Section 13 of the EMP for Site Works) and is controlled by reference to NZS 6803:1999 Acoustics – Construction Noise, and through limitations on working hours and by posting contact details of the Site Manager in a location on the application site where such details are clearly visible from offsite. During construction the main contractor is responsible for ensuring that all contractors, sub trades and their own workforce who are employed or visiting the application site are aware of the relevant consents and site management practises. The Site Manager will also be responsible for maintaining daily records including relevant information such as location and type of machinery working, weather, complaints received (if any) and measures taken to address any complaints.

The following accidental discovery protocol will be adopted:

If any archaeological site is exposed during site works then all site works shall cease immediately. The area shall be immediately secured in a way that any artefacts or remains are untouched. Mana whenua iwi, the

New Zealand Historic Places Trust, the Department of Conservation, and the Auckland Council shall be notified, and the Police in the case of human remains, that an archaeological site has been exposed, so that appropriate action can be taken. This includes such persons being given a reasonable time to record and recover archaeological features discovered before work may recommence on the site.

While there will be the potential to generate adverse effects during construction, these are no more than would generally be experienced during temporary and relatively short construction periods and will be mitigated such that any effects are minimised and less than minor.

6.7 Retail Distribution Effects

Service stations are not readily suited to a location within a retail centre because, being vehicle orientated activities that rely on a location on a main arterial route, they don't contribute to centres' amenity in the same way that comparison retail and service businesses do. Furthermore, they require large sites, and rarely meet the urban design outcomes required of development in most retail centres; such as building to the front boundary, providing verandahs and not gaining vehicle access from the road.

An assessment of whether the proposal would generate adverse retail distribution effects has been undertaken by Property Economics (refer **Appendix L**). It was found that there are unlikely to be any retail distribution effects from the development of the service station and that the role and function of the proposed service station will play a complementary rather than competitive role to the Rolleston Town Centre. The scale and location of the proposed petrol station development is such that it would generate only non-consequential trade competition effects on the BP along SH1, which is not an effect that is appropriate to consider under the RMA.

6.8 CPTED

Z Energy is very aware of health and safety and seeks to ensure that its facilities operate in a safe and efficient manner. Overall, it is Z Energy's experience that its service stations can enhance the feeling of safety within a residential area due to the nature of its activity, including lighting.

The main pedestrian path leading to the service station shop is well-lit and:

- landscaping in this area has been kept low level;
- there are gates at the back of each end of the shop and lighting mounted on the exterior back and sides of the shop building;
- there is no gap behind the LPG cage;
- the fenced rubbish storage area and mechanical plant area are left shut and secured, unless in use.

Most landscaping is relatively low level. Where specimen trees are proposed, vegetation cover does not extend to the ground, providing less opportunity for people to hide within landscape areas. In addition, there are opportunities for passive surveillance between the path and the forecourt and car care facilities when those are in use. The existing lighting under the canopy operates on a 24/7 basis for security purposes and is brightened when sensors are triggered. There are also number of CCTV cameras across the service station which operate on a 24/7 basis, including focussed on the pedestrian path. The Brookside Road and SH 1 frontages are both long and there will be clear lines of sight into the site and to the Brookside Road side of the carwash from both streets.

The pumps have automatic shut off valves in the event that they are operated incorrectly.

The Rolly Inn parking area is well lit and passive surveillance can occur between the service station and the carparking area of the Rolly Inn, given the height of the hedging between the two as proposed.

6.9 Environmental Effects Assessment Summary

From the assessment undertaken above the proposal will have actual and potential effects that are considered to be minor or less than minor.

7 NOTIFICATION ASSESSMENT – SECTIONS 95A TO 95G OF THE ACT

7.1 Public Notification Assessment

Section 95A requires a council to follow specific steps to determine whether to publicly notify an application. The following is an assessment of the application against these steps:

7.1.1 Step 1: Mandatory public notification in certain circumstances

An application must be publicly notified if, under section 95A(3), it meets any of the following criteria:

> *(3) (a) the applicant has requested that the application be publicly notified:*
>
> *(b) public notification is required under section 95C:*
>
> *(c) the application is made jointly with an application to exchange recreation reserve land under section 15AA of the Reserves Act 1977.*

It is not requested the application be publicly notified, public notification is not required pursuant to section 95C and the application is not made jointly with an application to exchange reserve land. Therefore Step 1 does not apply and Step 2 must be considered.

7.1.2 Step 2: Public notification precluded in certain circumstances

An application must not be publicly notified if, under section 95A(5):

> *(5) (a) the application is for a resource consent for 1 or more activities, and each activity is subject to a rule or national environmental standard that precludes public notification:*
>
> *(b) the application is for a resource consent for 1 or more of the following, but no other, activities:*
>
> *(i) a controlled activity:*
>
> *(ii) a restricted discretionary or discretionary activity, but only if the activity is a subdivision of land or a residential activity:*
>
> *(ii) a restricted discretionary, discretionary, or non-complying activity, but only if the activity is a boundary activity:*
>
> *(iv) a prescribed activity (*see *section 360H(1)(a)(i)).*

In this case public notification is not precluded, therefore Step 2 does not apply and Step 3 must be considered.

7.1.3 Step 3: Public notification required in certain circumstances

An application is required to be publicly notified if one of the following circumstances are met, under section 95A(8):

(8) (a) the application is for a resource consent for 1 or more activities, and any of those activities is subject to a rule or national environmental standard that requires public notification;

(b) the consent authority decides, in accordance with section 95D, that the activity will have or is likely to have adverse effects on the environment that are more than minor.

Neither the District Plan nor the NESCS require notification.

In our opinion, the activity will not generate adverse effects that are more than minor.

7.1.3.1 Section 95D

As relevant to Section 95D, a consent authority that is deciding, for the purpose of section 95A(8)(b), whether an activity will have or is likely to have adverse effects on the environment that are more than minor—

(a) must disregard any effects on persons who own or occupy—

(i) the land in, on, or over which the activity will occur; or

(ii) any land adjacent to that land; and

…

(d) must disregard trade competition and the effects of trade competition; and

The following land is considered to be adjacent to the site.



Figure 4 : Adjacent Properties ★ - Adjacent sites

The assessment of environmental effects undertaken in Section 6 concluded that the activity will have minor effects on the environment as a whole. When excluding the relevant matters in Section 95D, the adverse effects will continue to be no more than minor.

Therefore Step 3 does not apply and Step 4 must be considered.

7.1.4 Step 4: Public notification in special circumstances

Section 95A (9) states that a council must publicly notify an application for resource consent if it considers that 'special circumstances' exist, notwithstanding that Steps 1 to 3 above do not require or preclude public notification.

Special circumstances are not defined in the Act. Case law has identified special circumstances as something outside the common run of things which is exceptional, abnormal or unusual but less than extraordinary or unique. A special circumstance would be one which makes notification desirable despite the general provisions excluding the need for notification. A council should be satisfied that public notification may elicit additional information on the aspects of the proposal requiring resource consent.

Special circumstances must be more than:

- where a council has had an indication that people want to make submissions;
- the fact that a large development is proposed;
- the fact that some persons have concerns about a proposal.

There are no special circumstances that exist to justify public notification of the application because:

- The majority of the site has historically been used for non-residential activities;
- The Rolly Inn is an existing activity. The additional function facility has a specific purpose and the effects of it can be properly managed;
- The actual and potential effects of new service station are well known. Service stations are commonly located on sites in residential zones or adjacent to residential activity on an arterial route;
- Service station activities are specifically provided for as a discretionary activity in the Living 1 zone. While the storage and use of some of the hazardous substances is non-complying, this is contrary to the provision for service stations as discretionary activities. The regulation of hazardous substances now largely falls outside the function of local authorities unless there is a particular need to consider effects not otherwise controlled by legislation other than the RMA. That is not the case in this instance;
- No party is known to have a unique or special interest in the resource management aspects of the service station proposal, particularly in the context of the policy framework; and
- No parties are known to have a 'special position' within the locality, relevant to the proposal and to its effects.

7.1.5 Public Notification Summary

From the assessment above it is considered that the application does not need to be publicly notified, but assessment of limited notification is required.

7.2 Limited Notification Assessment

If the application is not publicly notified, a consent authority must follow the steps of section 95B to determine whether to give limited notification of an application.

7.2.1 Step 1: Certain affected groups and affected persons must be notified

The application must be limited notified to the relevant persons if the following are determined, as specified by section 95B(2) and (3):

> *(2) (a) affected protected customary rights groups; or*
>
> *(b) affected customary marine title groups (in the case of an application for a resource consent for an accommodated activity).*
>
> *(3) (a) whether the proposed activity is on or adjacent to, or may affect, land that is the subject of a statutory acknowledgement made in accordance with an Act specified in Schedule 11; and*
>
> *(b) whether the person to whom the statutory acknowledgement is made is an affected person under section 95E.*

The circumstances described above do not apply. Step 2 must be considered.

7.2.2 Step 2: Limited notification precluded in certain circumstances

In the following circumstances an application must not be limited notified to any persons, as specified by section 95B(6):

> *(6) (a) the application is for a resource consent for 1 or more activities, and each activity is subject to a rule or national environmental standard that precludes limited notification:*
>
> *(b) the application is for a resource consent for either or both of the following, but no other, activities:*
>
> *(i) a controlled activity that requires consent under a district plan (other than a subdivision of land):*
>
> *(ii) a prescribed activity (*see *section 360H(1)(a)(ii)).*

As relevant, neither the District Plan nor the NESCS require notification, and the application is for a non-complying activity. Step 3 must be considered.

7.2.3 Step 3: Certain other affected persons must be notified

Other affected persons must be notified in the following circumstances specified by section 95B(7) and (8):

> *(7) (a) in the case of a boundary activity, an owner of an allotment with an infringed boundary; and*
>
> *(b) in the case of any activity prescribed under section 360H (1) (b), a prescribed person in respect of the proposed activity.*
>
> *(8) In the case of any other activity, determine whether a person is an affected person in accordance with section 95E.*

In deciding who is an affected person under section 95E, a council under section 95E(2):

> *(2) (a) may disregard an adverse effect of an activity on a person if a rule or national environmental standard permits an activity with that effect (i.e. council may consider the "permitted baseline");*
>
> *(b) must disregard an adverse effect that does not relate to a matter for which a rule or environmental standard reserves control or restricts discretion; and*
>
> *(c) must have regard to every relevant statutory acknowledgement made in accordance with a statute set out in Schedule 11 of the Act.*

A council must not consider that a person is affected if they have given their written approval or it is unreasonable in the circumstances to seek that person's approval.

With respect to section 95B(8) and section 95E, the proposal is not for a boundary activity nor is it a prescribed activity, the permitted baseline has not been applied, there are no relevant National Environmental Standards, no written approvals have yet been obtained, the status of the activity is non-complying and there are no relevant statutory acknowledgements.

Potentially affected parties are considered to include the NZTA and those residential parties listed below.

7.2.4 Step 3 Summary

The following parties are considered potentially adversely affected to a minor degree, should their written approval not be obtained:

- 7 Brookside Road, Rolleston
- 9 Brookside Road, Rolleston
- 11 Brookside Road, Rolleston
- 13 Brookside Road, Rolleston

It is intended to progress consultation with the owners and/or occupiers of the neighbouring properties listed above once the application has been lodged.

It is important to note in terms of effects, the parties listed above are considered to be potentially adversely affected to a minor degree largely due to the change in the character of the area as a result of this proposal. As described within the assessment of effects whist zoned Living 1, the character of this particular area is not purely residential and indeed contains a strong element of commercial development and activity due to the accessible location within the road network and presence of the State Highway. The service station site will have the high standard of development and maintenance that is associated with corporate branded development and the formalisation of the Rolly Inn Car parking and addition of landscaping will result in a significant improvement to the area. Nonetheless it is appropriate to recognise the residential zoning of the site and minor change in character which the application will result in.

The minor effects outlined above are considered to pertain specifically to residential properties. Due to the commercial nature of the properties listed below, it is considered that the effects on these properties are less than minor:

- 4 Chaucer Street, Rolleston (Fire Station)
- 3-5 Brookside Road, Rolleston (Rolleston Veterinary Services)
- 10d Chaucer Street, Rolleston (Rolleston Highway Motel)

7.2.5 Step 4: Further notification in special circumstances

As required by section 95B(10), a council must determine the following:

> *(10) whether special circumstances exist in relation to the application that warrant notification of the application to any other persons not already determined to be eligible for limited notification under this section (excluding persons assessed under section 95E as not being affected persons)*

The proposal is to establish and operate a new service station, including new car wash facility, operate the Rolly Inn (existing tavern, bottle store, food and beverage outlet and new function facility) and carry out associated ancillary works and activities. The consideration of effects on any person has been undertaken at Step 3. It is not considered there are any other persons who would warrant notification of the application.

7.2.6 Limited Notification Assessment Summary

Having regard to the above it is considered that the application should be limited notified to the identified parties, subject to their written approval not being obtained prior to limited notification occurring. In accordance with section 95E(3)(a) the person is not an affected person in relation to an application for a resource consent if the person has given and not withdrawn approval for the proposed activity in a written notice received by the consent authority before the authority has decided whether there are any affected

persons. Only those persons who are considered affected and have not given their written approval are required to be notified in accordance with section 95B(9) of the Act.

8 STATUTORY ASSESSMENT

8.1 Section 104 of the Act

Applications for resource consent must be considered in terms of Section 104 of the Act and all applications for resource consent must be considered 'subject to Part 2'.

8.1.1 Section 104(1)(a) of the Act

Section 104(1)(a) requires that when considering an application for a resource consent, the consent authority must, subject to Part 2, have regard to 'any actual and potential effects on the environment of allowing the activity'.

Those matters pertaining to the relevant actual and potential adverse effects on the environment of allowing the activity are considered in the body of this assessment (including the relevant Appendices). As assessed in Section 6 above, the proposal will have actual and potential effects that are either less than minor or minor.

This proposal will create a good standard of on-site amenity, through the use of attractive building design, overall layout and landscaping, comparative to the existing environment. This will represent an overall improvement to the amenity associated with the existing Rolly Inn site. The environment will be protected through compliance with relevant legislative requirements relating to the design, installation and operation of service stations, including the HSNO Act and Health and Safety at Work Act, and by the provision of infrastructure, appropriate interception of potential contaminants in stormwater, noise mitigation, lighting control and landscaping as necessary.

The proposed development of a Z Energy service station in this location also has the potential to generate wider positive effects, insofar as it will serve both passing motorists and the local community. There are plans for residential expansion in Rolleston, the IPORT will be the biggest inland Port Development in NZ and there are significant road changes planned within the vicinity – including the new (RONS) Christchurch Southern Corridor Stage 2 motorway. The service station development will help to serve demand generated by those activities.

The proposed function facility will make efficient use of an existing building in a manner consistent with the current activity and without generating adverse effects on the residential amenity.

Temporary effects from the construction activities can be appropriately managed.

8.1.2 Section 104(1)(ab)

Section 104(1)(ab) requires that the consent authority consider "any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity".

The proposal is not of a scale or nature that would require specific offsetting or environmental compensation measures to ensure positive effects on the environment.

8.1.3 Section 104(1)(b) of the Act

Section 104(1)(b) requires that when considering an application for a resource consent, the consent authority must, subject to Part 2, have regard to:

any relevant provisions of –

(i) a national environmental standard;

(ii) other regulations;

(iii) a national policy statement;

(iv) a New Zealand coastal policy statement;

(v) a regional policy statement or proposed regional policy statement;

(vi) a plan or proposed plan

An assessment of those relevant statutory documents, that corresponds with the scale and significance of the effects that activity may have on the environment, has been provided below. For completeness, there are no relevant national environmental standards, other regulations, national policy statements, or parts of the New Zealand Coastal Policy Statement specifically relevant to the application.

8.1.4 Canterbury Regional Policy Statement

The Regional Policy Statement (*RPS*) provides the broad strategic framework for guiding urban growth and development throughout the Canterbury Region. The proposal is consistent with the relevant objectives and policies of the SDP which give effect to the RPS (refer to **Appendix M**). There are no known deficiencies in the CRPS that require specific further consideration.

8.1.5 Selwyn District Plan

The proposal has been assessed the policy intent of the District Plan and is considered to be consistent with that policy intent. The specific policy provisions that are considered most relevant to that analysis are included in the table in **Appendix M** and are not repeated here**.**

Chapter B1 Natural Resource – Land and Soil

The policy intent is not to avoid the use and storage of hazardous substances but rather to manage those activities to minimise risk.

The policy intent is implemented through the adoption of a comprehensive range of measures and practises relating to the use and storage of hazardous substances which seek to address, to the extent practicable, the risk of accidental spills or discharges occurring and therefore to minimise the risk of creating new contaminated land.

The Environmental Assessment from AECOM concludes that the NESCS is not applicable. In any event, all earthworks will be undertaken in accordance with good management practise, and in accordance with the Z Energy EMP for Site Works (refer Appendix E). To that end, potential nuisance effects will be managed appropriately. Land disturbed by earthworks, including excavations and fill, will be stabilised during the earthworking operations and stable when the earthworks are complete.

Chapter B1 Natural Resource – B1.2 - Water

The site lies within the existing township of Rolleston and there is no resultant expansion of the urban area. Access to wastewater and water supply services is available at the boundary of the site, and connections into those reticulated system are proposed.

Environment Canterbury's GIS data indicates the groundwater depth at and around the site is greater than 6m (and specialist reports accompanying the application put that water table level at least between 8 and 10m below ground level). There are no surface waterbodies in close proximity to the site.

The regional consenting process will regulate stormwater disposal in terms of both quality and quantity with the objective of appropriately managing the potential adverse effects on ground, ground water or surface waterbodies. In summary, it is proposed that stormwater will be discharged to land / ground soakage, and this will require regional consent. Preliminary investigations indicate that stormwater disposal within the site, on the balance of probabilities, is achievable. The proposed stormwater system will include treatment for areas where there is potential for stormwater discharges to be contaminated. This includes the use of proprietary devices for hardstand areas accessed by vehicles. With regards to "at-risk" areas of the service station, the land use consent incorporates a range of measures to manage the potential for stormwater contamination including:

- Installation of an oil-water separator to filter target contaminants that are at risk of being caught by run-off from the service station (ie: those areas draining "at risk" areas) and to contain a "credible spill', being a 2,500l capacity spill during fuel delivery;
- Installation of appropriate hardware such as self-contained underground tanks, observation wells and an automatic tank gauge; and
- Adoption of appropriate management techniques such as regular reconciliation of fuel storage, training of staff and tanker delivery drivers in the implementation of spill mitigation measures and keeping a stocked spill kit in an accessible location.

The proposed stormwater management system meets the requirements of the *Environmental Guidelines for Water Discharges from Petroleum Industry Sites in New Zealand*, Ministry for the Environment, December 1998.

All earthworks will be undertaken in accordance with good management practise, and in accordance with the Z Energy EMP for Site Works (refer **Appendix E**). To that end, potential nuisance effects will be managed appropriately. Land disturbed by earthworks, including excavations and fill, will be temporarily stabilised during the earthwork operations and permanently stabilised when earthworks cease.

Potential risks to water quality and quantity (flow) will therefore be appropriately managed.

Chapter B2 Physical Resources – B2.1 -Transport Networks

State highway 1 is an arterial road. Arterial roads connect the district's townships and other important places and activities together, including across district boundaries and are high to medium capacity roads generally with fewer crossing points. Modern service stations are invariably located on an arterial route. While it is proposed to create 2 new crossing points onto SH1 this is subject to the approval of NZTA and, as the service station is intended to predominantly serve highway traffic, the crossings are designed to facilitate the safe operation and efficient use of the service station whilst maintaining the integrity of the road. It also means that the bulk of the traffic served by the facility does not rely on the local roading system. Notably, there is no vehicular access to the Rolly Inn via the State highway.

Brookside Road is a local road designed to almost entirely provide for access to properties and adjoining land uses, rather than as a main through route for traffic. Local roads generally have lower traffic volumes. Consistent with that, Brookside Road would continue to provide an alternative access point for local traffic using the service station.

Delivery tankers serving the site would initially exit the site via Byron Road, a collector road with direct and short access back to the State highway. Depending on the nature and extent of physical changes to the State highway, they are likely to use Brookside Road over time. Delivery tankers would, at most access the service station facility once or twice a day and so the frequency is low. Brookside Road has been

downgraded from a previous collector road classification but is physically capable of accommodating these movements and provides a direct route back onto the State highway. While the route of delivery and service vehicles to and from the Rolly Inn would also be affected by any road change, this is inevitable given that this activity is largely existing. Additional demand for deliveries that may be created by the new operation of the function facility would be nominal. Further, these vehicles are likely to travel on more dispersed / diverse routes, to service other destinations (eg: other commercial operations). This is also the case for general delivery and service vehicles to the service station.

While that part of the site not subject to this application theoretically appears to be inaccessible, in practise this is not the case. That part of the site can be physically accessed for maintenance purposes via a gate to the adjoining motel site, which is owned by the same landowner as the site. While its use is not subject to this application, what is important is that portion of the site is not "landlocked": it remains a part of the underlying property title and is not defined as a separate site, nor is it legally entitled to separate vehicular access to the SH1. As such, the application does not create an expectation of a further crossing point to the State highway.

The design of all crossing points ensures the safe flow of traffic between the application site and either of the two roads. While it is accepted that the easternmost crossing point on Brookside Road is in close proximity to the intersection, this crossing is existing. Changing the crossing to an 'exit only' should also improve safety because vehicles will not be queuing close to the intersection to enter the Rolly Inn. Internal circulation routes for each activity are clear and efficient.

Pedestrian paths from Brookside Road are well defined. There is no pedestrian access along the SH and so no need to provide for such access from Brookside Road. The hedge along the internal boundary between the two activities is quite properly designed to discourage pedestrian movements between the two core land uses. Rolly Inn staff will park near to the service station and use the pedestrian pathway along Brookside Road to walk to the Rolly Inn.

The safe and efficient operation of the relevant transport infrastructure will be maintained, including by appropriately managing the potential adverse effects generated by the land use activities proposed.

Chapter B3 People's Health, Safety and Values – B3.2 - Hazardous Substances

In summary, the objectives and policies seek to ensure that the risks of the storage, transport, disposal and use of hazardous substances to people, property and the environment are minimised to acceptable levels.

The Hazardous Substances Strategy in B3.2 identifies that the Council accepts that HSNO controls immediate effects on people's health and safety from the manufacture, use and storage of hazardous substances, and that specific legislation administered by other agencies primarily controls use in workplace situations, transport, building development, and radioactive substances. Accordingly, it states that the District Plan focuses on matters that are not covered by other, more specific legislation or the functions of the Regional Council. This approach is consistent with changes to the RMA relating to district council functions and the control of hazardous substances, which have confirmed that there is a need to justify the basis of any intervention, especially where other legislation provides sufficient control.

The storage and use of petrol, diesel and LPG at service stations is tightly controlled by HSNO and associated regulations, New Zealand standards and industry Codes of Practice. Compliance with these requirements is widely accepted as adequate to contain risks associated with these activities in the short and long term and guidance on this is set out in the Hazardous Facility Screening Procedure (HFSP) training manual, which was developed by the Ministry for the Environment in the mid-1990s to provide guidance to territorial authorities on how to meet their RMA responsibilities for managing the adverse effects of hazardous substances. Specifically, the training manual suggests the following can be appropriately exempted from additional controls via the HFSP:

- the retail sale of liquid fuel, up to a storage of 100,000 litres of petrol in underground storage tanks and up to 50,000 litres of diesel, provided that the Code of Practice for the Design, Installation and Operation of Underground Petroleum Systems (Department of Labour OSH, 1992) is adhered to.
- retail LPG outlets, with storage of up to 6 tonnes (single vessel storage) of LPG, provided that the Australian/New Zealand Standard AS 1596:1997 - Storage and Handling of LP Gas is adhered to.

As a result, a large number of councils around the country, albeit not Selwyn District Council, provided for these activities as either permitted or controlled. We are not aware of any environmental or risk-based issues arising from that approach, including in relation to the numerous examples of service stations located within residential areas. While in SDC it is the storage and use of hazardous substances that triggers non-complying activity consent, the establishment and operation of the service station will be carried out in accordance with HSNO and WorkSafe Regulations and accepted industry standards. Compliance with these controls is generally recognised as providing adequate protection from risk in the short and long term and ensuring that adverse effects associated with the use and storage of hazardous substances at service stations is managed to an appropriate and safe level.

Chapter B3 People's Health, Safety and Values – B3.4 - Quality of the Environment, Noise, Glare, Dust, Traffic, Outdoor Storage, Outdoor Signs and Noticeboards, Building Design & Landscaping and Amenity Plantings

The policy approach of the District Plan recognises that any activity may locate in a zone, provided that its effects do not detract from the quality of the environment or the amenity values in that zone. For example, small businesses and community facilities such as schools, halls and recreation grounds are considered a part of the environment in Living zones. That is a pragmatic recognition, given that there is rarely such a thing as a 'purely residential environment'.

The potential effects of service stations in residential areas are well controlled to appropriately manage potential adverse effects on people's well-being and the amenity values. This includes where there are residential dwellings adjoining the service station development. That is not the case in this instance, where the service station would be, despite being in a residential zone, well separated from residential activity.

The policy approach further recognises that where there is a mix of, for example, business and residential activities and community facilities, the effects of that mix of activities influences the nature and character of that environment. In this case, that includes the existence of the Rolly Inn, vet practice, fire station and local shops and the motel. In combination these detract, to some extent, from the residential amenity of the area of the application site to be leased to the service station activity, especially when adjacency to the State highway is factored in. In that context, a new "highway" service station at this location is considered entirely suitable. While it does represent an expansion in the scale of commercial activity, service stations have quite different characteristics to many other commercial activities. This is important, especially when considering that the land across the road is vacant. Service stations have little or no potential to create adverse distributional effects. Furthermore, service stations function as standalone activities and, while other activities may choose to locate in the vicinity of service stations, service stations themselves do not rely on other commercial activities or inherently generate demand for an agglomeration of surrounding activities. As such, service stations can be safely accepted to be contained on one site, and not to necessarily or inherently attract other activities (either in-zone or out of zone activities). Put simply, granting consent to this activity would not create a precedent should further commercial development be proposed in the area in the future and nor would it detract from the function or vitality of the Business Zones or Key Activity Centres, thus protecting the integrity of the district plan. In addition, despite the Living 1 zoning, this site is not desirable for residential use, particularly due to the established character of the area which is in part influenced by the State Highway.

The proposal seeks to improve the appearance of the site by improving the setting of the Rolly Inn and developing the balance of the application site in modern single storey and well-spaced buildings, with increased landscaping.

The redevelopment will see areas of gravel and dirt sealed and landscaped – reducing the potential for dust to be generated from traffic movement. Noise will temporarily increase during the construction period however this will comply with the relevant Construction Noise Standards.

The effects of noise emissions from the application site will be acceptable during both day and night, having regard to appropriate guidelines, to the ambient noise environment and to the mitigation effects that have been built in to the proposal (eg: acoustic doors on the carwash, acoustic fencing and limiting the use of the vacuum and air facilities to daytime hours).

The immediate environment is dominated by State highway 1, which is not an environment that is typically dark. Brookside Road is also well lit. The proposed lighting for the service station activity is common for many Z service station developments across the country. The lighting is designed to promote safety without causing a nuisance. The lighting has been designed to be very precise and to ensure that there are no issues arising from glare. No flashing signs are proposed at the site. Exterior (wall mounted) lighting of the Rolly Inn activity will be maintained. This should be subject to a condition of consent enabling the level of lighting to be checked post development, to ensure that it is adequate and appropriate.

The Rolly Inn building is not subject to physical exterior change, although at least one outbuilding (garage) will be demolished and the use of the land around it will be considerably more efficient. The proposed layout of the service station will not affect the amenity values of the surrounding streets, in part because of the orientation to the east, confirming its key relationship with the State highway 1. This is a format many people are used to at service station sites. Integration with the residential environment occurs via the comparatively low to moderate degree of local traffic that will be served, the pedestrian access to the shop, and the contribution of landscaping – which both defines edges and includes more substantial specimen trees found in residential (rather than business) type environments.

The service station buildings are consistent with the concept of a “low rise skyline”.

Car parking for the activities proposed is considered adequate to meet demand, including having regard to existing parking demand.

From Brookside Road, the carwash facility will be set back a sufficient distance to provide for an area of landscaping along the Brookside Road boundary. This, in combination with the rock wall on the Brookside Road side of the carwash (which recognises the local vernacular and, at 1.8m in height, is of human scale) and the painting of the carwash mineral brown rather than the standard white, will mitigate the visual amenity effects of the carwash.

The proposal seeks to install a rubbish compound adjacent to the proposed Z convenience store. This compound will be obscured by a fence around the perimeter to mitigate its view from the surrounding public space. Storage facilities for the Rolly Inn will be appropriately located along the western façade of the Rolly Inn buildings, between the Rolly Inn and the foot path.

Outdoor signs associated with the Rolly Inn are existing (primarily along the Main South Road boundary) and the only change to this signage relates to the relocation of one of the existing freestanding signs to a position that is closer to, and more directly associated with, the Rolly Inn building. There will no other change to this sign. It is assumed that all other signage either has existing use rights or is consented and is therefore not subject to this application. Proposed signage associated with the service station comprises standard elements that are well recognised and highly functional. Experience to date shows that the signs proposed do not generate issues associated with the safety of pedestrians, cyclists or motorists, impedance of access to service station sites, nuisance effects, or adverse effects on the amenity values or dominance

of the skyline or view for the proposed signage. The proposed signage projects minimal information to enable motorists to digest whilst driving - this includes the price of the products, any special offer/s and the company (Z Energy). Furthermore, they are appropriately sized, designed and located to ensure that they can be viewed a sufficient distance from the application site to enable a motorist to make a decision as to whether or not to enter the application site, and to do so safely. Recognising that the service station will serve predominantly highway traffic, only entry and exit (or no entry) signage is proposed along Brookside Road.

There is currently no landscaping along the Brookside Road boundary of the site. Given the existing Rolly Inn development and the shape of that portion of the application site, it is difficult to provide this all the way along the frontage while still efficiently developing the site. However, with the approval of SDC, it is proposed to define the site edge by reinstating the public verge. This would be an improvement to the existing situation, with no anticipated adverse impact on the public.

Well defined pedestrian access is provided to both activities, as is suited to the activities.

For completeness, no effects are anticipated on the land on the opposite side of State highway 1, which is industrial and faces away from the motorway.

Many of these policies are also considered in the Urban Design Report in **Appendix I**. In an overall sense, the conclusion of Ms Rennie as expressed in that Report is, inter alia, that:

- *From an urban design perspective, the proposal is considered to be an improvement to the current amenity of the site given it is partially vacant and uncared for and there is limited on-site landscaping. The commercial use of the site is also considered appropriate given its frontage to the State Highway.*

We agree with those conclusions.

On balance it is considered that the proposal will generate effects that are compatible with the character, quality of the environment and amenity values of this particular residential environment.

Chapter B4 Growth of Townships – B4.3 – Residential and Business Development

The district plan confirms that the town centres within each township serve an important function as significant physical resources providing for the social, cultural and economic wellbeing of their respective communities of influence. Crucially such town centres serve as focal points in terms of providing important public and private services and facilities in the most efficient manner to the wider community, and should remain the focus of commercial, business and retail development in future.

We agree with the conclusion reached in the Economic Overview Report (Appendix L) that the role and function of the proposed service station will play a complementary rather than competitive role to the Rolleston Town Centre. Furthermore, it is factual that many of the functional and operational requirements of service stations (large site area, requirement to be set back from the road boundary, reliance on vehicular traffic) make them less unattractive to a Town Centre location in particular where the policy intent for such locations is based on core urban design principles such as building to the front boundary, being orientated to the footpath and limiting or preventing vehicular access to sites. Certainly, in this case, the fact that the Town Centre does not adjoin State highway 1 means it is not a viable alternative location for this particular activity.

Furthermore, the policy directive encourages such activity to locate on vacant land within the existing residentially or business zoned urban environment, and in this case that land is both available to and appropriate for the proposed activity.

Given the consistency with the policy intent, precedent effect, insofar as it relates to integrity of the district plan, assumes less relevance. Notwithstanding, the integrity of the district plan will remain in-tact including because:

- There has been commercial activity at this site for many years, and while the extent of commercial activity will be extended, this is neither significant nor material to the integrity of the Living 1 zone;
- Service stations are appropriately located on arterial roads within residential environments. Service stations have highly specialised locational requirements, require access to an arterial route and are not an activity that is either predominantly confined to a single zone or better suited to an urban or rural environment. Because of this, it is not an activity that is likely to, of itself, be considered unusual or unexpected in a residential zone adjacent a major urban road, and nor will it, of itself, lead to the establishment of other commercial activities in the vicinity; and
- Service stations per se are discretionary activities in residential environments. The hazardous substances rules tend to undermine that provision and non-complying activity status is triggered by the hazardous substances rule for diesel. The government's intention is not to control the use and storage of hazardous substances at service stations through district plan regulations.

8.2 Section 104(1)(b) Summary

This assessment of effects demonstrates that the proposal will be consistent with the relevant objectives and policies of the relevant statutory documents, subject to fair and reasonable conditions being imposed, and is unlikely to impact plan integrity.

8.3 Section 104 (1)(c) of the Act

Section 104(1)(c) states that consideration must be given to "any other matters that the consent authority considers relevant and reasonably necessary to determine the application."

There are no other matters considered relevant to this application.

8.4 Section 104D of the Act

It is considered, on the basis of the above, that the proposal satisfies both limbs of the Section 104D test, as the adverse effects on the environment will be no more than minor [section 104D(a)] and the proposal will not be contrary to the objectives and policies of the SDP [section 104D(b)]. As such, the Council is able to make a determination on the application.

8.5 Part 2 Assessment

Part 2 of the Act outlines the purpose and principles of the Act. Section 5 states the purpose of the Act is to promote sustainable management.

Section 6 of the Act identifies matters of national importance which shall 'be recognised and provided for', while section 7 identifies other matters which shall 'be had regard to' under the Act. There are no section 6 matters of relevance to this proposal.

The following section 7 matters are considered to be relevant:

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

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

Section 8 of the Act requires specific regard to be had to the principles of the Treaty of Waitangi (Te Tiriti o Waitangi). No specific matters relevant to the Treaty are known.

Applications must be considered in terms of Section 104 of the Act and all applications for resource consent must be considered 'subject to Part 2'. We consider that those aspects of the District Plan relevant to this

application have been 'competently prepared under the Act', in the sense referred to by the Court of Appeal[4] and in effect gives effect to Part 2. Notwithstanding, given the nature of the proposal, together with the operational controls, treatment, proposed conditions and mitigation measures proposed and the benefits to be derived, it is considered the proposal is consistent with Part 2 of the Act and accords with the relevant matters set out under sections 5 to 8, including section 7 (b) and (f) as it will enable the efficient use and development of natural and physical resources while not adversely affecting the quality of the overall environment.

9 SECTION 108

To reiterate, the two core activities for which consent is sought will be operated by separate parties, it is requested that two separate land use consents are issued: one for the service station and establishment activities for both the service station and the Rolly Inn and one for the ongoing operation of the Rolly Inn. The reason for this is that it is envisaged that:

a) the service station consent will regulate:
    i. the establishment and operation of the service station, including ancillary/ associated activities; and
    ii. the establishment phase of ancillary activities associated with both activities (such as demolition, installation of underground services and formation and marking of hardstand areas).
b) the Rolly Inn consent will regulate the continued operation of the Rolly Inn and ancillary/ associated activities such as carparking and landscaping, once those are established.

As such, any ongoing conditions of consent should be applied to the activity to which they are associated. For example, the requirement to establish any parking and landscaping required by the Rolly Inn should be required via the service station consent, but the requirement to maintain that parking and landscaping should be required via the Rolly Inn consent.

Furthermore, any conditions should be in accordance Section 108 RMA – noting that the storage of hazardous substances, including the design of hazardous facilities and the management of risk, is appropriately controlled through New Zealand Law (e.g. HSNO), such that no specific condition(s) is / are required in relation to the use and storage of hazardous substances and those aspects of the operation of the service station.

It is expected that any conditions would largely relate only to ensuring that the proposal is undertaken as outlined herein.

The applicant would appreciate the change to comment on any draft conditions, even if that is purely for the purposes of checking that the conditions have been appropriately allocated (to the activity).

[4] R J Davidson Family Trust v Marlborough District Council [2018] NZCA 316, paras 74 and 75

10 CONCLUSION

The Applicant seeks resource consent to:

1) Establish and operate a new service station, including a carwash facility. The service station is designed to provide services, including fuel, convenience retail, and car grooming services, predominantly to passing motorists and the local community.;

2) Operate the Rolly Inn (existing tavern, bottle store and food and beverage outlet and a new function facility); and

3) Carry out associated and ancillary works and activities at 2 and 10 Brookside Road, Rolleston.

In terms of section 104(1)(a) of the Act, the actual and potential effects of the proposal will be no more than minor for the reasons set out in this assessment.

The proposal will generate a number of positive effects including:

- The new service station will provide an opportunity to capture additional opportunistic drive by sales to Selwyn that might not otherwise have occurred. In this regard the proposal represents an economic injection into Rolleston with a flow over benefit of providing additional employment opportunities for locals (refer **Appendix L**).
- The proposal will improve the appearance of the application site through modern buildings, increased landscaping and rock walls (which will provide visual interest), formalisation of the Rolly Inn car parking and is expected to result in an overall improvement to amenity.

It is considered that the proposal will have minor adverse effect on the character of the area and noise, however as outlined in section 6, these effects pertain solely to some of the residential properties in the immediate vicinity of the site. Consultation with these identified parties will be undertaken post lodgement to avoid the situation where the applicant is required by SDC to approach them multiple times. In terms of access to the State Highway, NZTA approval has been sought. No other persons will be adversely affected by the proposal and there are no special circumstances. As such it is considered that the application should be limited notified.

Appendix A

Certificate of Title Documentation



Appendix B

Application Plans



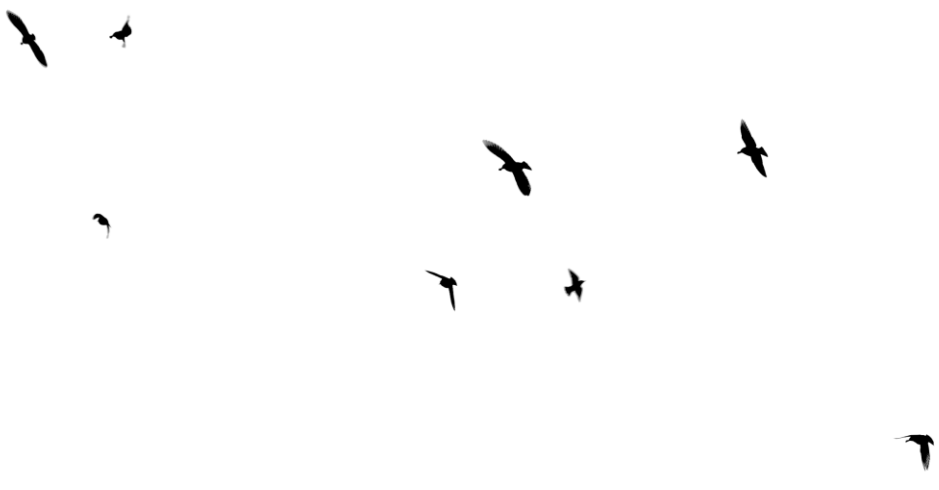
Appendix C

Preliminary Design for Soakpits



Appendix D

Babbage Geotechnical Assessment



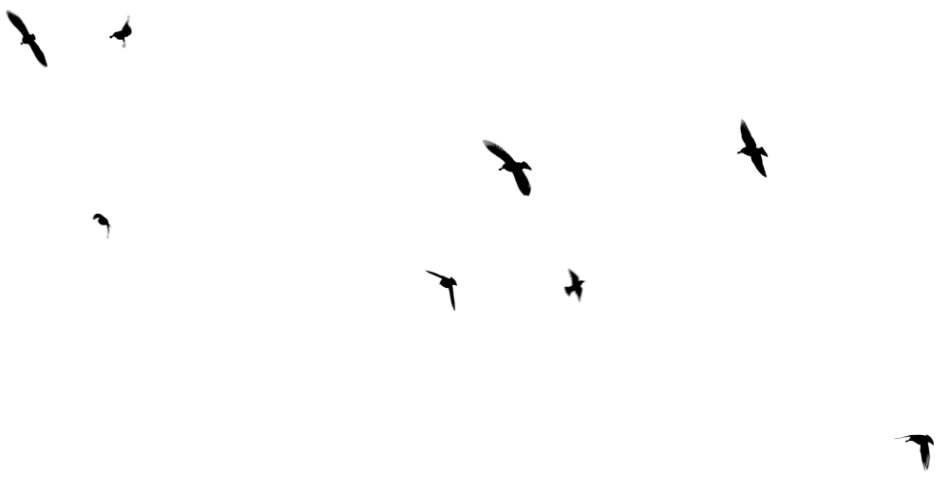
Appendix E

Z Energy Environment Management Plan for Site Works



Appendix F

Assessment of the Relevant Rules of the Selwyn District Plan



The following analysis of rules has determined that the proposal is a non-complying activity. Note that only those rules/standards which are considered relevant to the assessment of this proposal have been addressed.

Rule	Compliance	Non-Compliance
<u>Operative Selwyn District Plan</u>		
Part C – 1: Living Zone Rules – STATUS OF ACTIVITIES		
Rule 1.1.1. – Permitted Activities – Status of Activities *The following activities shall be permitted activities in Living zones:* ***1.*** *Any activity which complies with all of the provisions of Rules 2 to 11 relating to permitted activities, and which is not listed in Rule 1.1.2 or Rule 1.1.3 as either a discretionary or non-complying activity.* ***Rule 1.1.2. – Discretionary Activities – Status of Activities*** *The following activities shall be discretionary activities in Living zones:* 1. *Any activity which is specified in Rules 2 to 11 as a discretionary activity* 2. *Any of the activities listed in (a) to (h) below, irrespective of whether they comply with conditions for permitted activities in Rules 2 to 11.* *(e) ….Service stations …*		**Rolly Inn is a permitted activity, while the Service Station activity requires Discretionary Activity Consent required.**
Part C – 2: Living Zone Rules – EARTHWORKS		
Rule 2.1 – Permitted Activities – Earthworks *Any earthworks shall be a permitted activity if the following conditions are met:* *1. Any disturbed or stockpiled material is kept moist until it has consolidated, and*	*Rule 2 [Earthworks] does not apply to any of the following activities (only relevant activities included and noting that earthworks associated with these activities are deemed to comply):* • *Landscaping or maintenance of gardens, lawns;*	**Does not Comply** Condition 6 – Compliance not achieved: The proposed earthworks will have a total volume of more than 2000m^2. The deepest excavation is

2. *Any stockpiled material is kept consolidated or covered to avoid sediment run-off from rainfall, and* 3. *Any site subject to earthworks is either:* *(a) built upon,* *(b) sealed,* *(c) landscaped, or* *(d) the land re-contoured and replanted,* *No more than 12 months after the earthworks commencing, except in the case of landscaping and planting which shall be undertaken during the first planting season following the completion of the earthworks* 4. *Earthworks do not occur and material from earthworks is not deposited within:* *(a) 20m of any waterbody listed in Appendix 12.* *(b) 10m of any other waterbody (excluding aquifers)* 5. *On land located within the Living 1A or 2A Zone at Tai Tapu, earthworks are limited to the forming of any accessway to a site or the preparation of any site to erect a building, provided that these earthworks do not alter or impede the land drainage pattern.* 6. *Except in the Living 1A or 2A Zones at Tai Tapu, any earthworks has:* *(a) a volume of not more than 2,000m^3 per project; and* *(b) a vertical cut face where no more than 5% of the total vertical cut is over 2 metres.* 7. *Any earthworks undertaken on any site to be used to erect a building complies with NZS 4431 Code of Practice for Earth Fill for Residential Development.* 8. *The earthworks are not part of mining or mineral exploration.*	• *Planting trees;* • *Digging post holes;* • *Digging soak holes, building foundations and related activities;* • *Earthworks required to duct cables.* Condition 1 & 2 – Complies: Earthworks will be in accordance with the Z Energy EMP for Site Works (**Appendix E**). Stockpiling will be in accordance with the EMP for Site Works and consistent with the Contaminated Site Guidelines Module 7 – Site Management, Ministry for the Environment, October 2011. Condition 3 – Complies: The area of works will be resealed with hardstanding and landscaping (as indicated on the Plans contained in **Appendix B**). Condition 4 – N/A: The site / proposed area of works is not located within close proximity to a waterbody. Condition 5 – N/A: Does not relates to land at Tai Tapu. Condition 7 – N/A NZS 4431 describes earth fill practices which experience has shown to produce fills of satisfactory stability for residential development. No residential development is proposed.	some 4.0-4.5m for the proposed tank pit. NOTE: all earthworks volumes are measured in situ.

	Condition 8 – Complies: The proposed earthworks are not considered to be mining or mineral exploration.	
Rule 2.1.8.2 – Discretionary Activities – Earthworks *The following shall be discretionary activities:* *Any activity which does not comply with any of Rules 2.1.1.1 to 2.1.1.4 and 2.1.1.6 to 2.1.1.8*		**Discretionary Activity Consent Required.**
Part C – 3: Living Zone Rules – HERITAGE		
The site does not contain any heritage structures or identified heritage sites. Therefore, the rules relating to Heritage are not considered relevant to this proposal.		
Part C – 4: Living Zone Rules – BUILDINGS		
Rule 4.1 – Buildings and Natural Hazards *[…]*	N/A – the site has not been identified as at risk of natural hazards.	
Rule 4.2 – Permitted Activities – Buildings and Landscaping 1. *Except for the Living 3 Zone at Rolleston identified in the Outline Development Plan in Appendix 39 and 40, any principal building[5] shall be a permitted activity if the area between the road boundary and the principal building is landscaped with shrubs and* - *Planted in lawn, and / or*	**Service Station Complies** Condition 1 - The site is not within the Living 3 Zone. The proposed principal building/s for the service station development is the service station shop. There is landscaping between those buildings and both the SH1 boundary and the Brookside Road boundary. In the case of the	**Rolly Inn does not comply** Only part of the boundary between the roads and the existing Rolly Inn building will be landscaped. Discretionary Activity Consent required.

[5] includes any building or buildings which is/are used as part of the primary activity or activities on the site. Principal buildings include dwellings but do not include accessory buildings. For completeness, the definition of accessory building is as follows: Accessory building: means any building which is separate from the principal building or buildings on the site, the use of which is incidental to the use of the principal building or buildings on the site or to the use of a site. In respect of land used for a residential activity "accessory building" extends to include a sleepout (but not a family flat), garage or carport (whether freestanding or attached to any other building) shed, glasshouse, fence over 2 metres in height, swimming pool or similar structure. Accessory buildings also include implement sheds, storage sheds, and commercial glasshouses and packing facilities which generate less than 15 equivalent car movements/day (refer to the definition of Equivalent Car Movements Per Day).

- *Paved or seal, and / or* - *Dressed with bark chips or similar material.* 2. *For the Living 3 Zone at Rolleston and Prebbleton identified on the Outline Development Plan in, Appendix 19, Appendix 39 and Appendix 40 the following shall apply: …* 3. *Any Fencing in the Living 3 Zone, and the Living 2A Zone in Darfield, as identified in Appendix 47, shall be …*	interface between the SH1 boundary and the shop building, the landscaped with a combination of shrubs and pavement / seal at the vehicle crossing. Condition 2 – N/A: The site is zoned Living 1. Condition 3 – N/A: The site is zoned Living 1.	
Rule 4.3 – Buildings and Contaminated Land	N/A – the site has not been identified as containing contaminated land. Contaminated land is defined in the Plan as "*includes any land which contains hazardous substances at concentrations above recognised guidelines which pose or are likely to pose an immediate or long term risk to human health and/or the environment*".	
Rule 4.4 – Permitted Activities – Buildings and Water Supply 1. *In all Living zones the erection of any dwelling or principal building connected to a reticulated water supply shall be a permitted activity, provided that it complies with the current New Zealand Drinking Water Standards.* 2. *In the Living 1 Zone at Lincoln, as shown in Appendix 35, rainwater storage tanks with a minimum capacity of 3000 litres shall be installed for each dwelling for non-potable uses, such as garden irrigation.*	**Complies** Condition 1 - The proposal includes the erection of a principal building (Z shop) and the retention of the Rolly Inn. These buildings will be connected to a reticulated water supply. It is anticipated the Council reticulated water supply complies with the current New Zealand Drinking Water Standards. Condition 2- N/A: The site is not located at Lincoln.	
Rule 4.5 – Permitted Activities – Buildings and Sewage Treatment and Disposal	**Complies**	

1. *In the Living Zones at Castle Hill, Doylestown, Lake Coleridge Village, Leeston, Lincoln, Prebbleton, Rolleston, Southbridge, Springston, Tai Tapu, and West Melton, the erection of any dwelling or principal building shall be a permitted activity provided that it is connected to a reticulated sewage treatment and disposal system.* 1. *(A) In the case of the Living 3 Zone at Tai Tapu as identified on the Outline Development Plan at Appendix 48, each lot owner shall install, at the time of dwelling construction, a low pressure sewer system with a semi-positive displacement pump, as approved by Council, including a storage tank with a volume no less than 1300 litres. The sewer system must be configured to pump during off-peak hours only, as determined by Council* 1. *(B) On-site sewer pumps required under 4.5.1A shall be positioned on the building platform required under 4.1.1(a).* 2. *In all other Living Zones in the district dwellings shall be permitted activities provided that they are serviced by on-site effluent treatment and disposal system.*	Condition 1 - The proposal includes the erection of a principal building (Z shop) and the retention of the Rolly Inn at the Living 1 Zone at Rolleston. These buildings will be connected to a reticulated sewage treatment and disposal system and therefore compliance is achieved with Condition 1. Condition 1A- N/A: The site is not located at Tai Tapu. Condition 1B – N/A: No on-site sewer pumps are required under 4.5.1A. Condition 2 – N/A: The site is captured by Condition 1 above.	
Rule 4.6 – Permitted Activities – Buildings and Building Density 1. *The erection on an allotment (other than a site at Castle Hill) of not more than either:* - *One dwelling and one family flat up to 70m^2 in floor area; or* - *One principal building (other than a dwelling) and one dwelling, shall be a permitted activity, except that within a comprehensive residential development within a Living Z Zone, more than one dwelling may be erected on the balance lot prior to any subsequent subdivision consent that occurs after erection of the dwellings (to the extent that the exterior is fully closed in).*	**Complies** Condition 1 – The proposal does not include the erection of a dwelling or family flat. The proposal includes the erection of one principal building (being the Z shop) and is not within a comprehensive residential development. The Rolly Inn is existing. Although the forecourt canopy and car wash are considered 'buildings' (pursuant to the definition of building in the District Plan), these are considered to be 'accessory buildings' and not dwellings. Compliance is considered to be achieved with Condition 1.	

The erection of not more than one principal building on any site at Castel Hill shall be a permitted activity.	Condition 2 – N/A: The site is not at Castle Hill.	
Rule 4.7 – Permitted Activities – Buildings and Site Coverage 1. *Except as provided in Rule 4.7.2, the erection of any building which complies with the site coverage allowances set out in Table C4.1 below shall be a permitted activity. Site coverage shall be calculated on the net area of any allotment and shall exclude areas used exclusively for access, reserves or to house utility structure or which are subject to a designation.* *Table C4.1 Site Coverage Allowances:* *Living 1 – Excluding garage = 40% minus 36m^2.*	**Complies** Condition 1 – The application site[6] is some 5,437m^2 and therefore the total building coverage allowed (40% minus 36m^2) is 2,138.8m^2. The proposal includes the erection of the following buildings: - Z shop – 245m^2 - Forecourt canopy – 640m^2 - Car wash – 67.8m^2 The total coverage of the proposed new buildings is 952.8m^2. Existing building coverage for the Rolly Inn is 423.1m^2 plus the smokers' area outside which is 62.72m^2, totalling 485.82m^2. Building coverage of existing (to be retained) buildings and new buildings is some 1,438.62m^2. Compliance with Condition 1 is achieved.	
Rule 4.8 – Permitted Activities – Buildings and Building Height 1. *The erection of any building which has a height of not more than 8 metres shall be a permitted activity.*	**Complies** Condition 1 – The tallest 'building' proposed to be erected is the prime sign. The prime sign is some 7.276m tall (ground level to the top of the sign). Compliance with Condition 1 is achieved.	
Rule 4.9 – Permitted Activities – Buildings and Building Position	**Complies**	**Does not comply**

[6] The area of the application site has been used to provide a conservative calculation.

1. *Except in Rule 4.9.1.1 and Rule 4.9.1.2, the construction of any building which complies with the Recession Plane A requirements set out in Appendix 11;* *(1) In a Living Z medium density area located within an Outlined Development Plan (ODP) on any internal boundary which is; …* *(2) Where buildings on adjoining sites have a common wall along an internal boundary[7], the recession plane shall not apply along that part of the boundary covered by such a wall.* 2. *Except as provided in Rules 9.4.3 to Rules 9.4.33, any building which complies with the setback distances from internal boundaries and road boundaries, as set out in Table C4.2 below.* *Table C4.2 – Minimum Setbacks for Buildings.* *Dwelling or principal building:* - *Internal – 2m from boundary* - *Road – 4m from boundary* *Accessory Building with wall length greater than 7m:* - *Internal – 2m from boundary* - *Road – 4m from boundary* *Conditions 3 -47 are not repeated below as they are not considered relevant because:* • *The proposal does not involve the erection of dwellings, family flats or any rooms used for sleeping or living purposes;*	Condition 1.1 –N/A The site is not within the Living Z medium density area located within an ODP and nor do any buildings share a common wall with buildings on adjacent properties. Condition 1.2 – Complies: The proposed 'buildings' are over 2m away from an internal boundary (being the southwestern boundary with 10 Brookside Road).	Condition 2 - Accessory building (being the car wash) is within 4m from the Brookside road boundary. Existing Rolly Inn building is also within 4m of the SH1 boundary. **Restricted Discretionary Activity Consent required.** Condition 47 – The proposal cannot comply with Condition 2 (i.e. Rule 4.9.2) given the minimum setback distance from the road boundary (Brookside Road (carwash) and SH1 (existing Rolly Inn) is not achieved. The Council's discretion is ordinarily limited to those matters

[7] Defined as any boundary of a site other than a road boundary.

• *The activities are not Noise Sensitive;* • *No buildings are proposed along an internal boundary;* • *The site is not at Castle Hill or Prebbleton, West Melton or Leeston;* • *The site is not in Lincoln Park or near the Lincoln Sewerage Treatment Plant;* • *The site is not in the Living 3 Rural Residential Zone, the Living 3 Zone at Rolleston, the Living 2 or 2A Zones at Darfield or the Special Character Low Density Areas (Living 1C Zoning);* • *The site is not located within an ODP; and* • *The activity is not Temporary* 47. Any activity which does not comply with Rule 4.9.2 and Rules 4.9.4 to Rule 4.9.30 and Rule 4.9.32 to Rule 4.9.33 shall be a **restricted discretionary Activity.**		outlined in Rule 4.9.46.2 (Road Boundary), however in this case the overall status of the activity is non-complying and so the SDC's discretion to consider effects and impose conditions is not limited by that.
Rule 4.10 – Permitted Activities – Relocated Buildings *[…]*	N/A – the proposal does not involve the relocation of buildings.	
Rule 4.11 – Comprehensive Residential Development in Prebbleton *[…]*	N/A – the proposal does not involve comprehensive residential development in Prebbleton.	
Rule 4.12 – Comprehensive Residential Development in Medium Density Areas covered by an Outline Development Plan *[…]*	N/A – the proposal does not involve comprehensive residential development in medium density areas covered by an ODP.	
Rule 4.13 – Permitted Activities – Buildings and Street Scene *[…]*	N/A – the proposal does not provide residential development.	
Rule 4.14 – Permitted Activities – Buildings and Outdoor Living Space *[…]*	N/A – the proposal does not provide outdoor living space within the Living Z Medium Density areas located within the ODP.	

Rule 4.15 – Permitted Activities – Setbacks from Waterbodies *[…]*	N/A – the site does not adjoin, nor is within close proximity to, waterbodies.	
Rule 4.16 -Permitted Activities – Buildings and Site of Significance to Tangata Whenua (Wahi Taonga Management Areas) *[…]*	N/A – the site does not contain any buildings of significance to Tangata Whenua or recognised as a site of significance to Tangata Whenua.	
Rule 4.17 – Permitted Activities – Fences Adjoining Reserves *[…]*	N/A – the site does not adjoin a reserve.	
Part C – 5: Living Zone Rules – ROAD AND TRANSPORT		
Rule 5.1.1 – Permitted Activities – Road and Engineering Standards *[…]*	N/A – the proposal does not involve the formation of a road.	
Rule 5.2 – Permitted Activities – Vehicle Accessways *[…]*	N/A – the proposal does not involve the formation of a vehicle accessway[8].	
Rule 5.3 – Permitted Activities – Vehicle Crossings *5.3.1. The forming of any vehicle crossing shall be a permitted activity if the following conditions are met:* *1. The vehicle crossing is formed and sited to comply with the relevant requirements in Appendix E13.2.2, E13.2.4, E13.2.5;* *2. The vehicle crossing is to be sealed if the adjoining road is sealed; the crossing shall be sealed for the full length between the site boundary and the sealed carriageway; and*		**Does not comply** Assessment against relevant Appendices listed within 5.3.1.1 and 5.3.1.3 follows.

[8] 'Vehicle accessway' means any area of land, the primary purpose of which is to provide access between the body of any allotment(s) or site(s) and any road reserve – including any rights of way, access slot, access l eg or private road'.

3. *The vehicle crossing complies with the relevant standards in Appendix E13.2.3*		
E13.2.2 Distance of Vehicle Crossings from Intersections No part of any vehicle crossing shall be located closer to the intersection of any roads than the minimums specified in Table E13.5. Main South Road (80km/hr state highway): 100m to the intersection of a local road. Brookside Road (80km/hr local road): 75m to the intersection of a state highway. Brookside Road (50km/hr local road): 25m to the intersection of a state highway. The relevant District Plan minimum requirements are: • Vehicle crossings on 80km/h state highways to be at least 100m from local road intersections; • Vehicle crossings on 80km/h local roads to be at least 75m from state highway intersections; and • Vehicle crossings on 50km/h local roads to be at least 25m from state highway intersections.		**Does not comply** Service station Main South Road entry vehicle crossing approximately 70m from Brookside Road Rolly Inn Brookside Road vehicle crossings approximately 22m and 55m from Main South Road.
E13.2.3 Sight Distances from Vehicle Crossings For 80km/h state highway- 203m For 80km/h local road in living zone- 115m For 50km/h local road in living zone- 45m	**Complies**	
E13.2.4 Vehicle Crossing Design	**Complies**	**Does not comply**

For all sites in a Living Zone, there shall be a maximum of one vehicle crossing per site The spacing and width of any vehicle crossing shall comply with Table E13.7. In Living Zones, less than 1m or greater than 7m between vehicle crossings on same side of road. For non-residential activities within living zones, crossings shall be between 4m and 7m in length.	More than 7m spacings between all vehicle crossings.	Four vehicle crossings for the service station across two frontages (two on each road frontage). Two vehicle crossings for the Rolly Inn (Brookside Road frontage). Tanker entry and exit vehicle crossing widths exceed 7m.
E13.2.5 Standard of Vehicle Crossings Heavy duty vehicle crossings shall be provided where more than 100vpd accommodated.	**Complies** All new vehicle crossings will be constructed as heavy duty vehicle crossings.	
Rule 5.3.1.4 *4. The site does not have access directly to a State Highway or arterial road listed in Appendix 7; unless;* *(a) The speed limit on that part of the road to which access is gained is 70 km/hr or less; or …* *[…]*		**Does not comply** Access from Main South Road proposed (80km/h speed limit)
Rule 5.3.2 – Restricted Discretionary Activities – Vehicle Crossings *Any activity which does not comply with Rule 5.3.1.1 and Rule 5.3.1.2 shall be a restricted discretionary activity.*		**Restricted Discretionary Activity Consent required.**
Rule 5.3.4 Any activity which does not comply with Rule 5.3.1.4 shall be a restricted discretionary activity		**Restricted Discretionary Activity Consent required.**
Rule 5.4 – Permitted Activities – Traffic Sight Line – Road / Rail Crossings *[…]*	N/A- the proposal does not involve any buildings within the line of sight for any railway crossings.	
Rule 5.5.1 – Permitted Activities – Vehicle Parking and Cycle Parking *Any activity which provides for car parking, cycle parking, vehicle loading and parking*	As outlined below	

access in accordance with the following *conditions shall be a permitted activity, if;* ***5.5.1.1 Car Parking Spaces*** *The number of car parks provided complies with the relevant requirements for the activity as listed in Appendix E13.1.1, E13.1.2, E13.1.3 and E13.1.12; and*		
E13.1.1.1 Parking Spaces to be provided *Provision as per Table E13.1(a).* *Car park dimensions shall comply with Table E13.2. Short term parking- 2.6m wide by 5.4m deep with 5.5m two-way aisle. Disabled spaces 3.2m wide.*	**Complies** Service station: 12 car parking spaces plus fuelling positions and car care facilities. Room for 5 queuing (stacked parking spaces) for the carwash within the site as required. Car parking space widths comply and combined length and aisle widths exceed requirements. Note: For calculations, please see ITA in **Annexure K.**	**Does Not Comply** Rolly Inn: 46 spaces, whereas 35 are provided.
E13.1.2 Parking Spaces to be Provided *Car park dimensions shall comply with Table E13.2. Short term parking- 2.6m wide by 5.4m deep with 5.5m two-way aisle. Disabled spaces 3.2m wide.*	***Complies*** *Parking and Loading will comply*	
E13.1.3.1 Parking Area Location *All parking and loading area shall be located on the same site[9] as the activity for which the parking is required.*	**Complies** Both activities are on the same site. As such, all parking spaces are on the same site as the parking for which the activity is required.	

[9] **Site:** means an area of land or volume of space either held in a single certificate of title; or comprised of two or more adjoining certificates of title held together in such a way that they cannot be dealt with separately without the prior consent of the Council; or for which a separate certificate of title could be issued without further consent of the Council.

E13.1.12.1 Surface of Parking and Loading Areas *The surface of any parking, loading, and associated access areas shall be formed, sealed and drained with the parking spaces permanently marked*	**Complies** Parking spaces will be formed, sealed, drained and marked.	
5.5.1.2 *All car parking spaces and vehicle manoeuvring areas are designed to meet the criteria set out in Appendix E13.1.5.2, E13.1.6, E13.1.7, E13.1.8, E13.1.9, E13.1.10 and Appendix E13.1.11; and*	As outlined below	
E13.1.5.2 Loading and Manoeuvring ***No loading zone shall obstruct any on-site car parking spaces or pedestrian access.***	**Complies** Rolly Inn loading will not affect car parking or pedestrian access. The Rolly Inn will continue to be served by small delivery vehicles which can currently travel through the drive through	**Does not comply** Rubbish storage loading space will not obstruct car parking but will obstruct footpath from Brookside Road to shop front.
E13.1.7 Gradient for Parking Areas *The gradient for any on-site parking surface shall be no more than:* *At 90 degree to the angle of parking (1:16)* *Parallel to the angle of parking (1:20)*	**Complies** Site is relatively flat – no reason for non-compliance	
E13.1.8 Maximum Gradients for Access *The maximum average gradient of any access shall be 1 in 6.*	**Complies** Site is relatively flat – no reason for non-compliance	
E13.1.9 On-site Manoeuvring *On-site manoeuvring shall be provided to ensure that no vehicle is required to reverse either onto or off a site that has access to a state highway.* *Parking spaces shall be located to ensure that no vehicle is required to carry out any reverse manoeuvre when entering any required space*	**Complies** No vehicle will need to reverse onto or off either site. Parking space dimensions mean manoeuvring requirements will be met on service station site.	**Does not comply** Some additional manoeuvring may be necessary on Rolly Inn site.

Vehicles shall not be required to undertake more than one reverse manoeuvre when exiting a space		
E13.1.10 Queuing Spaces *A queuing space shall be provided on-site for all vehicles entering or exiting a parking or loading area. The length of such queuing spaces shall be in accordance with Table E13.3 (10.5m where 21-50 spaces provided on site)*	**Complies** Approximately 20m queuing space at Main South Road entrance and queuing space available at Brookside Road driveways too.	**Does not comply** No queuing space available at Rolly Inn car park
E13.1.11 Illumination *Any parking and loading areas which are required at night shall be illuminated to a minimum maintained level of 2 lux, with high uniformity, during the hours of operation.*	**Complies** For the service station, refer Lighting Plan in **Appendix B**. Existing wall mounted lighting attached to the Rolly Inn will continue to provide lighting to the carparking areas. Should there be a need to confirm this, that can be secured by way of condition.	
5.5.1.3 Loading Spaces *Each site that is used for an activity which is not a residential activity and which generates more than 4 heavy vehicle movements per day has on-site loading space which complies with the requirements set out in Appendix E13.1.5. The loading space does not count as a car parking space for the purpose of complying with Rule 5.5.21.1; and*		As for E13.1.5.2 above, **Does not comply** Rubbish storage loading space will not obstruct car parking but will obstruct footpath from Brookside Road to shop front. Note that it is debateable whether 4 heavy vehicle movements would be generated in a day. On average they would not, but it cannot be discounted that there may, on occasion, be in exceedance of 4 in any one day.
Rule 5.5.1.4 State Highways *a) Each site which is accessed from a road listed as a State Highway or Arterial Road in Appendix 7, is designed so that a motor vehicle does not have to reverse on, or off, the State Highway or Arterial Road.*	**Complies** No need to reverse onto or off the State Highway.	

Rule 5.5.1.5 Disabled Car Parking *b) Each site that is used for an activity other than a residential activity has one car park space for mobility impaired persons for up to 10 car parking spaces provided, and one additional car park space for a mobility impaired person for every additional 50 car parking spaces provided or part there-of; and* *Rule 5.5.1.6* *c) Car parking spaces for mobility impaired persons are:* *a) Sited as close to the entrance to the building or to the site of the activity as practical; and* *b) Sited on a level surface; and* *c) Clearly marked for exclusive use by mobility impaired persons; and*	**Complies** One mobility space in front of service station shop. Two mobility spaces on Rolly Inn site. Mobility spaces in front of shop and at restaurant and bar entries, will be marked and flat.	
Rule 5.5.1.7 Cycle Parking *Cycle parking spaces are provided in accordance with the standards in Appendix E13.1.4.*		As outlined below.
E13.1.4 Cycle Parking *Any activity is to provide cycle parking at a rate of minimum of 2 cycle space and then at a rate of 1 cycle space for every 5 car parking spaces required.* *Cycle parking shall be provided as close as practicable to the building main entrance and comply with the Engineering Code of Requirements for cycle parking rack systems.*	**Complies** Four cycle parking spaces proposed at service station.	**Does not Comply** No cycle parking proposed at Rolly Inn.
Rule 5.5.2		**Discretionary Activity Required**.

Any activity which does not comply with Rule 5.5.1 (including parking, loading and cycle parking) shall be a discretionary activity		
Part C – 6: Living Zone Rules – UTILITIES		
The undergrounding or ducting of any utility is permitted subject to compliance with Rule 2 (Earthworks). Rule 2 earthworks is not met because the volume of earthworks is exceeded. However, in accordance with Permitted Activity rule 6.1.1, the installation of utility connections is permitted because: 6.1.1.5, all new cables or lines will be laid underground and with 6.1.1.12 any pipe to convey water, sewerage or gas, will be laid underground.		
Part C – 7: Living Zone Rules – SIGNS AND NOTICEBOARDS		
Rule 7.1 – Permitted Activities – Outdoor Signs – General *Where any sign is not covered by Rules 7.2,* *Rule 7.3 and Rule 7.4 it shall be a permitted* *activity if the following conditions are met:* 1. *The sign relates to products or services sold on the site or includes information about the site on which it is located.* 2. *The total number of signs on any site does not exceed 2, inclusive of any freestanding sign located on a footpath or grass berm outside the site but adjoining the site. This rule does not apply to signs associated with service stations or shops; and* 3. *The sign does not have flashing or revolving lights, sound effects, balloons or blimps, and* 4. *The sign does not obstruct or impair the view for any motorist or pedestrian of any traffic signal, intersection, vehicle crossing, bend or corner, and* 5. *The sign does not exceed the height of:* 1. *The building to which it is attached, or* 2. *2 metres if the sign is not attached to a building, and* 6. *The sign does not exceed 1m2 in size, and*	**Complies** Condition 1: All proposed new signage relates to the service station activities (including the required health and safety signage associated with the hazardous substances stored on the application site – i.e. diesel petroleum and LPG). Condition 2- N/A: The proposal signage relates to the establishment of a service station activity. Condition 3 – Complies: The proposed signage will not have flashing or revolving lights, sound effects, balloons or blimps. Condition 4 – Complies: The proposed signage is positioned to ensure it does not obstruct or impair the view for any motorists or pedestrians using, as relevant, the proposed vehicle crossings.	**Does not comply** Does Not Comply The proposal involves the erection of freestanding signs (one Rolly Inn sign (to be relocated), one prime sign, one poster board, one car wash sign, one air & vacuum sign, one LPG Swap N' Go sign), directional signs (two 'entry/exit' signs located adjoining the Main South Road vehicle crossings and the Brookside Road vehicle crossings and one car wash entry / exit sign) as well as Z branding / pecten signs installed on the Z shop, car wash and the forecourt (including the forecourt canopy). Condition 5 – **Does Not Comply**: Some signage not attached to a building will exceed including one of the Rolly Inn freestanding signs which is to be relocated, proposed prime sign and poster board.

7. *The sign is not of a colour or design which resembles a traffic sign or signal.* 8. *The sign is not less than 2.5m above the ground, if it is an overhanging attached sign.* 9. *The sign complies with the relevant rules for building size, design or siting if it is attached to a building.* ***Notes*** 1. *Rule 7.1.1.1 does not apply to any temporary sign or freestanding sign* 2. *Any sign located on a site adjoining a Strategic Road (listed in Appendix 7) is also required to comply with Rule 7.5*	Condition 7 – Complies: The proposed signs are not intended to resemble a traffic sign or signal Condition 8 – Complies: The proposed signage does not involve the erection of overhanging signage. Condition 9 – N/A not attached to a building.	Condition 6 – **Does Not Comply**: A number of signs do not comply with this restriction including the Rolly Inn freestanding sign that is to be relocated, the prime sign, poster board, air sign, LPG panel sign and the carwash sign which will all exceed 1m^2 in size.
Rule 7.1 Discretionary Activities – Outdoor Signs – General *Any activity which does not comply with Rule 7.1.1 shall be a discretionary activity.*		**Discretionary Activity Consent Required.** The proposed signage will not comply with conditions 5 and 6 of rule 7.1.1.
Rule 7.2 – Permitted Activities – Outdoor Signs – Directional *Any sign to direct pedestrians, cyclists or motorists shall be a permitted activity if the following conditions are met:* 1. *The sign does not exceed a height of 3 metres above the ground; and* 2. *The display area of the sign does not exceed 0.6m2; and* ***3.*** *The message on the sign is limited to arrows or the word 'entry' or 'exit'.*	The proposal seeks to erect two 'entry/exit' signs located adjoining the Main South Road vehicle crossings and both Brookside Road vehicle crossings, as well as one car wash entry / exit sign. **Complies** Condition 1 – Complies: The proposed directional signage will not exceed a height of 3m.	**Does Not Comply** Condition 2: The proposed directional signage will exceed 0.6m^2 net display area. Condition 3 – The proposed directional signage includes arrows, but also includes the universal 'No Entry' symbol (which is neither an arrow nor the word "entry or exit").
Rule 7.2 – Discretionary Activities – Outdoor Signs – Directional *Any activity which does not comply with the Rule 7.2.1 shall be a discretionary activity.*		**Discretionary Activity Consent Required**

		The proposed directional signage does not comply with condition 3 because it includes the universal 'No Entry' sign.
Rule 7.3 – Permitted Activities – Outdoor Signs – Health and Safety *Any sign required for operational, warning, health or safety reasons shall be a permitted activity if the following conditions are met:* *1. The sign advertises only the name of the organisation carrying out any construction work or activity and any relevant safety information; and* *2. The sign is located on the site to which it relates; and* ***3.** The sign is removed from the site when it is no longer required.*	**Compliance Achieved** The proposal will involve the erection of signage required by HSNO and the Health and Safety Act 2015 (such as the Dangerous Goods signs installed on the underground storage tanks). This signage will be located within the application site and will relate to the activities undertaken on the application site.	
Rule 7.4 – Permitted Activities – Outdoor Signs – Property Sales *[…]*	N/A – the proposal does not involve the erection of outdoor signs for property sales.	
Rule 7.5 – Permitted Activities – Outdoor Signs and Strategic Roads *Any sign on any land adjoining a road listed in Appendix 7 as a Strategic Road where the speed limit is 70km/hr or greater shall be a permitted activity if Rules 7.1 to 7.4 inclusive and all of the following conditions are met:* *1. It is to be located on the site to which it relates;* *2. There shall be only one advertising sign directed at the Strategic Road;* *3. It is to have a minimum lettering height of 160mm;* *4. It shall not have more than six words or symbols and no more than 40 characters;* *5. It is to be located so as to provide an unrestricted view to the motorist for a minimum distance of 180 m;* *6. Any sign is illuminated only when the premises is open for business; and*	The proposal involves the erection of two freestanding signs (the prime sign and poster board) along the northern boundary of the application site (Main South Road – State Highway 1). Main South Road is listed in Appendix 7 and is limited to 80km/hr along the length of the site. **Complies** Condition 1 – The proposed prime sign and poster board both relate to the Z Energy service station proposed to be established at the application site. Condition 5 – Complies: The proposed signage along the northern boundary will be positioned	**Does Not Comply** Condition 2 – Does Not Comply: the freestanding Rolly Inn sign that is to be relocated, and the proposed prime sign and poster board along the northern boundary are directed at Main South Road. Conditions 3 and 4 – Does Not Comply: The proposed freestanding Rolly Inn sign that is to be relocated will not comply. The prime sign will have varying letter height and words / characters: at a minimum it is considered that the character restriction will not be met. Condition 7 – Does not Comply: The proposed signage will be set at right angles / perpendicular

7. *The sign is positioned at right angles to the frontage roadway but angled off the direction of traffic by 50.*	to prevent restricting the view of motorists travelling along Main South Road. Condition 6 – Complies: The proposal is to establish a 24/7 service station. Therefore, the proposed sign prime sign and poster board along the northern boundary will be illuminated during the night.	to Main South Road but will not be angled off the direction of traffic by 50.
Rule 7.5 – Restricted Discretionary Activity – Outdoor Signs and Strategic Roads *Any activity which does not comply with Rule 7.5.1 shall be a restricted discretionary activity.*		**Restricted Discretionary Activity** Conditions 2, 3, 4 and 7 will not be complied with.
Rule 7.6 – Permitted Activities – Outdoor Noticeboards *[…]*	N/A – the proposal does not involve the erection of noticeboards[10].	
Part C – 8: Living Zone Rules – HAZARDOUS SUBSTANCES		
Rule 8.1 – Permitted Activities – Storage of Hazardous Substances *The storage of any hazardous substance shall* *be a permitted activity if all of the following conditions are met:* 1. *The quantity of each subclass of hazardous substances listed in Appendix 9 Table E9.2 complies with the maximum storage quantities set out in Appendix 9 Table E9.2.* 2. *Any area used to store any hazardous substance or materials treated with any hazardous substance, except for Liquefied Petroleum Gas (LPG) is:*	**Complies** Conditions 2 and 3 – Complies: Refer to Section 6 of the AEE for more detail about the mitigation measures proposed for the storage and use of hazardous substances (diesel and petroleum) and the relevant codes and practices adhered to (e.g. HSNO, Health and Safety Act). The tanks will be underground and sealed with hardstanding. The tanks are double contained so no additional	**Does Not Comply** Condition 1: Appendix 9 Table E9.2 provides for up to 1,000 litres of diesel, and no limit for petroleum in underground storage. Appendix 9 Table E9.2 provides for up to 300kg of LPG.

[10] 'Noticeboards' means a structure or device upon which notices can be placed or attached that are of community interest, which are intended to be read by people stopping at the noticeboard rather than by people passing by.

a. *Separated from the ground by an impervious surface; and* b. *The impervious surface is designed to contain any runoff of the substance or water contaminated with the substance; and* c. *The amount of containment available is no less than 110% of the volume of stored hazardous substances where the area is roofed; or* d. *The amount of containment available is no less than 120% of the volume of stored hazardous substances where the area is unroofed* 3. *Any hazardous substance is stored:* a. *In a sealed container; and* b. *The container is made of a material that is not weakened or corroded by the hazardous substance; and* c. *The container is permanently labelled with the name of the contents; and* d. *Only one type of hazardous substance is stored in each container; and* 4. *Any hazardous substance(s) is/are not stored within 20m of any waterbody (excluding aquifers).* 5. *For schools located within the Living Zones, the quantity limits for the Business 1 Zone shall apply* 6. *Any electrical transformer installation operated by a network utility operator, as defined under Section 166, Resource Management Act 1991, is a permitted activity with an oil capacity of no more than 1,500 litres, subject to meeting Rules 8.1.1.2 to Rule 8.1.1.4.*	bunding is necessary / required. The double containment provides for 110% capacity of the volume of hazardous substances stored. The tanks are made of a material resistant to petroleum products (fibreglass tanks). Appropriate signage / labels will be placed on the tanks in accordance with HSNO / Health and Safety regulations. The tanks will only contain on type of hazardous substance each (noting the split compartment tank will not mix the two grades of petroleum). LPG is not required to comply with condition 2 and will comply with the conditions in (3). Condition 4 – Complies: The site is not located within 20m of any waterbody. Condition 5 – N/A: The proposal is not for the storage of hazardous substances at a school. Condition 6- N/A: The proposal does not include the installation of an electrical transform operated by a network utility operator.	

Rule 8.1 – Discretionary Activities – Storage of Hazardous Substances 2. *Any activity which does not comply with Rules 8.1.1.2 to Rule 8.1.1.4 shall be a discretionary activity.* 3. *Any consent application for the installation of any electrical transformer over 1,500 litres shall be assessed as a discretionary activity and shall not be notified and shall not require the written consent of directly affected parties.*	Condition 2 – N/A - The activity complies with Rules 8.1.1.2 to Rule 8.1.1.4. Condition 3 – N/A: The proposal does not involve the installation of an electrical transformer over 1,500 litres.	
Rule 8.1 – Non-Complying Activities – Storage of Hazardous Substances *Any activity which does not comply with Rule 8.1.1.1 shall be a non-complying activity, except if the storage of hazardous substances complies with any quantity limit listed in Column B in Appendix 9 for Living Zones, in which case the storage of hazardous substances is a discretionary activity.*		**Non-Complying Activity** The activity does not comply with rule 8.1.1.1 as the proposed underground storage of diesel exceeds the permitted maximum thresholds in Appendix 9. **Discretionary activity consent** is required for the storage of petroleum in underground tanks and LPG in bottle storage - given there is no limit for either within the Column B and compliance with Column A is not achievable.
Rule 8.2 Permitted Activities – Transportation of Hazardous Substances *[…]*	N/A – the proposal does not involve the transportation of any hazardous substances in a boat or other craft over the surface of any waterbody.	
Rule 8.3 – Non-Complying Activities – Manufacture of Hazardous Substances *[…]*	N/A – the proposal does not involve the manufacturing of hazardous substances.	
Rule 8.4 – Non-Complying Activities – Disposal of Hazardous Substances *[…]*	N/A – the proposal does not involve the disposal of any hazardous substances.	
Part C – 9: Living Zone Rules – WASTE		
Rule 9.1 – Permitted Activities – Waste Generation	**Compliance Achieved**	

Any activity, which is not a residential activity, which generates not more than 1 cubic metre of solid waste on average per week over a year, other than inert landfill, shall be a permitted activity.	The proposed service station and car wash activity is anticipated to generate some four, 240 litre wheelie bins per week. The Rolly Inn anticipates that this standard will be met.	
Rule 9.2 – Permitted Activities – Waste Storage *The storage of solid waste shall be a permitted activity if the following conditions are me:* 1. *Only solid waste generated as part of activities on a site is stored on the site; and* 2. *Any solid waste stored on a site is stored in a closed, waterproof container; and* 3. *Solid waste is only stored on-site until it is able to be collected or removed for treatment or disposal elsewhere.*	**Compliance Achieved** Condition 1 – Complies: any waste stored onsite will be that waste generated as part of the service station or Rolly Inn activities. Condition 2- Complies: Any service station waste stored will be within the proposed rubbish compound and stored in a closed, waterproof container. Any Rolly Inn waste will be stored within closed top, waterproof rubbish containers. Condition 3 – Complies: Any waste stored on the service station site will be within the proposed rubbish compound until it is collected to be disposed off-site. Any waste stored on the Rolly Inn site will only be temporarily stored, until it is picked up and removed from the site.	
Rule 9.3 – Permitted Activities – Waste Disposal *[…]*	N/A – the proposal does not involve waste disposal on site.	
Part C – 10: Living Zone Rules – ACTIVITIES		
Rule 10.6 – Permitted Activities – Activities and Noise *The following activities shall be permitted activities:*	Service station: Daytime noise limits, including the L_{max} limit, will be met.	**Does not Comply** – Service station: Night-time noise limits will be exceeded, including the night-time L_{max} limit which could be exceeded at times when a heavy

Any activity which is not a residential activity, spiritual activity or educational activity, shall be a permitted activity if the following noise limits are not exceeded within the time-frames stated: *7.30am – 8.00pm 50 dBA L_{10}* *8.00pm – 7.30am 35 dBA L_{10}* *7.30am – 8.00pm 85 dBA Lmax* *8.00pm – 7.30am 70 dBA Lmax*	Rolly Inn: Daytime noise limits, including the L_{max} limit, will be met.	vehicle (e.g. fuel tanker) accesses the site and uses its park brake. Rolly Inn: Will continue to exceed the night-time noise levels.
Rule 10.6 – Discretionary Activities – Activities and Noise *10.6.2 - Any activity which is not residential, spiritual or educational which does not comply with Rule 10.6.1 shall be a discretionary activity.*		**Discretionary Activity Consent** required due to non-compliance with Rule 10.6.1.
Part C – 10: Living Zone Rules – ACTIVITIES		
Rule 10.7 – Permitted Activities – Activities and Light Spill *The following activities shall be permitted activities:* *1. Any fixed, exterior lighting if it is directed away from adjacent properties and roads.* *2. Any lighting if it does not have a lux spill (horizontal or vertical) of more than 3 on to any part of any adjoining properties.*	**Complies** 1. All lighting will be directed away from adjacent properties and roads 2. The lighting will not have a lux spill of more than 3 on to any part of any adjoining property (see lighting plan **Appendix B)** If further confirmation is required, this can be required via a condition of consent.	
Part C – 10: Living Zone Rules – ACTIVITIES		
Rule 10.8 – Permitted Activities – Activities and Scale of Activities *Any activity which is not a residential activity, shall be a permitted activity if the following conditions are met:* *1. No more than two full time equivalent staff employed on the site live off site, and,*		**Does not comply** 1. All staff will live off site. 2. The GFA of buildings that are not dwellings exceeds $300m^{2.}$

2. *The gross floor area of any building(s) other than a dwelling does not exceed 300m2, or in the case of any building used for spiritual activities does not exceed 500m2, and* 3. *Vehicle movements do not exceed:* - *State Highways, Arterial Roads and Collector Roads: 40 per day plus 4 heavy vehicle movements per day* - *Local Roads: 20 per day plus 2 heavy vehicle movements per day.*		3. Vehicle movements onto the state highway will exceed 40 per day and potentially 4 heavy vehicle movements per day on occasion. Vehicle movements will also exceed 20 per day onto Brookside Road and 2 heavy vehicle movements per day on to Brookside Road.
Rule 10.8 – Discretionary Activities – Activities and Scale of Activities *Any activity which is not a residential activity, and which does not comply with Rules 10.8.1 or 10.8.2 shall be a discretionary activity.*		**Discretionary Activity Consent** required due to non-compliance with Rule 10.8.1.1 and 10.8.1.3.
Part C – 10: Living Zone Rules – ACTIVITIES		
Rule 10.9 – Permitted Activities – Activities and hours of Operation *Any activity which is not a residential activity, shall be a permitted activity if the following conditions are met:* 1. *The employment of staff who are not resident on the site; and* 2. *Visits by customers, patrons, clients or other people to the site who are not resident on the site* *shall only occur between the hours of 7:00am and 10:00pm on any day*		**Does not comply** The hours of operation of the new service station are 24 hours per day, 7 days a week. The ordinary core hours of operation of the existing Rolly Inn and the new function facility are between 11am and 2am the following day, seven days a week and for the existing bottleshop between and 11am to 9pm, seven days a week. The bar is licenced to operate between 7am and 2am the following day and the bottle store is licensed to operate between 7am and 9pm, but each operate the additional hours infrequently. Ancillary activities occur both within and outside of the ordinary core hours of operation and therefore the Rolly Inn also operates on a 24/7 basis.
Rule 10.9 – Discretionary Activities – Activities and Hours of Operation		**Discretionary Activity Consent required.**

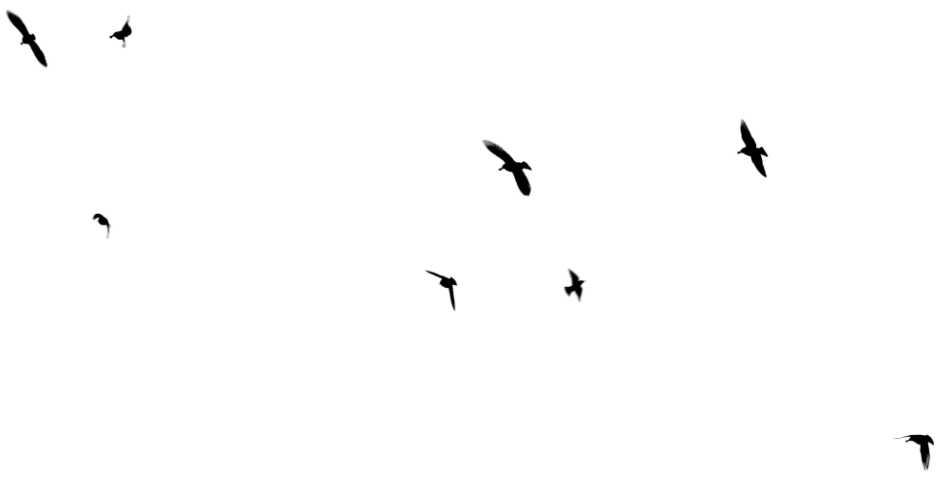
Any activity which is not a residential activity, and which does not comply with rule 10.9.1 shall be a discretionary activity.		
Part C – 10: Living Zone Rules – ACTIVITIES		
Rule 10.10 – Permitted Activities – Activities and the Outdoor Storage of Materials and Goods *The outdoor storage of any materials or goods shall be a permitted activity if the following conditions are met:* *1. The outdoor storage of motor vehicles, caravans or campervans, trailers, or watercraft shall be associated with residential activities on the site.* *2. The outdoor storage of materials for construction, repair or landscaping work on the same site shall be limited up to 4 months in any 12 month period.* *3. The outdoor storage of any other goods or materials if the following conditions are met:* *(a) the outdoor storage space shall be screened from any road boundary of the site by a fence, wall, or vegetation of at least 1.8m in height, and* *(b) The outdoor storage area shall be screened from any internal boundary of the site which adjoins another site in a Living Zone or a site in a Business 1 Zone, by a fence, wall, or vegetation of at least 1.8m in height; and* *(c) Any stockpile of soil, coal, sawdust, powdered fertilisers, or any other unconsolidated material, shall be covered or otherwise, secured from being blown by the wind.*	**Complies** 1. N/A 2. Will comply during construction *3.* The rubbish compound and mechanical compound will be screened by a combination of the 1800mm high rock wall, fencing and gates. The boundary between the application site and 10 Brookside Road will be screened by a 1.8m high acoustic fence (albeit that it will be reduced in height to 900mm for a depth of 3 m into the application site from the road boundary (to ensure good sightlines and not in the vicinity of either compound)). Any stockpiled soil will be secured from being blown by the wind. See Z EMP for Site Works (**Appendix E**).	
Rule 10.10 Discretionary Activities – Activities and the Outdoor Storage of Materials and Goods *Any activity which does not comply with Rule 10.10.1 shall be a discretionary activity.*	N/A – Permitted Activity.	
Part C – 11: Living Zone Rules – LANDSCAPE ALPINE VILLAGES		

Rule 11.1 – Permitted Activities – Landscape Management, Alpine Villages	N/A – the site is not within Arthur's Pass or Castle Hill Alpine Villages.	



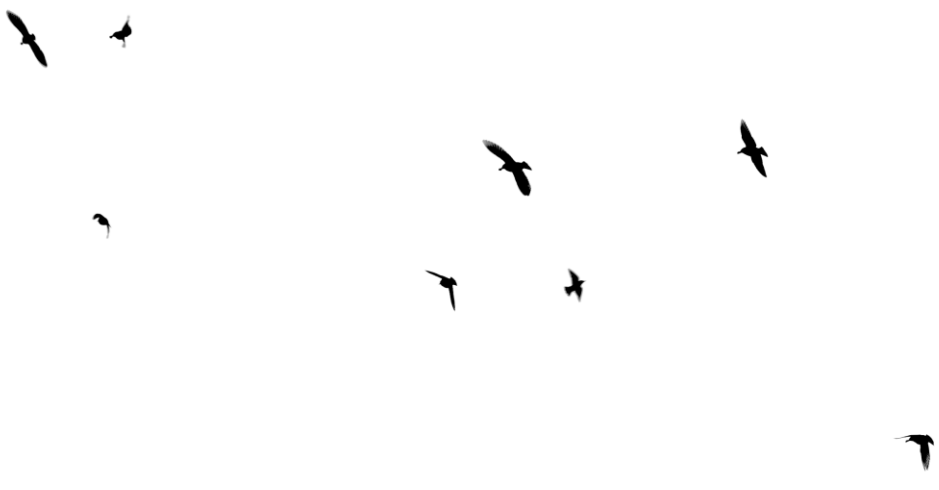
Appendix G

AECOM Environmental Site Assessment 2018



Appendix H

AECOM Letter 24 January 2018



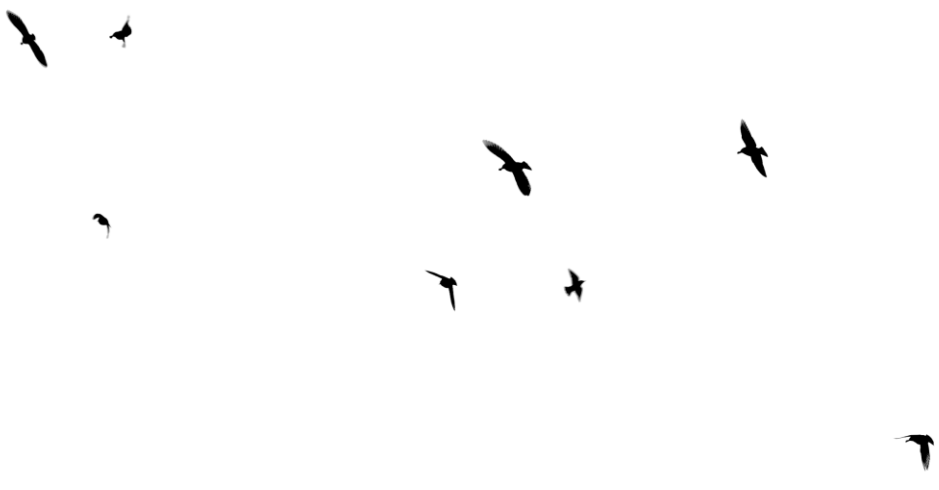
Appendix I

Boffa Miskell Urban Design Assessment



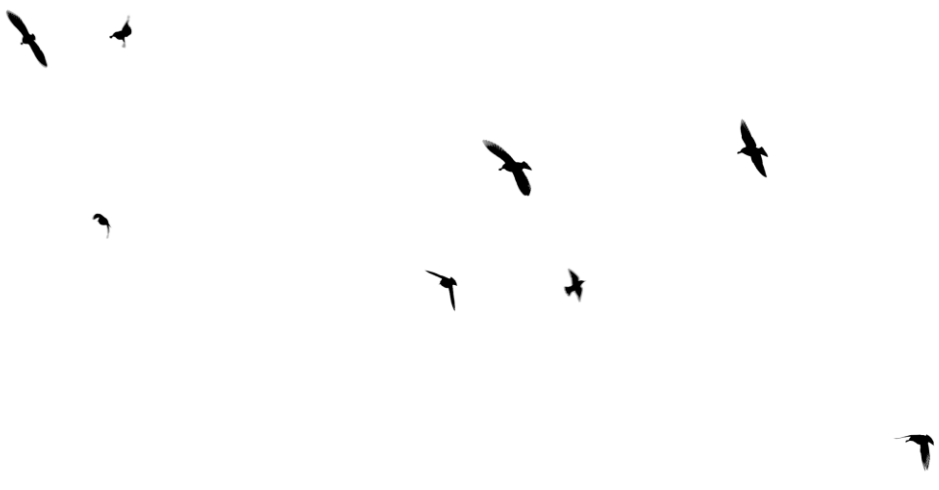
Appendix J

Marshall Day Acoustic Assessment



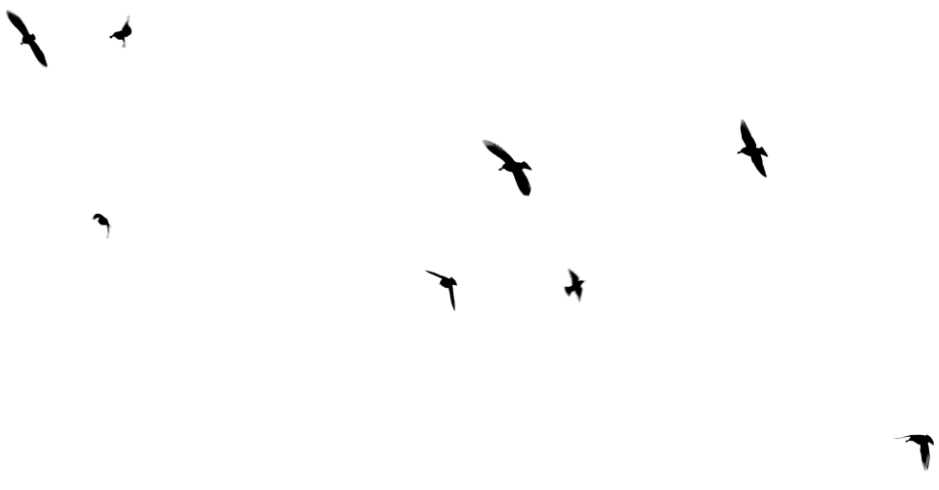
Appendix K

Stantec Integrated Transport Assessment



Appendix L

Property Economics Retail Distribution Assessment



Appendix M

Assessment of Objective and Policy Provisions – Selwyn District Plan



Planning Assessment: Selwyn Operative District Plan - Relevant Objectives and Policies
Objectives and policies
Chapter B1 Natural Resource – Land and Soil
Objective B1.1.1 *Adverse effects on people, and their activities, ecosystems and land and soil resources from contaminated soil or unstable land are minimised.* ***Policy B1.1.1*** *Ensure activities do not contaminate soil.* ***Policy B.1.1.3*** *Avoid adverse effects on people's health or well-being from exposure to contaminated soil.*
Chapter B1 Natural Resource – B1.2 - Water
Objective B1.2.2 *Activities on the land and the surface of water in Selwyn District:* - *Do not adversely affect ground or surface water resources;* - *Do not adversely affect waahi tapu or waahi taonga;* - *Maintain or enhance the ecological and habitat values of waterbodies and their margins;* - *Maintain or enhance the water quality and ecological values of sites of mahinga kai (food gathering); and* - *Promote public access along rivers and streams, where appropriate.* ***Policy B1.2.1*** *Ensure all activities in townships have appropriate systems for water supply, and effluent and stormwater treatment and disposal to avoid adverse effects on the quality of ground water or surface waterbodies.*

Planning Assessment: Selwyn Operative District Plan - Relevant Objectives and Policies
Objectives and policies
Policy B1.2.3 *Require the water supply to any allotment or building in any township, and the Living 3 Zone, to comply with the current New Zealand Drinking Water Standards and to be reticulated in all townships, except for sites in the existing Living 1 Zone at Doyleston.* ***Policy B1.2.5*** *Require any sewage treatment and disposal to be reticulated in the townships of … Rolleston ...* ***Policy B1.2.7*** *Minimise any potential risk of adverse effects on water quality or bank stability from earthworks; structures; hazardous substances; waste disposal; or tree planting or harvesting in close proximity to waterbodies.*
Chapter B2 Physical Resources – B2.1 -Transport Networks
Objective B2.1.1 *An integrated approach to land use and transport planning to ensure the safe and efficient operation of the District's roads, pathways, railway lines and airfields is not compromised by adverse effects from activities on surrounding land or by residential growth.* ***Objective B2.1.2*** *An integrated approach to land use and transport planning to manage and minimise adverse effects of transport networks on adjoining land uses, and to avoid "reverse sensitivity" effects on the operation of transport networks.* ***Policy B2.1.2*** *Manage effects of activities on the safe and efficient operation of the District's existing and planned road network, considering the classification and function of each road in the hierarchy.*

Planning Assessment: Selwyn Operative District Plan - Relevant Objectives and Policies
Objectives and policies
Policy B2.1.3 *Recognise and protect the primary function of roads classified as State Highways and Arterial Roads…, to ensure the safe and efficient flow of 'through' traffic en route to its destination.* ***Policy B2.1.4(a)*** *Ensure all sites, allotments or properties have legal access to a legal road which is formed to the standard necessary to meet the needs of the activity considering:* • *the number and type of vehicle movements generated by the activity;* • *the road classification and function; and* • *any pedestrian, cycle, public transport or other access required by the activity.* ***Policy B2.1.4(b)*** *Avoid adverse effects on the safe flow of traffic along State Highways and Arterial Roads from new property access, where the speed limit is more than 70 km/hr*.
Chapter B3 People's Health, Safety and Values – B3.2 - Hazardous Substances
Objective B3.2.1 *To ensure that adequate measures are taken to avoid, remedy or mitigate any adverse effects to human health, to the amenity of townships, the rural environment and to the natural environment arising from manufacture, storage, transport on water bodies and disposal of hazardous substances.* ***Objective B.3.2.2*** *To ensure that adequate measures are taken during the manufacture, storage and disposal of hazardous substances to avoid remedy or mitigate any adverse effects to the health of livestock and other farm animals, of domestic animal and of flora and fauna, and to the life-sustaining capacity and amenity values of waterbodies, land and soil resources.* ***Policy B3.2.1***

Planning Assessment: Selwyn Operative District Plan - Relevant Objectives and Policies
Objectives and policies
Ensure any potential risk of adverse effects on the environment from spills, leaks or other mismanagement of hazardous substances is avoided or mitigated. ***Policy B3.2.2*** *Avoid the manufacture, use or storage of large quantities of hazardous substances in Living or Business 1 Zones, unless potential adverse effects on people's well-being and the amenity values of these zones will be minor.* ***Policy B3.2.4*** *Avoid transport of hazardous substances on the surface or waterbodies in watercraft, if there is an alternative vehicular access to the site by land.* ***Policy B3.2.5*** *Avoid disposing of hazardous substances into sewage systems or on to land in townships.* ***Policy B3.2.6*** *Ensure parties who manufacture or store commercial quantities or concentrations of hazardous substances have the means to dispose of hazardous substances and their containers without adversely affecting the environment.*
Chapter B3 People's Health, Safety and Values – B3.4 - Quality of the Environment, Noise, Glare, Dust, Traffic, Outdoor Storage, Outdoor Signs and Noticeboards, Building Design & Landscaping and Amenity Plantings
Objective B3.4.1 *The District's townships are pleasant places to live and work in.* ***Objective B3.4.2*** *A variety of activities are provided for in townships, while maintaining the character and amenity values of each zone.* ***Objective B3.4.3***

Planning Assessment: Selwyn Operative District Plan - Relevant Objectives and Policies
Objectives and policies
"Reverse sensitivity" effects between activities are avoided. ***Objective B3.4.4*** *Growth of existing townships has a compact urban form and provides a variety of living environments and housing choices for residents, including medium density housing typologies located within areas identified in an Outline Development Plan* ***Objective B3.4.5*** *Urban growth within and adjoining townships will provide a high level of connectivity both within the development and with adjoining land areas (where these have been or are likely to be developed for urban activities or public reserves) and will provide suitable access to a variety of forms of transport.* ***Quality of the Environment*** ***Policy B3.4.2*** *To provide for any activity to locate in a zone provided it has effects which are compatible with the character, quality of the environment and amenity values of that zone.* ***Policy B3.4.3*** *To provide Living zones which:* • *are pleasant places to live in and provide for the health and safety of people and their communities;* • *are less busy and more spacious than residential areas in metropolitan centres;* • *have safe and easy access for residents to associated services and facilities;* • *provide for a variety of living environments and housing choices for residents, including medium density areas identified in Outline Development Plans;* *…* ***Policy B3.4.5*** *To provide Business 1 Zones which enable a range of business activities to operate while maintaining environmental quality and aesthetic and amenity values which make the zone(s) attractive to people.* ***Policy B3.4.9***

Planning Assessment: Selwyn Operative District Plan - Relevant Objectives and Policies
Objectives and policies
Where an existing activity, which is not a permitted activity in a zone, applies for a resource consent to alter or expand, consider the effects of the change in the activity on the character, quality of the environment and amenity values of the zone. ***Noise*** ***Policy B3.4.10*** *Ensure noise in all zones does not adversely affect the health or well-being of people.* ***Policy B3.4.11*** *Maintain background sound levels which are appropriate to the quality of the environment and amenity values of each zone.* ***Glare*** ***Policy B3.4.12*** *Avoid night lighting and, where practical, glare from reflections shining directly into adjoining site, in all zones.* ***Dust*** ***Policy B3.4.14*** *Avoid nuisance effects caused by dust from stockpiled material or construction work in Living or Business zones.* ***Scale and Nature of Activities*** ***Policy B3.4.16*** *Ensure the operating hours for non-residential activities in Living zones do not disturb surrounding residential activities, particularly at night.* ***Traffic*** ***Policy B3.4.18*** *Ensure non-residential activities in Living zones generate vehicle and pedestrian movements on a scale compatible with the quality of the environment in Living zones and the local receiving environment.*

Planning Assessment: Selwyn Operative District Plan - Relevant Objectives and Policies
Objectives and policies

Policy B3.4.19(a)

Ensure all activities have appropriate car-parking facilities to avoid, remedy or mitigate and adverse effects of car-parking on:

- *The amenity values of streets;*
- *The privacy of residents; and*
- *Safe and convenient access to sites.*

Policy B3.4.19(b)

Ensure that a high level of amenity safety and accessibility is achieved for pedestrians, users of public transport and cyclists when car parking is provided.

Policy B3.4.19 (c)

Ensure that access by sustainable transport modes, such as public transport, cycling and walking, is considered when assessing parking needs for new activities.

Outdoor Storage

Policy B3.4.20

Avoid adverse effects on the amenity or aesthetic values of Living and Business 1 Zones from the outdoor storage of goods on sites.

Outdoor Signs and Noticeboards

Policy B3.4.21

Ensure signs in all zones are designed and positioned to avoid:

- *Adverse effects on the visibility or safety of pedestrians, cyclists or motorists;*
- *Impeding access to or past sites;*
- *Nuisance effects from sound or motion features on signs or from glare or reflectivity;*
- *Adverse effects on the amenity values of the zone; or*
- *Dominance of the 'skyline' or view, caused by large signs protruding above the roofs of buildings.*

Policy B3.4.22

Planning Assessment: Selwyn Operative District Plan - Relevant Objectives and Policies
Objectives and policies
Ensure signs in Living zones are of a size, design and number which maintain the quality of the environment and amenity values of the zone, but recognise the need for retail activities located in Living zones to have extra signs on the site. ***Building Design*** ***Policy B3.4.23*** *Allow people freedom in their choice of the design of buildings or structures except where building design needs to be managed to:* - *Avoid remedy or mitigate adverse effects on adjoining sites; or* - *Maintain the character of areas with outstanding natural features or landscapes values or special heritage or amenity values; or* - *Maintain and establish pleasant and attractive streets and public areas in the Business 1 Zone.* ***Policy B3.4.25*** *In all townships, ensure buildings:* - *Do not shade adjoining properties; and* - *Maintain a predominantly low-rise skyline* ***Policy B3.4.26*** *Ensure buildings are setback an appropriate distance from road boundaries to maintain privacy and outlook for residents and to maintain the character of the area in which they are located.* ***Policy B3.4.27*** *Ensure buildings and structures in Living zones which are used for non-residential activities, are of a size and bulk and in a setting compatible with the quality of the environment and amenity values of a residential area.* ***Landscaping and Amenity Plantings*** ***Policy B3.4.31***

Planning Assessment: Selwyn Operative District Plan - Relevant Objectives and Policies
Objectives and policies
Encourage sites in Living and Business 1 Zones to maintain a landscaped area along the road frontage of the site. ***Policy B3.4.33*** *Encourage people who are developing or redeveloping sites in townships to retain trees, bush or other natural features on the site, as part of the new development.*
Chapter B4 Growth of Townships – B4.3 – Residential and Business Development
Objective B4.3.8 *Commercial growth is primarily focused within the Key Activity Centres of Rolleston and Lincoln in a way and at a rate that:* *(1) Meets the economic needs of commercial businesses, provides for their communities with convenient access to goods and services, and ensures opportunities for employment and social interaction: and* *(2) Ensures an adequate supply of land to meet commercial and community demands.* ***Policy B4.3.4*** *Encourage new residential or business development to occur on vacant land in existing Living or Business zones, if that land is available and appropriate for the proposed activity.*



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **769908**
Land Registration District **Canterbury**
Date Issued 14 September 2017

Prior References
762448 CB43B/1300 CB5D/402

Estate Fee Simple
Area 5741 square metres more or less
Legal Description Lot 1 Deposited Plan 507204

Registered Owners
Russell Walter Charles Lilley and Helen Shirley Lilley

Interests

110032.1 Gazette Notice declaring No. 1 State Highway (Awanui-Bluff) adjoining the within land to be a limited access road - 15.12.1976 at 9:25 am (affects part formerly CT CB17B/865)

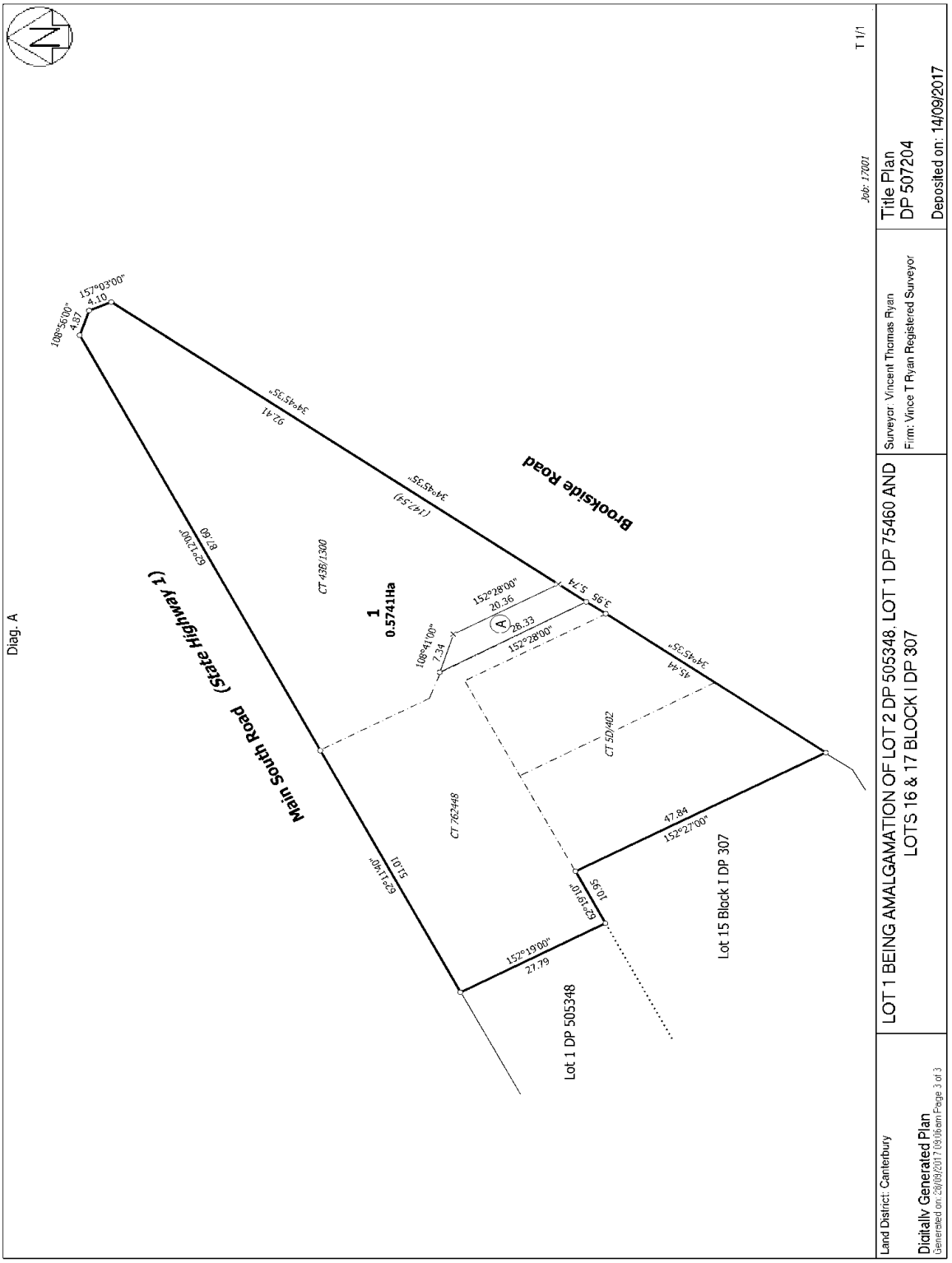
410953.1 Compensation Certificate pursuant to Section 19 Public Works Amendment Act 1981 - 23.11.1982 at 9.32 am (affects part formerly CT CB17B/865)

A338414.2 Lease to Rolly Inn Limited Term 20 years from 8.12.1997 - 11.2.1998 at 3.08 pm (affects part formerly Lot 1 DP 75460)

10629393.4 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 31.1.2017 at 4:06 pm (affects part formerly Lot 2 DP 505348)

10843987.7 Mortgage to Bank of New Zealand - 14.9.2017 at 11:23 am

Identifier **769908**



View Instrument Details

Instrument No.	10629393.4
Status	Registered
Date & Time Lodged	31 Jan 2017 16:06
Lodged By	Quinn, Peter John
Instrument Type	Consent Notice under s221(4)(a) Resource Management Act 1991

Affected Computer Registers	Land District
762447	Canterbury
762448	Canterbury

Annexure Schedule: Contains 1 Page.

Signature

Signed by Peter John Quinn as Territorial Authority Representative on 31/01/2017 04:02 PM

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

© Copyright: Land Information New Zealand

Selwyn DISTRICT COUNCIL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Resource Consent 165553

CONSENT NOTICE PURSUANT TO S. 221 RESOURCE MANAGEMENT ACT 1991

To: The District Land Registrar
Canterbury Land Registration District

TAKE NOTICE that the land hereinafter described is subject to conditions in relation to a subdivision

"That at the time of subdivision, services were required to be provided only to the road boundary of each lot. All required services shall be provided no later than the time that any dwelling or other principal building is erected on the lot."

AND THAT you are hereby requested to register the same pursuant to Section 221 of the Resource Management Act 1991.

DESCRIPTION OF LAND

All those pieces of land being Lots 1 and 2 DP 505348 as held in computer freehold registers 762447 and 762448

DATED this 17th day of January 2017

SIGNED for and on behalf of Selwyn District Council

Authorised Officer

www.selwyn.govt.nz
Selwyn District Council, 2 Norman Kirk Drive Rolleston /PO Box 90, Rolleston 7643
Tel: 03 347 2800 Fax: 03 347 2799 Email: admin@selwyn.govt.nz

ENERGY
Z Energy Limited

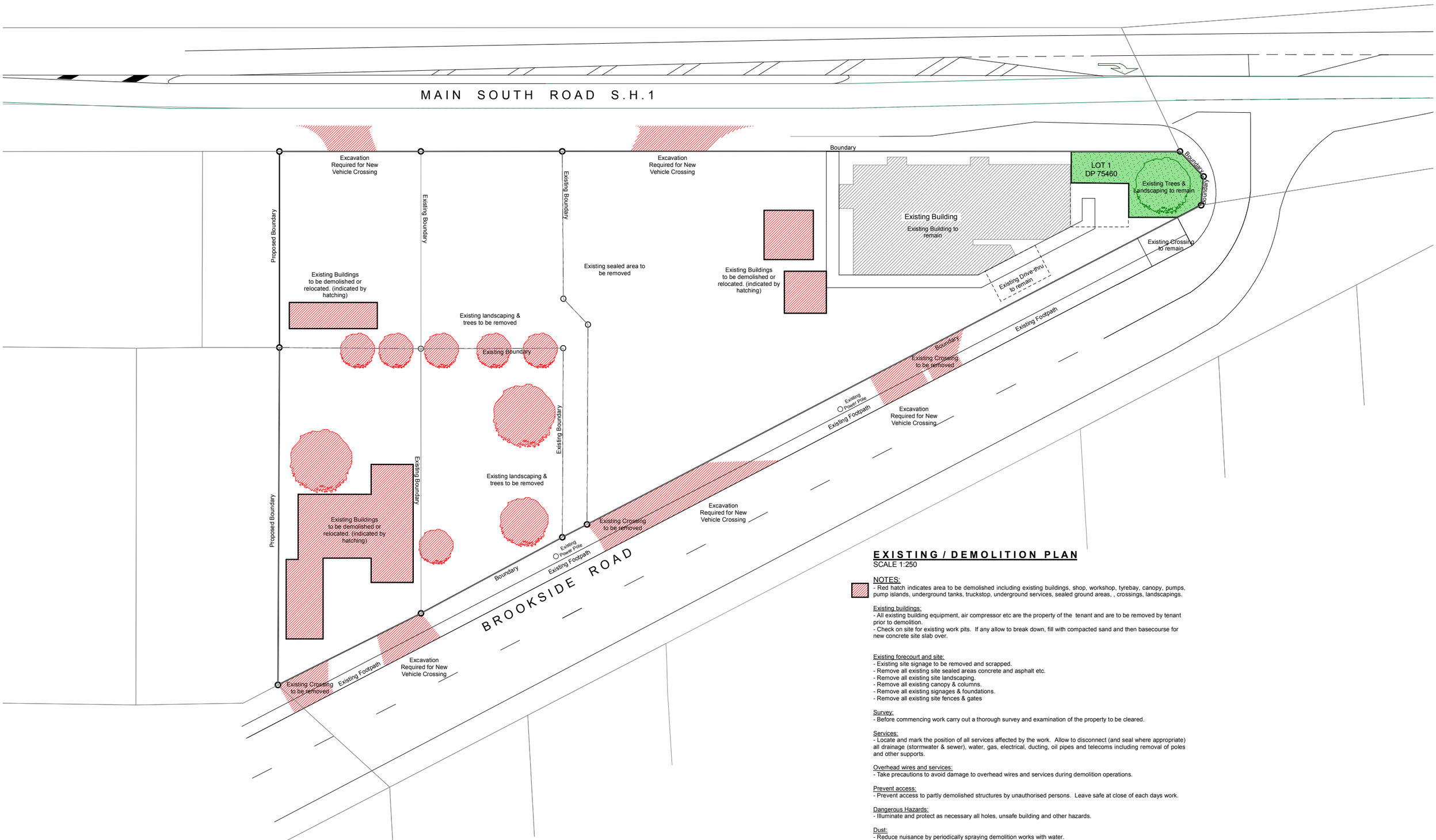
SHA
Architecture
WWW.SHA.CO.NZ



Z Brookside Rd Rolleston NTI

2 Brookside Road
Rolleston

RESOURCE CONSENT JANUARY 2020



EXISTING / DEMOLITION PLAN

SCALE 1:250

NOTES:
- Red hatch indicates area to be demolished including existing buildings, shop, workshop, tyrebay, canopy, pumps, pump islands, underground tanks, truckstop, underground services, sealed ground areas, , crossings, landscapings.

Existing buildings:
- All existing building equipment, air compressor etc are the property of the tenant and are to be removed by tenant prior to demolition.
- Check on site for existing work pits. If any allow to break down, fill with compacted sand and then basecourse for new concrete site slab over.

Existing forecourt and site:
- Existing site signage to be removed and scrapped.
- Remove all existing site sealed areas concrete and asphalt etc.
- Remove all existing site landscaping.
- Remove all existing canopy & columns.
- Remove all existing signages & foundations.
- Remove all existing site fences & gates

Survey:
- Before commencing work carry out a thorough survey and examination of the property to be cleared.

Services:
- Locate and mark the position of all services affected by the work. Allow to disconnect (and seal where appropriate) all drainage (stormwater & sewer), water, gas, electrical, ducting, oil pipes and telecoms including removal of poles and other supports.

Overhead wires and services:
- Take precautions to avoid damage to overhead wires and services during demolition operations.

Prevent access:
- Prevent access to partly demolished structures by unauthorised persons. Leave safe at close of each days work.

Dangerous Hazards:
- Illuminate and protect as necessary all holes, unsafe building and other hazards.

Dust:
- Reduce nuisance by periodically spraying demolition works with water.

Building and structures:
- Building and structures to be removed are to be demolished completely, including foundations. Dig out all old foundations, floor slabs and remove.
- Leave site totally clear of all rubble and materials resulting from demolition work.
- Refer to Demolition section in specification.

Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd Rolleston NTI
2 Brookside Road
Rolleston

RESOURCE CONSENT

Legal Description
Lot 1 DP 75460

SHA Architecture LIMITED
SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS
AUCKLAND P (09) 309 9660 F (09) 309 9661 P.O.BOX 8232 SYMONDS ST AUCKLAND NZ
HAMILTON P (07) 839 5622 F (07) 838 2500 P.O.BOX 1465 HAMILTON NZ WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division.• Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws.• All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommisions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	RESOURCE CONSENT ISSUE	31/01/2020	J.L

EXISTING DEMOLITION SITE PLAN

SCALE @ A1. 1:250 SCALE @ A3. 1:500

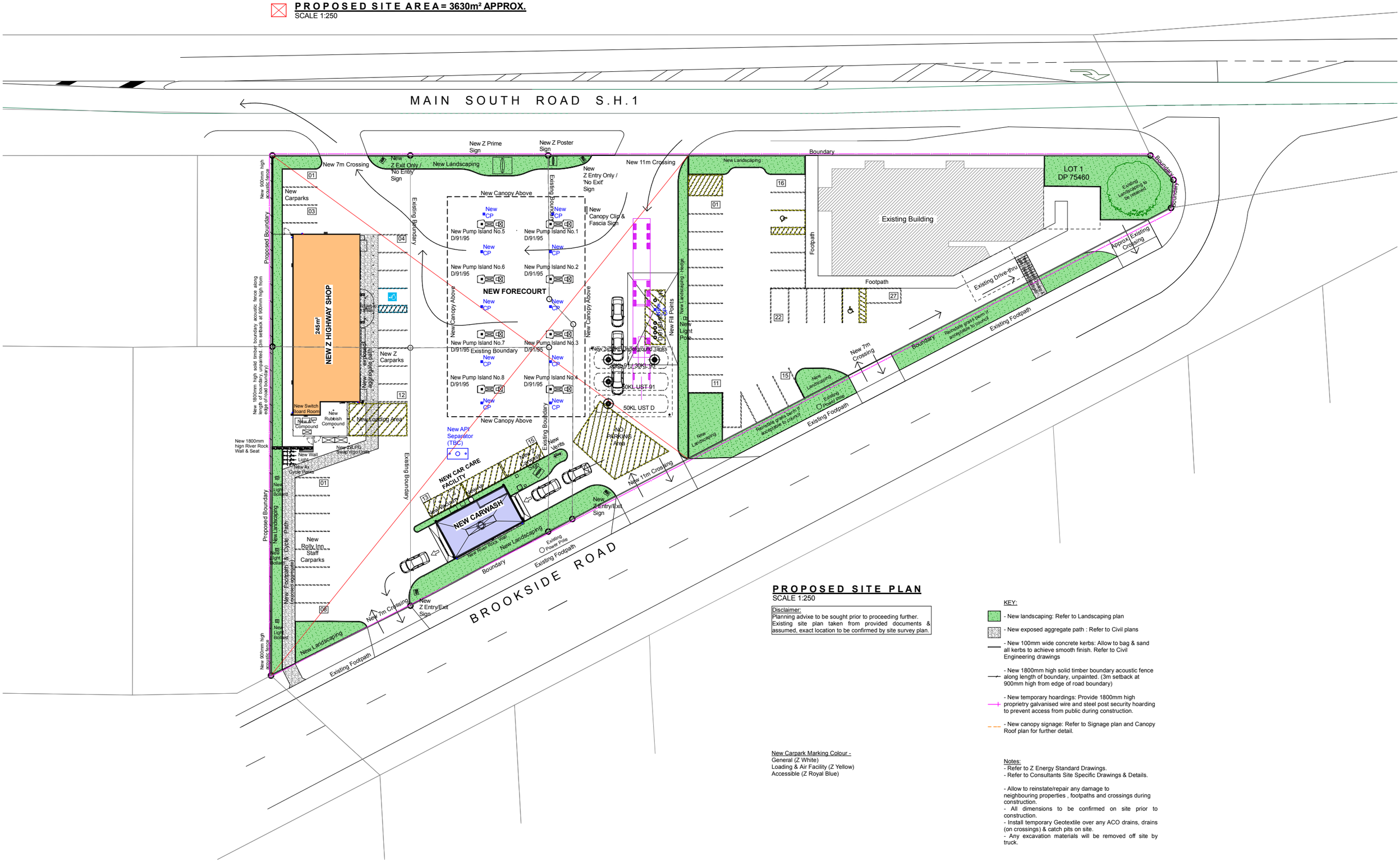
CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

Z-PS-A01

VERSION. REV. A

PROPOSED SITE AREA = 3630m² APPROX.
SCALE 1:250



PROPOSED SITE PLAN
SCALE 1:250

Disclaimer:
Planning advixe to be sought prior to proceeding further.
Existing site plan taken from provided documents & assumed, exact location to be confirmed by site survey plan.

KEY:
- New landscaping: Refer to Landscaping plan
- New exposed aggregate path : Refer to Civil plans
- New 100mm wide concrete kerbs: Allow to bag & sand all kerbs to achieve smooth finish. Refer to Civil Engineering drawings
- New 1800mm high solid timber boundary acoustic fence along length of boundary, unpainted. (3m setback at 900mm high from edge of road boundary)
- New temporary hoardings: Provide 1800mm high proprietry galvanised wire and steel post security hoarding to prevent access from public during construction.
- New canopy signage: Refer to Signage plan and Canopy Roof plan for further detail.

New Carpark Marking Colour -
General (Z White)
Loading & Air Facility (Z Yellow)
Accessible (Z Royal Blue)

Notes:
- Refer to Z Energy Standard Drawings.
- Refer to Consultants Site Specific Drawings & Details.
- Allow to reinstate/repair any damage to neighbouring properties , footpaths and crossings during construction.
- All dimensions to be confirmed on site prior to construction.
- Install temporary Geotextile over any ACO drains, drains (on crossings) & catch pits on site.
- Any excavation materials will be removed off site by truck.

Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd Rolleston NTI
2 Brookside Road
Rolleston

RESOURCE CONSENT

Legal Description
Lot 1 DP 75460

SHA Architecture LIMITED
SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS
AUCKLAND P (09) 309 9660 F (09) 309 9661 P.O.BOX 8232 SYMONDS ST AUCKLAND NZ
HAMILTON P (07) 839 5622 F (07) 838 2500 P.O.BOX 1465 HAMILTON NZ WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division.• Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws.• All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommisions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	RESOURCE CONSENT ISSUE	31/01/2020	J.L

PROPOSED SITE PLAN

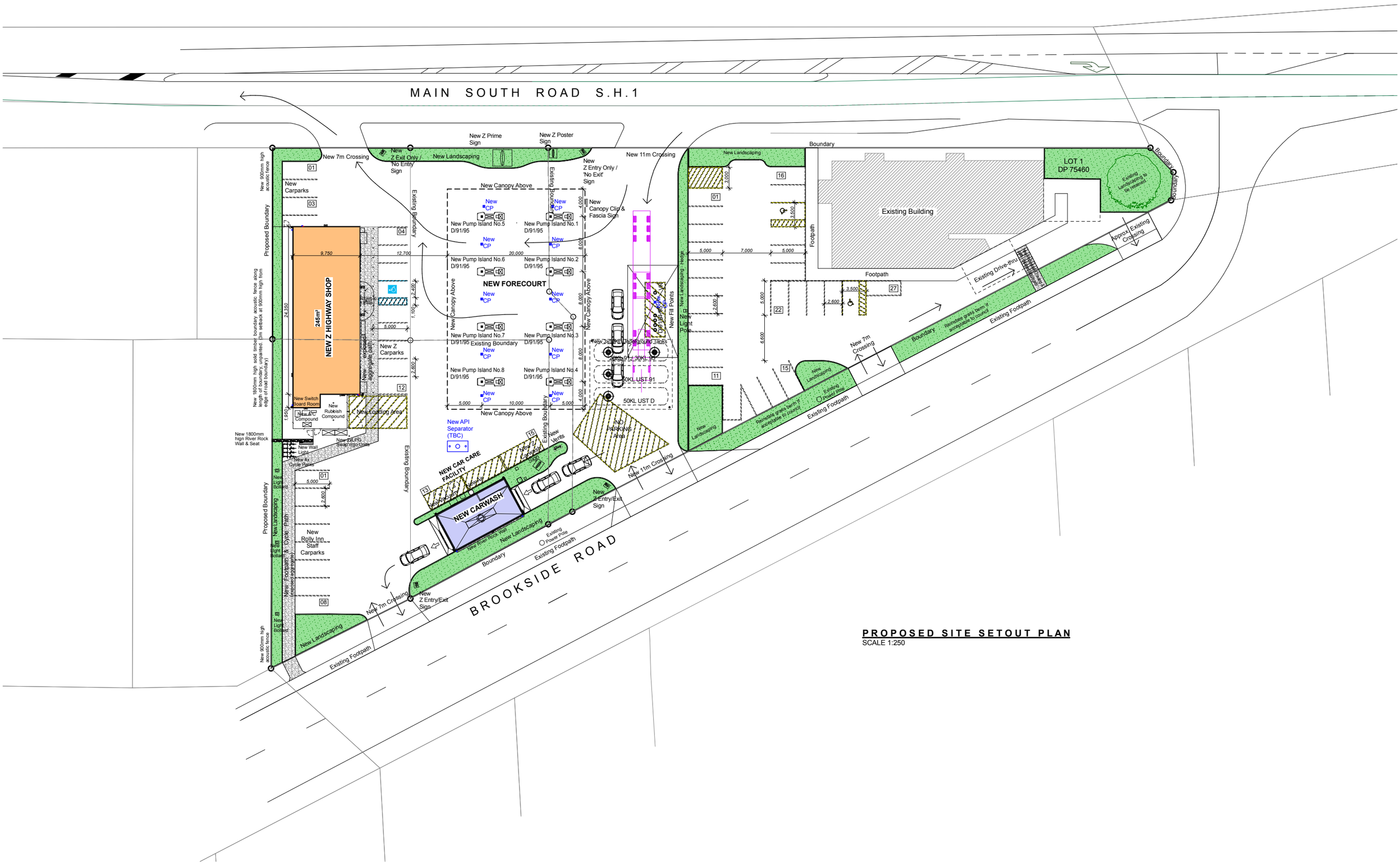
SCALE @ A1. 1:250 SCALE @ A3. 1:500

CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

Z-PS-A02

VERSION. REV. A



PROPOSED SITE SETOUT PLAN
SCALE 1:250

Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd Rolleston NTI
2 Brookside Road
Rolleston

RESOURCE CONSENT

Legal Description
Lot 1 DP 75460

SHA Architecture LIMITED
SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS
AUCKLAND P (09) 309 9660 F (09) 309 9661 P.O.BOX 8232 SYMONDS ST AUCKLAND NZ
HAMILTON P (07) 839 5622 F (07) 838 2500 P.O.BOX 1465 HAMILTON NZ WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division.• Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws.• All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommissions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	RESOURCE CONSENT ISSUE	31/01/2020	J.L

PROPOSED SITE SETOUT PLAN

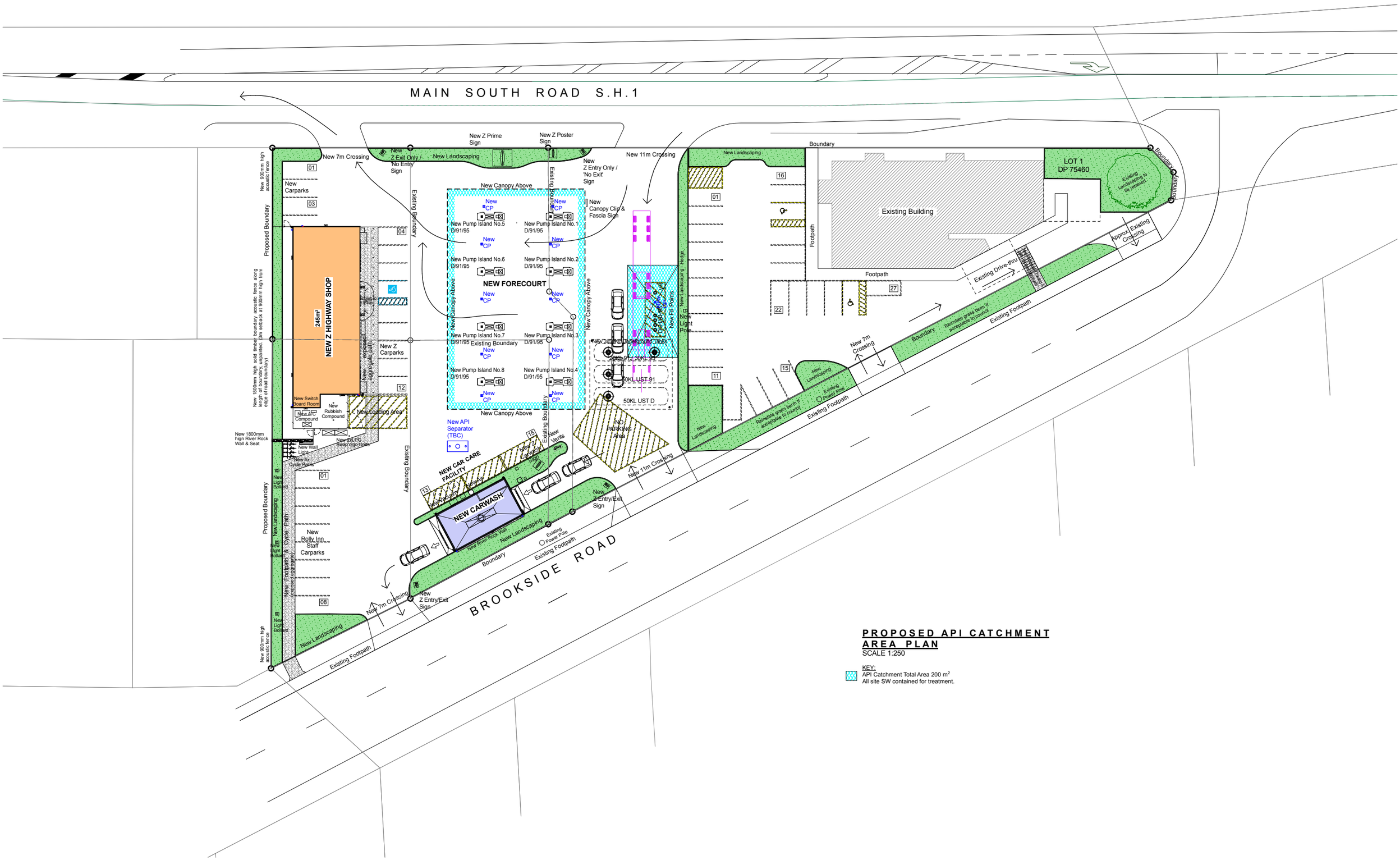
SCALE @ A1. 1:250 SCALE @ A3. 1:500

CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

Z-PS-A03

VERSION. REV. A



PROPOSED API CATCHMENT AREA PLAN

SCALE 1:250

KEY:
API Catchment Total Area 200 m²
All site SW contained for treatment.

Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd Rolleston NTI
2 Brookside Road
Rolleston

RESOURCE CONSENT

Legal Description
Lot 1 DP 75460

SHA Ref No 16023

SHA Architecture LIMITED
ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS
AUCKLAND P (09) 309 9660 F (09) 309 9661 P.O.BOX 8232 SYMONDS ST AUCKLAND NZ
HAMILTON P (07) 839 5622 F (07) 838 2500 P.O.BOX 1465 HAMILTON NZ WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division.• Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws.• All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommissions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	RESOURCE CONSENT ISSUE	31/01/2020	J.L

PROPOSED API CATCHMENT PLAN

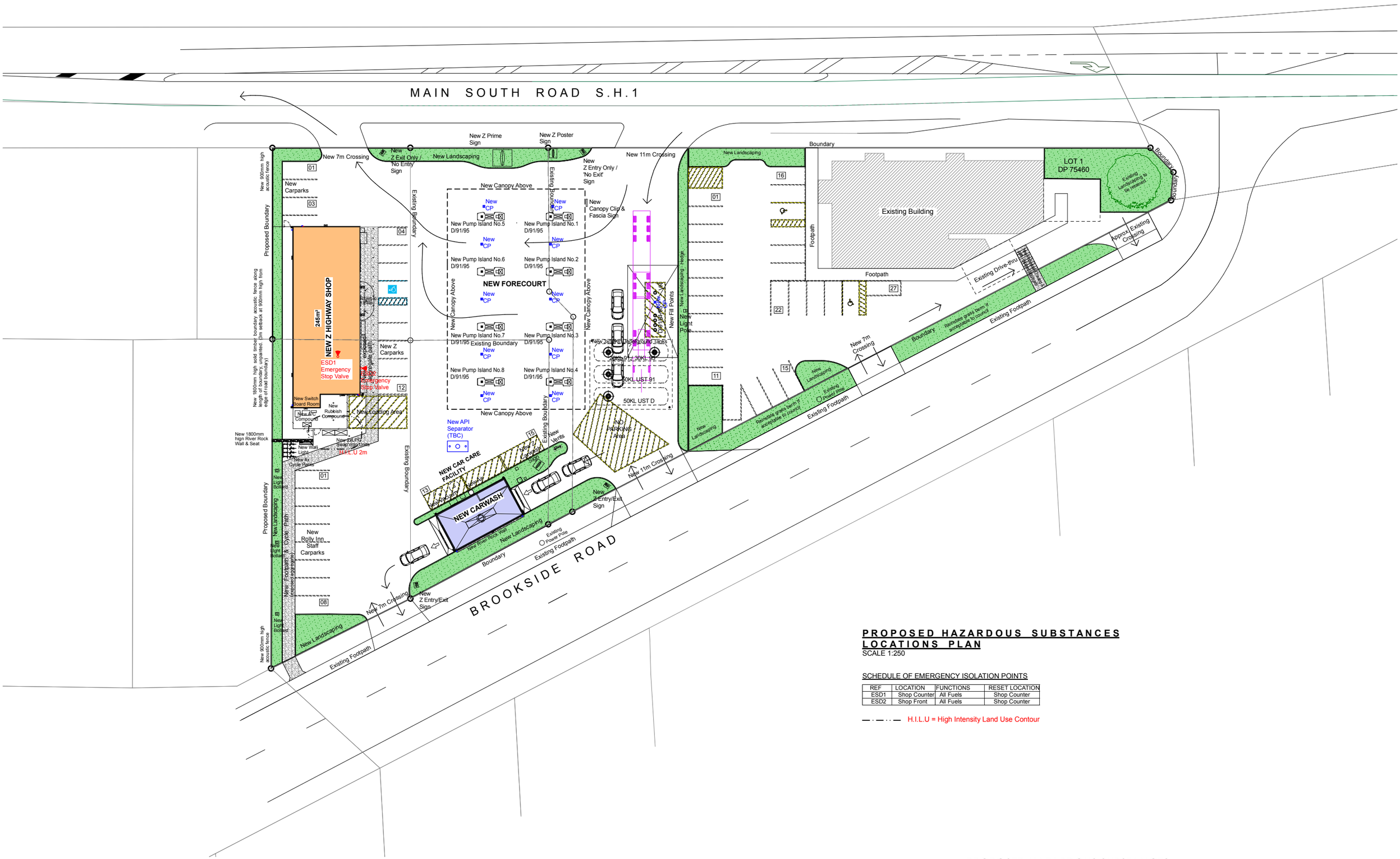
SCALE @ A1. 1:250 SCALE @ A3. 1:500

CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

Z-PS-A04

VERSION. REV. A



PROPOSED HAZARDOUS SUBSTANCES LOCATIONS PLAN

SCALE 1:250

SCHEDULE OF EMERGENCY ISOLATION POINTS

REF	LOCATION	FUNCTIONS	RESET LOCATION
ESD1	Shop Counter	All Fuels	Shop Counter
ESD2	Shop Front	All Fuels	Shop Counter

H.I.L.U = High Intensity Land Use Contour

ENERGY

Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd Rolleston NTI
2 Brookside Road
Rolleston

RESOURCE CONSENT

Legal Description
Lot 1 DP 75460

SHA Architecture LIMITED
SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS
AUCKLAND P (09) 309 9660 F (09) 309 9661 P.O.BOX 8232 SYMONDS ST AUCKLAND NZ
HAMILTON P (07) 839 5622 F (07) 838 2500 P.O.BOX 1465 HAMILTON NZ WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division.• Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws.• All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommissions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	RESOURCE CONSENT ISSUE	31/01/2020	J.L

PROPOSED HAZARDOUS SUBSTANCES LOCATIONS PLAN

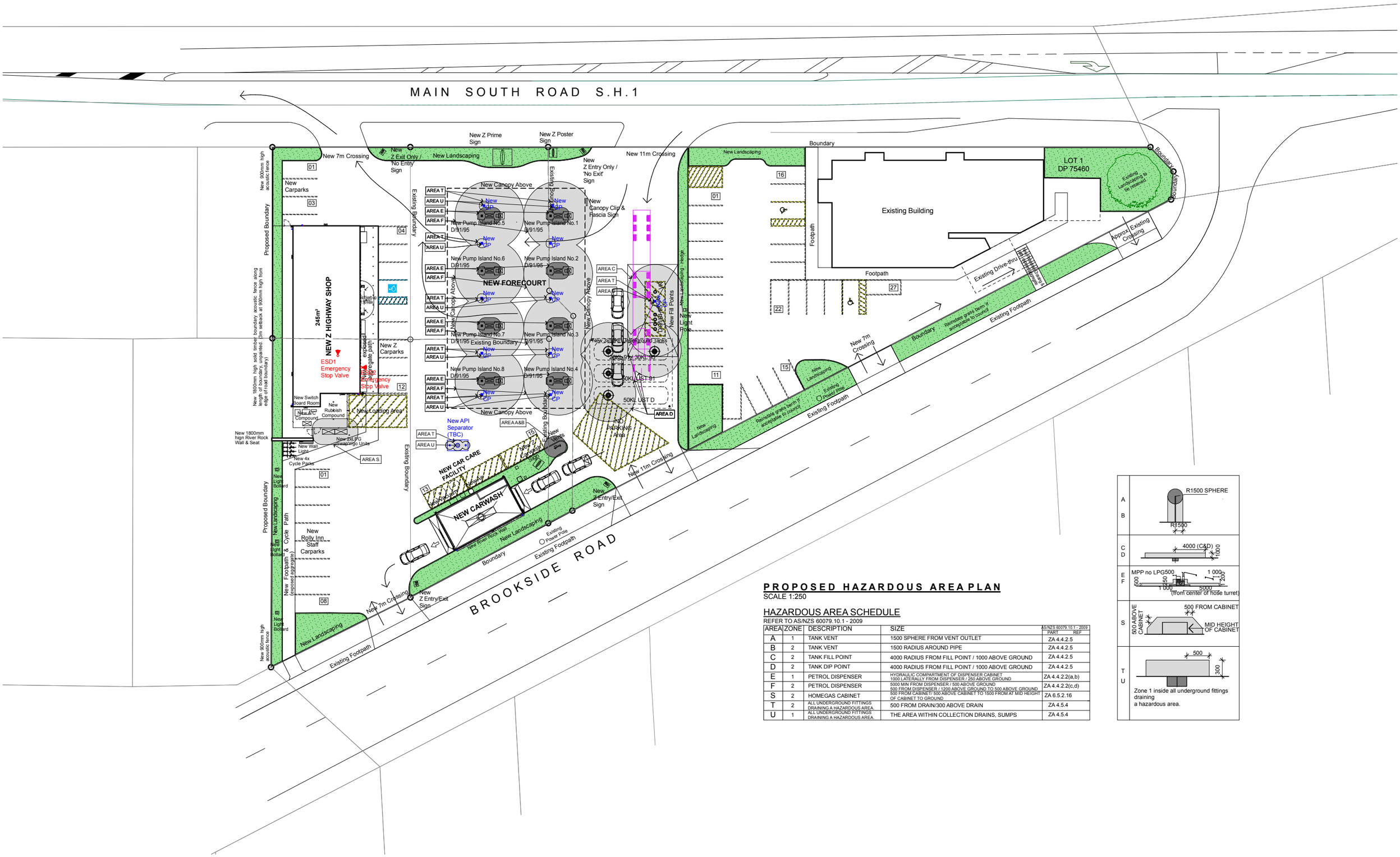
SCALE @ A1. 1:250 SCALE @ A3. 1:500

CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

Z-PS-A05

VERSION. REV. A



PROPOSED HAZARDOUS AREA PLAN

SCALE 1:250

HAZARDOUS AREA SCHEDULE

REFER TO AS/NZS 60079.10.1 - 2009

AREA	ZONE	DESCRIPTION	SIZE	AS/NZS 60079.10.1 - 2009 PART	REF
A	1	TANK VENT	1500 SPHERE FROM VENT OUTLET	ZA	4.4.2.5
B	2	TANK VENT	1500 RADIUS AROUND PIPE	ZA	4.4.2.5
C	2	TANK FILL POINT	4000 RADIUS FROM FILL POINT / 1000 ABOVE GROUND	ZA	4.4.2.5
D	2	TANK DIP POINT	4000 RADIUS FROM FILL POINT / 1000 ABOVE GROUND	ZA	4.4.2.5
E	1	PETROL DISPENSER	HYDRAULIC COMPARTMENT OF DISPENSER CABINET 1000 LATERALLY FROM DISPENSER / 250 ABOVE GROUND	ZA	4.4.2.2(a,b)
F	2	PETROL DISPENSER	5000 MIN FROM DISPENSER / 500 ABOVE GROUND 500 FROM DISPENSER / 1200 ABOVE GROUND TO 500 ABOVE GROUND	ZA	4.4.2.2(c,d)
S	2	HOMEGAS CABINET	500 FROM CABINET/ 500 ABOVE CABINET TO 1500 FROM AT MID HEIGHT OF CABINET TO GROUND	ZA	6.5.2.16
T	2	ALL UNDERGROUND FITTINGS DRAINING A HAZARDOUS AREA.	500 FROM DRAIN/300 ABOVE DRAIN	ZA	4.5.4
U	1	ALL UNDERGROUND FITTINGS DRAINING A HAZARDOUS AREA.	THE AREA WITHIN COLLECTION DRAINS, SUMPS	ZA	4.5.4

Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd Rolleston NTI
2 Brookside Road
Rolleston

RESOURCE CONSENT

Legal Description
Lot 1 DP 75460

SHA Architecture LIMITED
SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS
AUCKLAND P (09) 309 9660 F (09) 309 9661 P.O.BOX 8232 SYMONDS ST AUCKLAND NZ
HAMILTON P (07) 839 5622 F (07) 838 2500 P.O.BOX 1465 HAMILTON NZ
WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division. • Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws. • All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommisions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	RESOURCE CONSENT ISSUE	31/01/2020	J.L

PROPOSED HAZARDOUS AREA PLAN

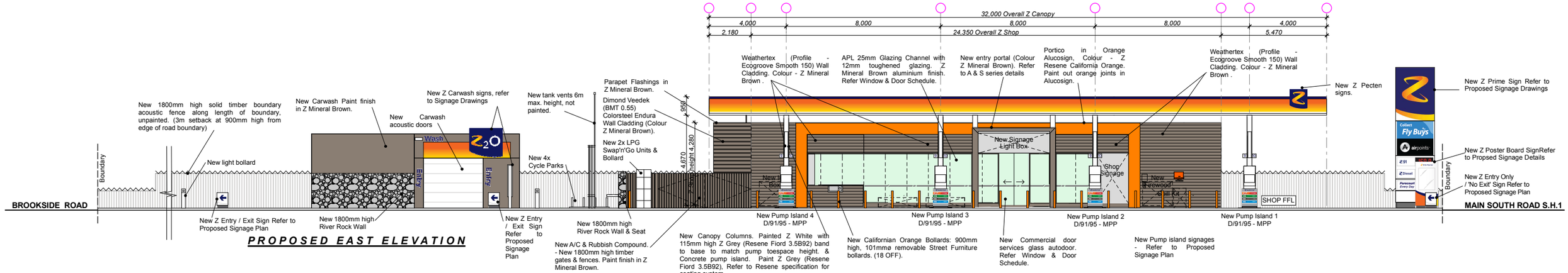
SCALE @ A1. 1:250 SCALE @ A3. 1:500

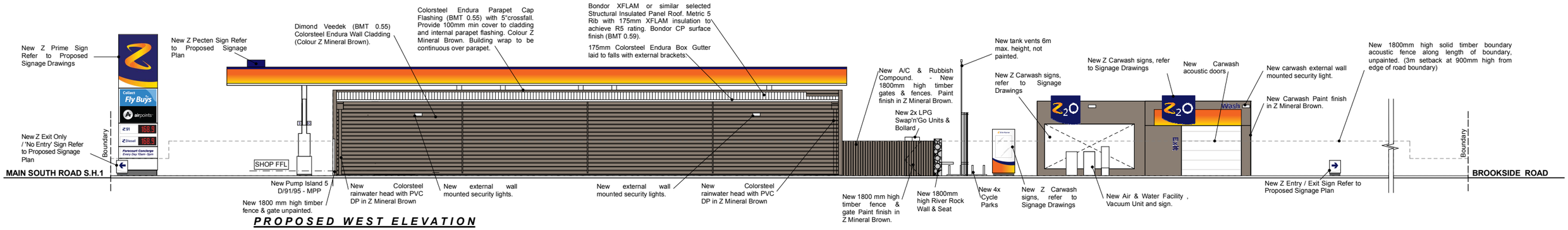
CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

Z-PS-A06

VERSION. REV. A





Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd Rolleston NTI
2 Brookside Road
Rolleston

RESOURCE CONSENT

Legal Description
Lot 1 DP 75460

SHA Architecture LIMITED
SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS

AUCKLAND	HAMILTON
P (09) 309 9660	P (07) 839 5622
F (09) 309 9661	F (07) 838 2500
P.O.BOX 8232	P.O.BOX 1465
SYMONDS ST	HAMILTON NZ
AUCKLAND NZ	WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division. • Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws. • All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommisions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	RESOURCE CONSENT ISSUE	31/01/2020	J.L

PROPOSED EXTERNAL ELEVATIONS

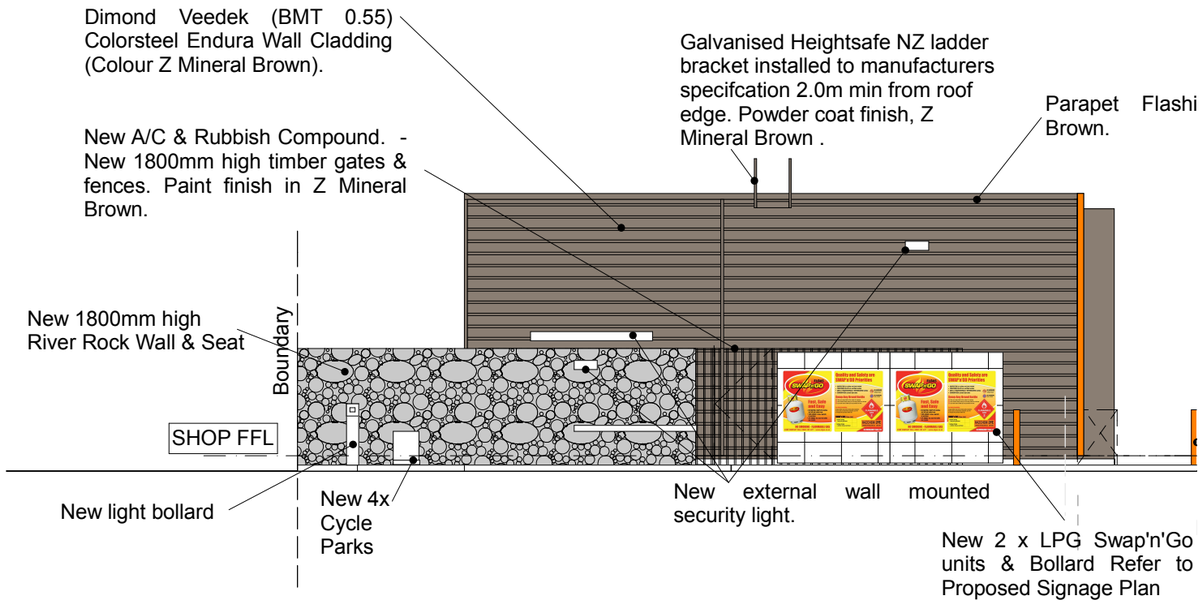
SCALE @ A1. 1:100 SCALE @ A3. 1:200

CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

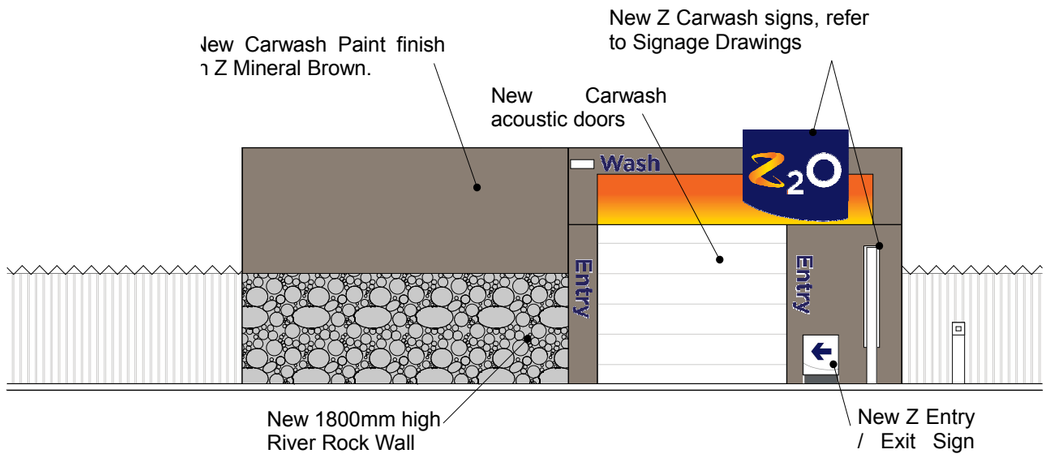
Z ENERGY REF. SITE SPECIFIC

Z-PS-A07

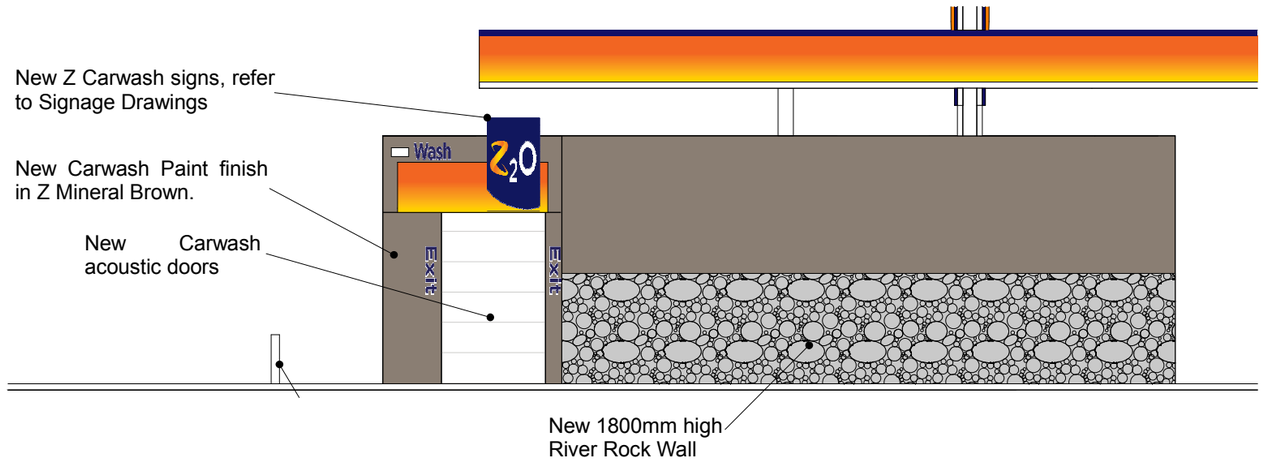
VERSION. REV. A



PROPOSED SOUTH ELEVATION



PROPOSED EAST ELEVATION



PROPOSED SOUTH ELEVATION

ENERGY
Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd Rolleston NTI
2 Brookside Road
Rolleston

RESOURCE CONSENT

Legal Description
Lot 1 DP 75460

SHA Architecture LIMITED
SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS

AUCKLAND
P (09) 309 9660
F (09) 309 9661
P.O.BOX 8232
SYMONDS ST
AUCKLAND NZ

HAMILTON
P (07) 839 5622
F (07) 838 2500
P.O.BOX 1465
HAMILTON NZ
WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division. • Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws. • All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommisions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	RESOURCE CONSENT ISSUE	31/01/2020	J.L

PROPOSED EXTERNAL ELEVATIONS (1:100 @ A3)

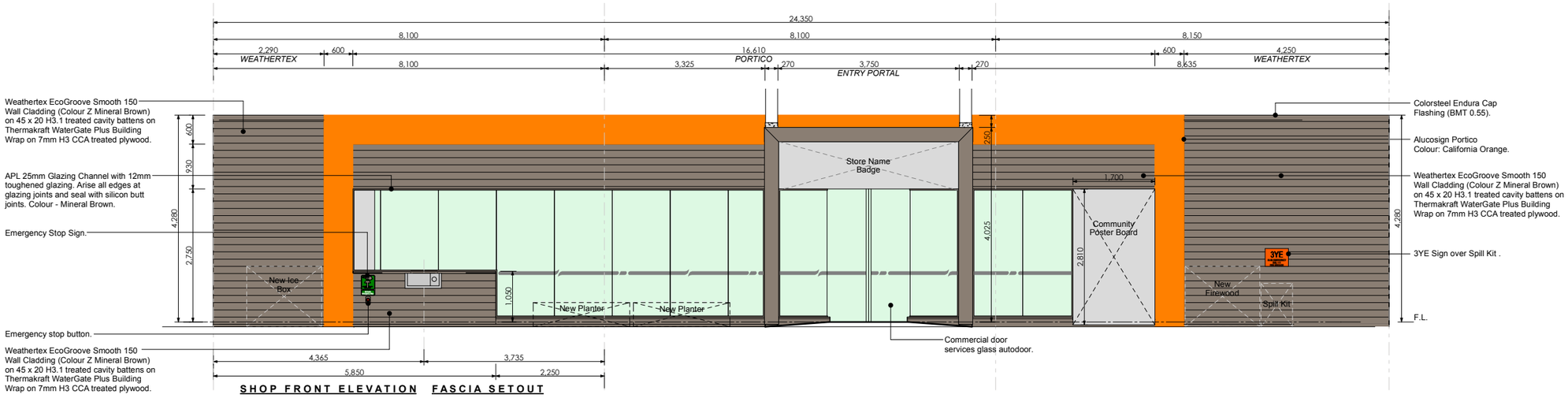
SCALE @ A1. 1:50 SCALE @ A3. 1:100

CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

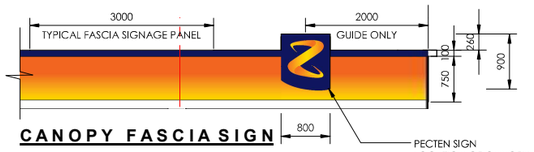
Z-PS-A08

VERSION. REV. A

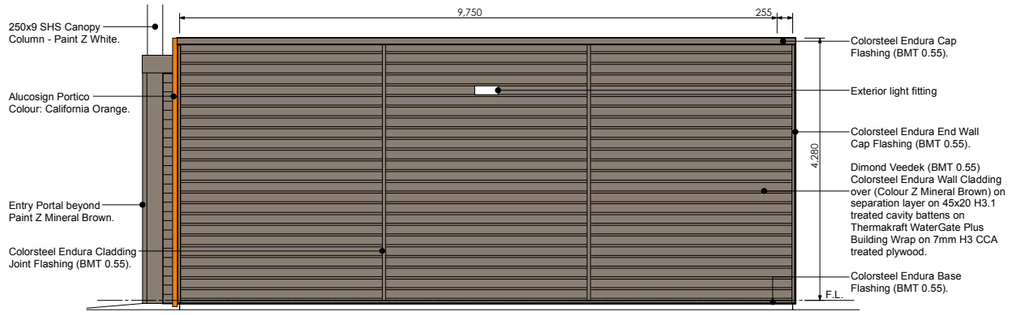


SHOP FRONT ELEVATION FASCIA SETOUT

Installation Notes:
"Trading board" is to be installed on the Kiosk side of the door (viewed from the forecourt) 100mm above the glazing film and 35mm from the door edge (see enlargement).



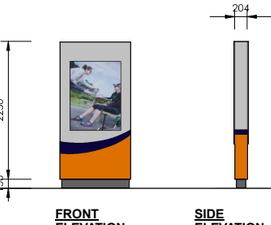
CANOPY FASCIA SIGN



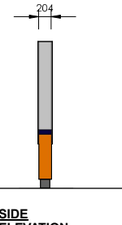
SERVICE STATION ROAD SIDE ELEVATION FASCIA SETOUT



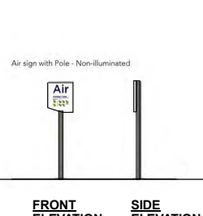
PRIME SIGN



POSTER BOARD FREE STANDING



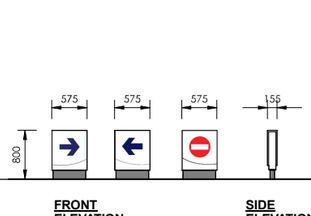
AIR UNIT FREESTANDING



AIR SIGN FREESTANDING

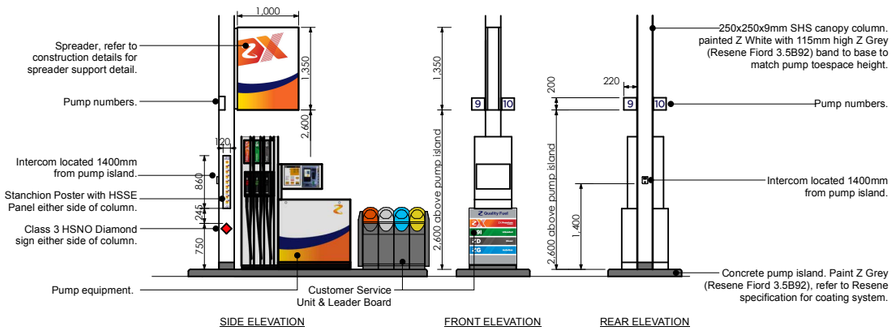


VACUUM UNIT SIGN



ENTRY/EXIT & NO EXIT SIGN

NOTES:
- All signage foundations - Refer to S Series MSC Structural drawings



PUMP ISLAND SET-OUT

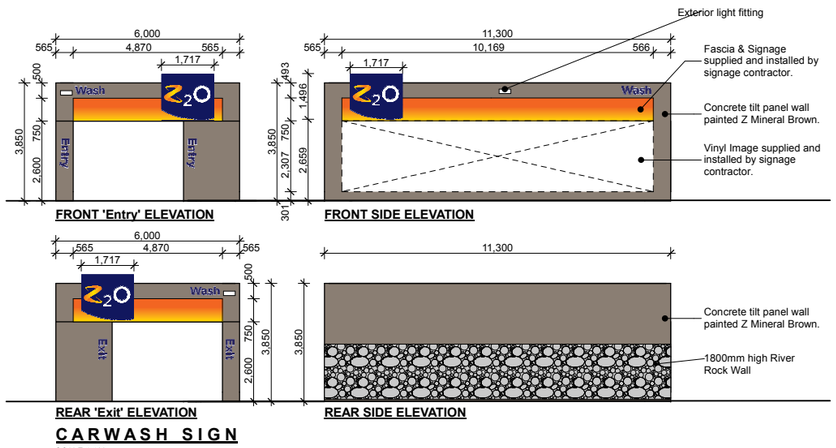


LPG SWAP'N'GO CAGE PANEL ARTWORK

NOTES:

Pump islands painted Z Grey (Resene Fiord 3.5B92), refer to C Series.

Canopy columns paint Z White with 115mm high Z Grey (Resene Fiord 3.5B92) band to base



CARWASH SIGN

SCALE 1:100

Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd Rolleston NTI
2 Brookside Road
Rolleston

RESOURCE CONSENT

Legal Description
Lot 1 DP 75460

SHA Architecture LIMITED
SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS
AUCKLAND P (09) 309 9660 F (09) 309 9661 P.O.BOX 8232 SYMONDS ST AUCKLAND NZ
HAMILTON P (07) 839 5622 F (07) 838 2500 P.O.BOX 1465 HAMILTON NZ WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division. • Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws. • All OSH regulations to be adhered to for the duration of contract. • This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommisions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	RESOURCE CONSENT ISSUE	31/01/2020	J.L

PROPOSED SIGNAGE DETAILS

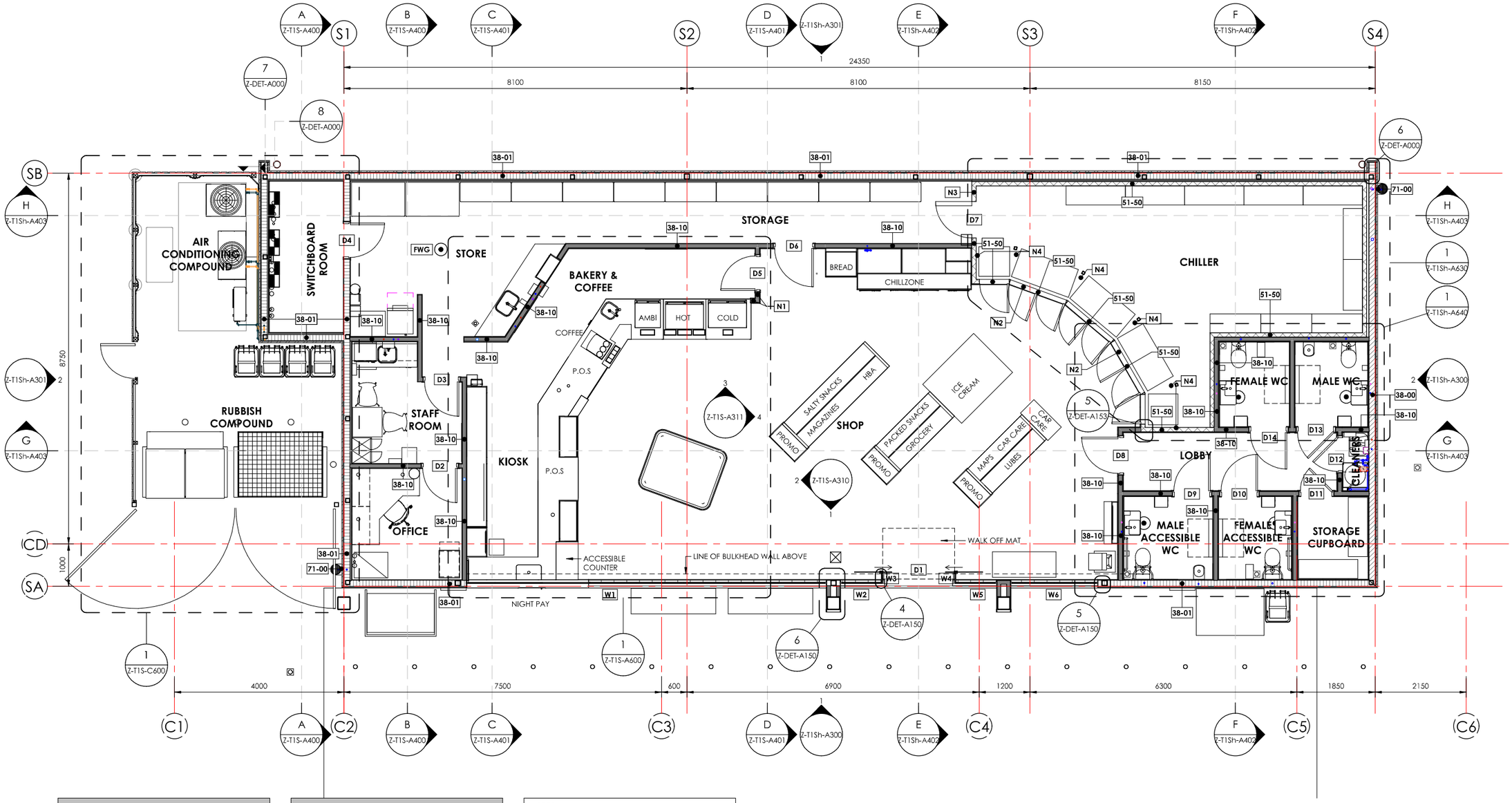
SCALE @ A1. 1:50 SCALE @ A3. 1:100

CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

Z-PS-A09

VERSION. REV. A



KEYNOTE LEGEND	
CODE	**DESCRIPTION**
38-00	140x45mm H1.2 TREATED SG8 TIMBER LOADBEARING WALL FRAMING WITH STUDS @ 600mm MAX CRS FOR WALLS UP TO 3.6m HIGH, AND 300mm MAX CRS FOR WALLS BETWEEN 3.6m AND 4.2m HIGH. DWANGS TO BE AT @ 800mm MAX CRS
38-01	140x45mm H1.2 TREATED SG8 TIMBER NON-LOADBEARING WALL FRAMING WITH STUDS @ 600mm MAX CRS FOR WALLS UP TO 3.6m HIGH, AND 400mm MAX CRS FOR WALLS BETWEEN 3.6m AND 4.2m HIGH. DWANGS TO BE AT @ 800mm MAX CRS
38-10	90x45mm H1.2 TREATED SG8 NON-LOADBEARING TIMBER WALL FRAMING WITH STUDS @ 600mm MAX CRS FOR WALLS UP TO 3m HIGH, 400mm MAX CRS FOR WALLS BETWEEN 3m AND 3.3m HIGH, AND 300mm MAX CRS FOR WALLS BETWEEN 3.3m AND 3.6m HIGH. WALLS BETWEEN 3.6m AND 4.2m HIGH ARE TO HAVE 90x90mm STUDS @ 400mm MAX CRS OR 90x45mm STUDS @ 200mm MAX CRS. DWANGS TO BE @ 800mm MAX CRS
51-50	100mm INSUL-LOCK (OR SIMILAR) CHILLER WALL PANELS, COLOUR: WHITE.
71-00	PROVIDE DLM DFE10MB (71x71mm) DEKTITE PREMIUM AROUND HOSE TAP PENETRATION THROUGH CLADDING. DEKTITE IS TO BE INSTALLED SQUARE TO THE CLADDING

TIER 1 SHOP NOTES	
CODE	**DESCRIPTION**
N1	3m HIGH WALL
N2	FRAME ABOVE CHILLER WITH 90x45mm H1.2 TREATED SG8 TIMBER FRAMING, LINED ON SHOP SIDE. REFER TO WALL FINISHES PLAN FOR LINING TYPE
N3	GAP BETWEEN TOP OF CHILLER AND ROOF TO BE LEFT OPEN ACROSS WIDTH OF STORAGE AREA
N4	INSTALL SEISMIC RESTRAINTS BETWEEN TOP OF CHILLER SHELVING UNITS, AND BETWEEN TOPS OF END UNITS AND WALLS. REFER TO STRUCTURAL DRAWING Z-DET-S140

NOTES

WALL FRAMING IS TO GO UP TO THE UNDERSIDE OF THE PURLINS, UNLESS NOTED OTHERWISE. PROVIDE FRAMING IN BETWEEN THE PURLINS, UP TO THE UNDERSIDE OF THE ROOFING, WHERE REQUIRED TO SUPPORT WALL LININGS.

THE WALLS BETWEEN THE TOILETS, LOBBY, CLEANER'S CUPBOARD AND STORAGE CUPBOARD ARE TO GO UP TO THE LEVEL OF THE CEILING FRAMING (2400mm).

INSTALL R2.6 (MIN.) 140mm THICK INSULATION TO ALL EXTERNAL 140mm THICK TIMBER FRAMED WALLS.

INSTALL R2.2 (MIN.) 140mm THICK INSULATION TO ALL INTERNAL 140mm THICK TIMBER FRAMED WALLS.

INSTALL R2.2 (MIN.) 90mm THICK INSULATION TO ALL INTERNAL 90mm THICK TIMBER FRAMED WALLS.

REFER TO EXTERNAL ELEVATIONS AND WALL FINISHES PLAN FOR CLADDINGS AND LININGS.

REFER TO THE JOINERY DRAWINGS FOR JOINERY ITEMS.

Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd Rolleston NTI
2 Brookside Road
Rolleston

RESOURCE CONSENT

Legal Description
Lot 1 DP 75460

SHA Architecture LIMITED
SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS
AUCKLAND P (09) 309 9660 F (09) 309 9661 P.O.BOX 8232 SYMONDS ST AUCKLAND NZ
HAMILTON P (07) 839 5622 F (07) 838 2500 P.O.BOX 1465 HAMILTON NZ WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division.• Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws.• All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommisions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	RESOURCE CONSENT ISSUE	31/01/2020	J.L

PROPOSED SHOP PLAN

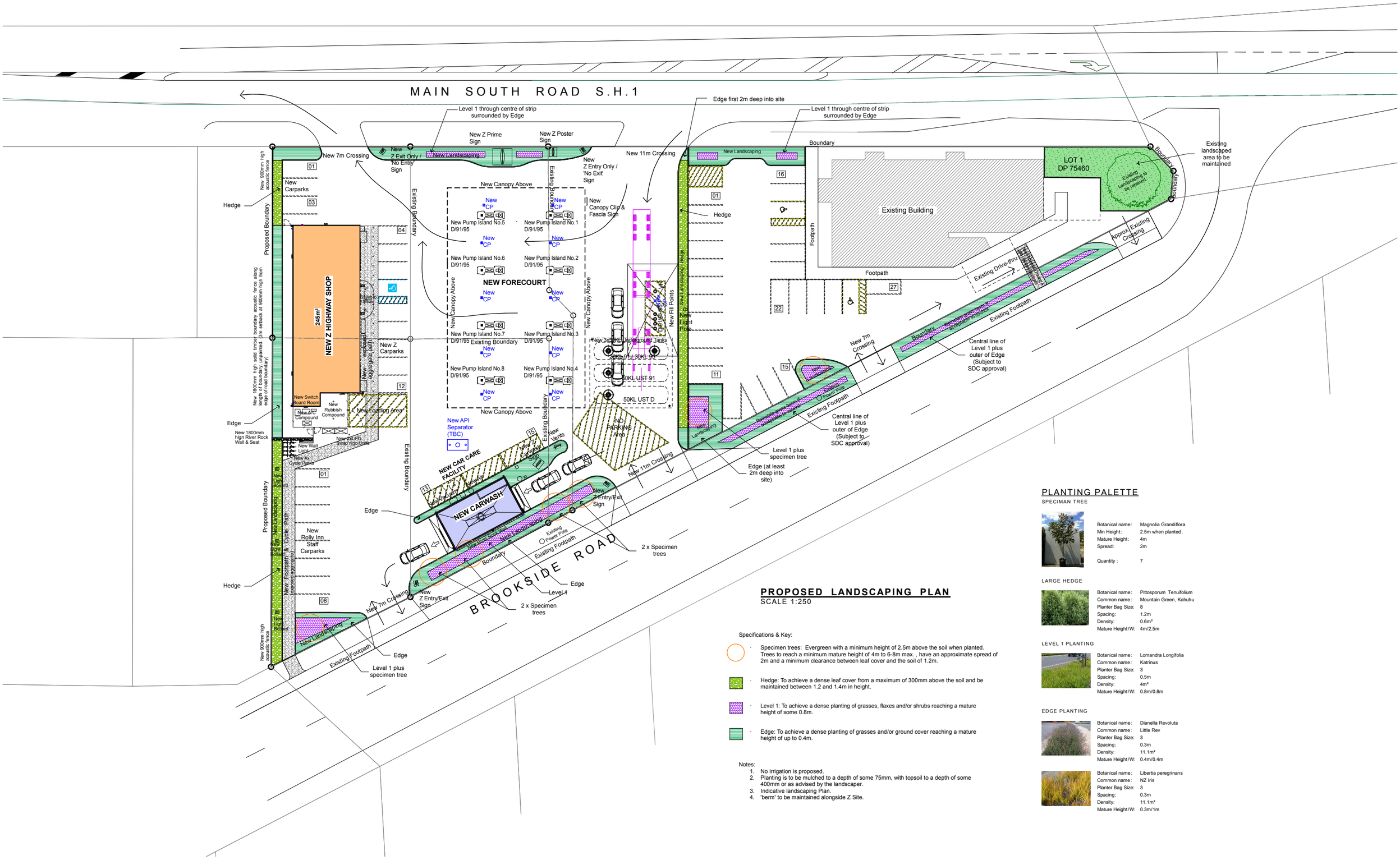
SCALE @ A1. 1:50 SCALE @ A3. 1:100

CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

Z-PS-A10

VERSION. REV. A



PROPOSED LANDSCAPING PLAN

SCALE 1:250

Specifications & Key:

- Specimen trees: Evergreen with a minimum height of 2.5m above the soil when planted. Trees to reach a minimum mature height of 4m to 6-8m max. , have an approximate spread of 2m and a minimum clearance between leaf cover and the soil of 1.2m.
- Hedge: To achieve a dense leaf cover from a maximum of 300mm above the soil and be maintained between 1.2 and 1.4m in height.
- Level 1: To achieve a dense planting of grasses, flaxes and/or shrubs reaching a mature height of some 0.8m.
- Edge: To achieve a dense planting of grasses and/or ground cover reaching a mature height of up to 0.4m.

Notes:

1. No irrigation is proposed.
2. Planting is to be mulched to a depth of some 75mm, with topsoil to a depth of some 400mm or as advised by the landscaper.
3. Indicative landscaping Plan.
4. 'berm' to be maintained alongside Z Site.

PLANTING PALETTE

SPECIMAN TREE

Botanical name: Magnolia Grandiflora
Min Height: 2.5m when planted.
Mature Height: 4m
Spread: 2m

Quantity : 7

LARGE HEDGE

Botanical name: Pittosporum Tenuifolium
Common name: Mountain Green, Kohuhu
Planter Bag Size: 8
Spacing: 1.2m
Density: 0.6m²
Mature Height/W: 4m/2.5m

LEVEL 1 PLANTING

Botanical name: Lomandra Longifolia
Common name: Katrinus
Planter Bag Size: 3
Spacing: 0.5m
Density: 4m²
Mature Height/W: 0.8m/0.8m

EDGE PLANTING

Botanical name: Dianella Revoluta
Common name: Little Rev
Planter Bag Size: 3
Spacing: 0.3m
Density: 11.1m²
Mature Height/W: 0.4m/0.4m

Botanical name: Libertia peregrinans
Common name: NZ Iris
Planter Bag Size: 3
Spacing: 0.3m
Density: 11.1m²
Mature Height/W: 0.3m/1m

Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd Rolleston NTI
2 Brookside Road
Rolleston

RESOURCE CONSENT

Legal Description
Lot 1 DP 75460

SHA Architecture LIMITED
SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS

AUCKLAND
P (09) 309 9660
F (09) 309 9661
P.O.BOX 8232
SYMONDS ST
AUCKLAND NZ

HAMILTON
P (07) 839 5622
F (07) 838 2500
P.O.BOX 1465
HAMILTON NZ
WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division. • Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws. • All OSH regulations to be adhered to for the duration of contract. • This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommisions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	RESOURCE CONSENT ISSUE	31/01/2020	J.L

PROPOSED LANDSCAPING PLAN

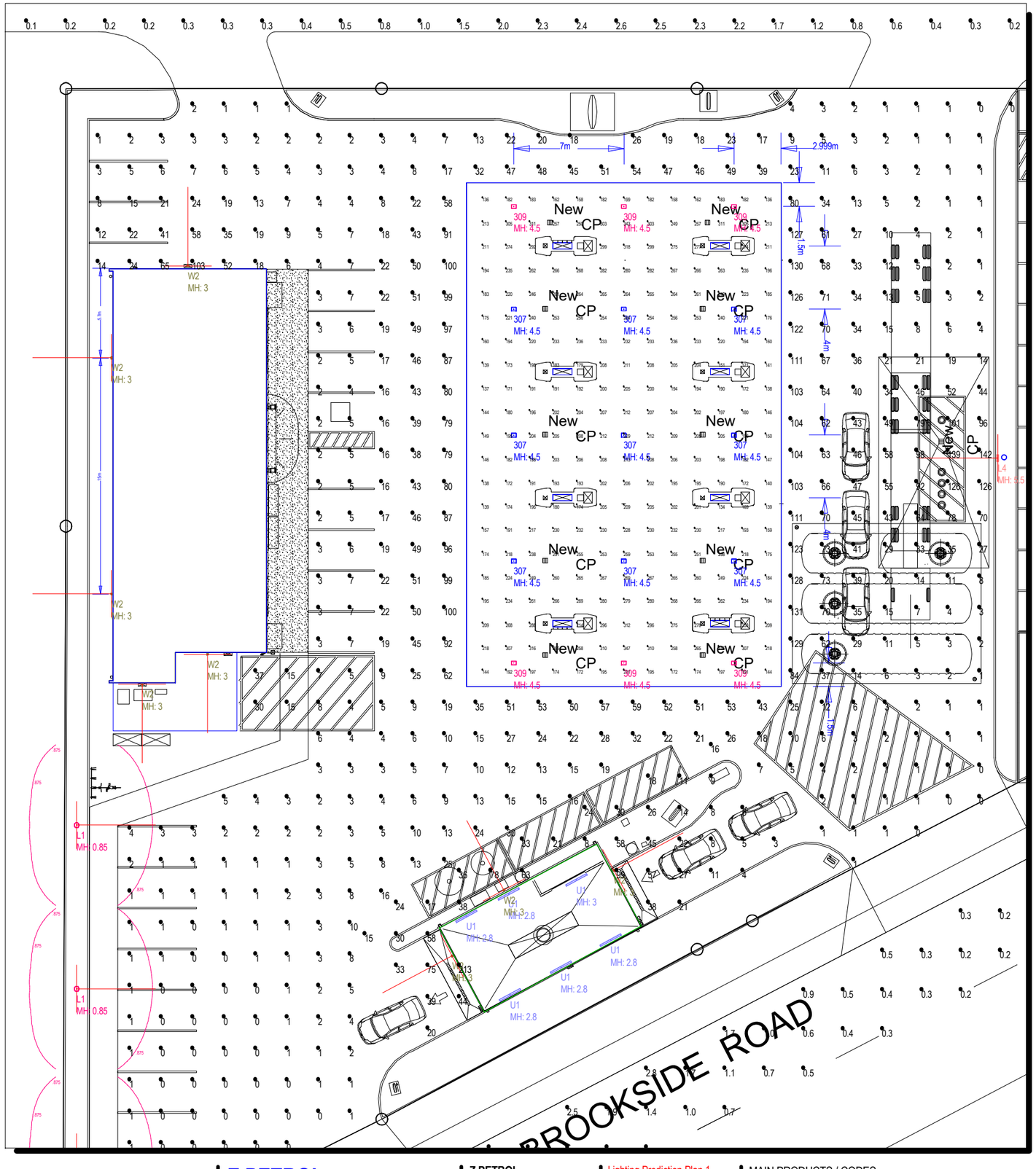
SCALE @ A1. 1:250 SCALE @ A3. 1:500

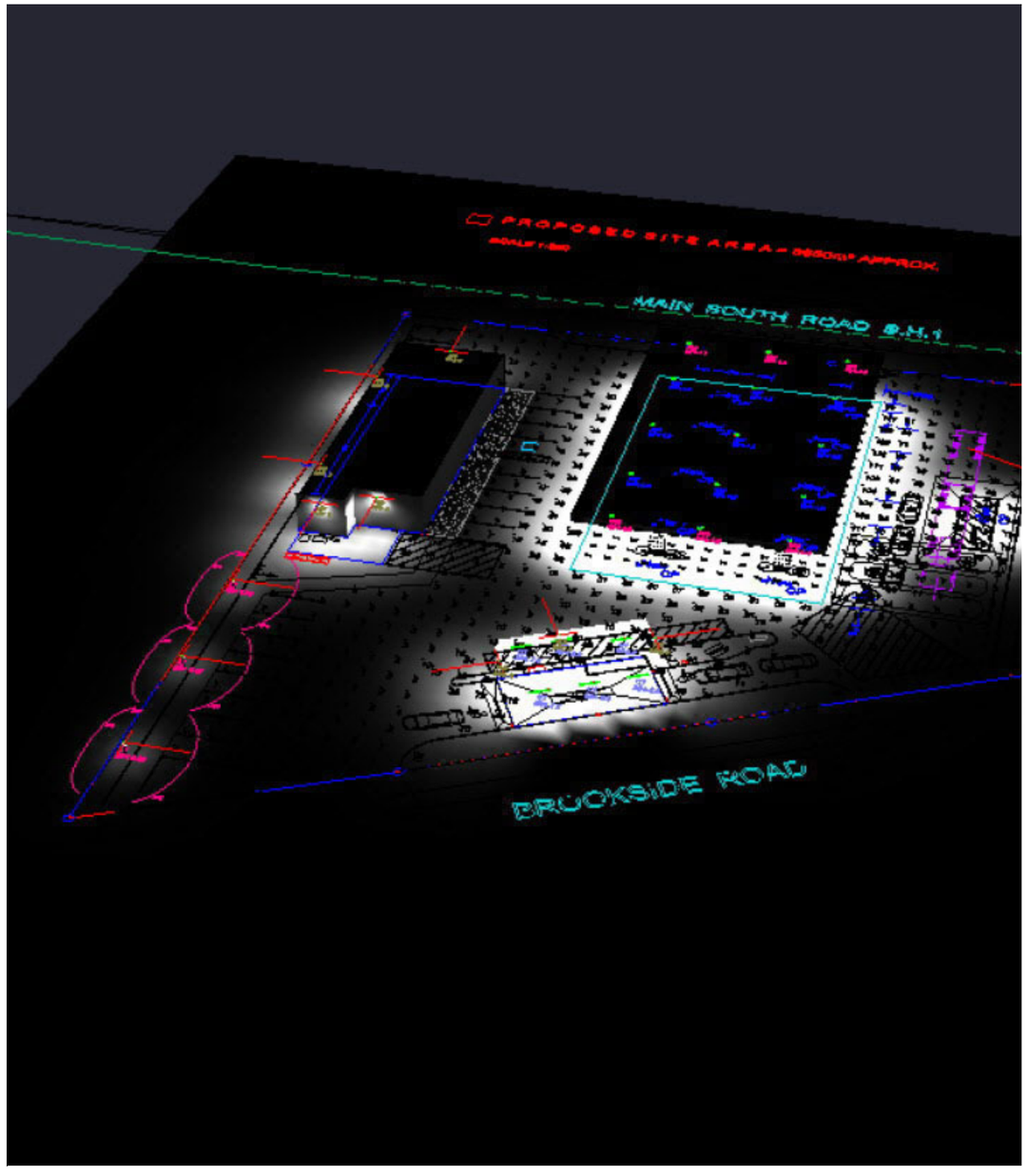
CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

Z-PS-A11

VERSION. REV. A





Calculation Summary						
Label	Avg	Units	Min/Avg	Min	Max	Max/Avg
Area - around carwash	34.27	Lux	N.A.	3	213	6.22
Area - gen uncovered	23.08	Lux	N.A.	0	142	6.15
Spill - brookside road	N.A.	Lux	N.A.	0.0	2.8	N.A.
Spill - Sh1	N.A.	Lux	N.A.	0.0	2.6	N.A.
Undercanopy	220.38	Lux	0.61	134	347	N.A.
Vert Pump 1	144.60	Lux	0.85	123	175	N.A.
Vert Pump 2	133.15	Lux	0.86	115	148	N.A.
Vert Pump 3	146.20	Lux	0.87	127	175	N.A.

Luminaire Schedule						
Symbol	Label	Description	LLF	Qty	Lum. Watts	Total Watts
	307	BBP400 ECO151-2S/657 I PRW WH MSP MDU MW (307)	0.800	9	132.5	1192.5
	309	BBP400 ECO151-2S/657 I A WH MSP MDU MWS (309)	0.800	6	132.5	795
	L1	OptiSpaceBollard BCB500 T25 1 xLED16_830 A DF (L1)	0.800	3	14.6	43.8
	L4	BVP381 LED130 NW 100W AMB GM (L4)	0.800	1	100	100
	U1	WT120C LED60S/840 PSU L1500 (U1)	0.800	6	58	348
	W2	Lytepro LPW16-30-NW-G3-4-UNV (W2)	0.800	8	34.3	274.4

SIGNIFY NZ

Level 3,
123 Carlton Gore Rd.,
Newmarket,
Auckland 1023
NEW ZEALAND

Z PETROL

Brookside Road - Rolleston

Z PETROL

SCALE: (on plan)

Lighting Prediction Plan 1
Notes -
- NOT FOR CONSTRUCTION unless approved
- Draft Calculations done to see what levels can be achieved for budgetary purposes.
- Render is an impression only

MAIN PRODUCTS / CODES


W2


U1


L4


L1

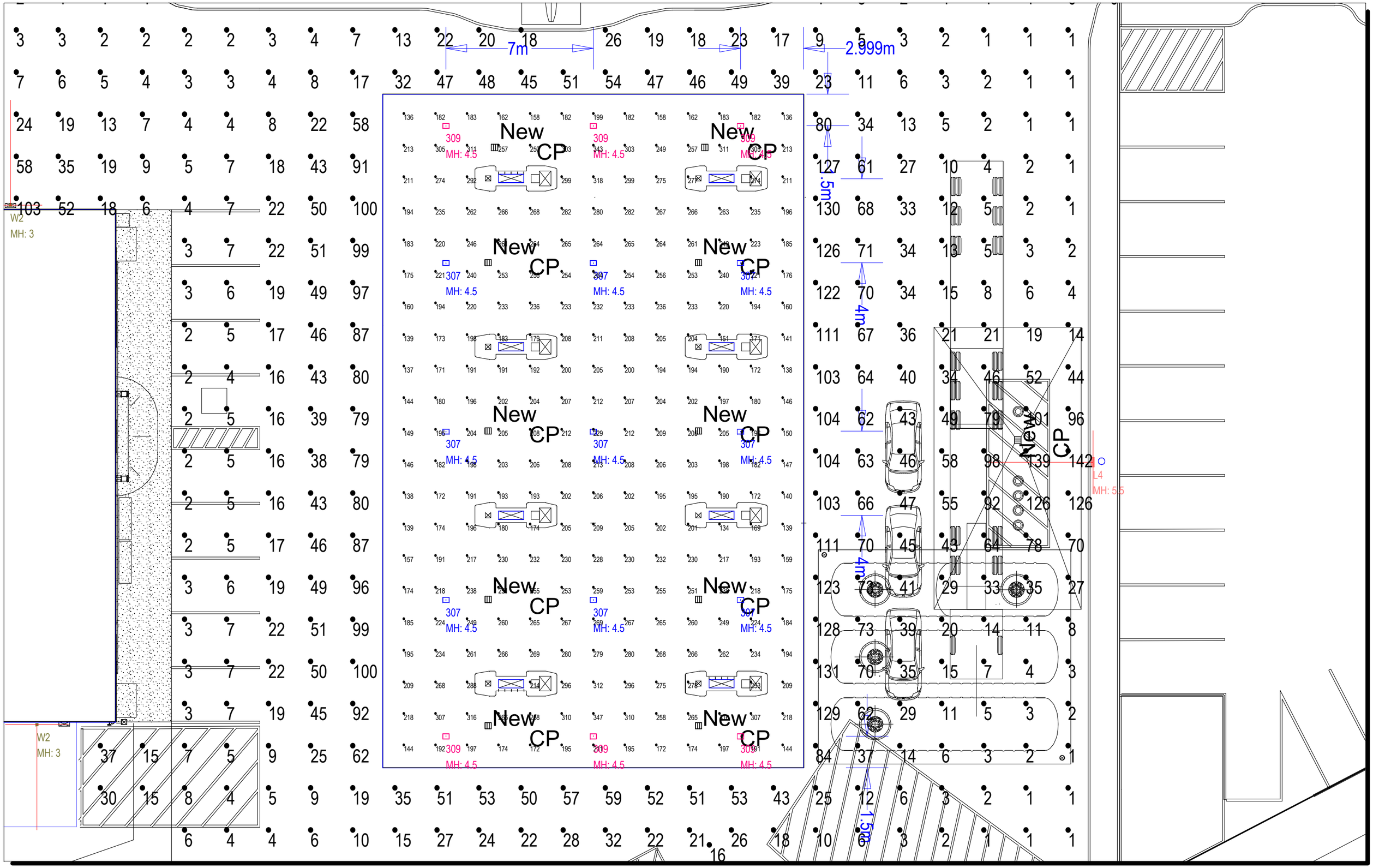

BBP400

DESIGN REFERENCES :		Date: 28/01/2020
Item	Description	Details	Comm. / Summ.
A	Salesforce no. -	000000	
B	Designed by -	RV	
C	Checked by -	MK	
D	Design version -	SET: 01	REVISION: 02
E	**DSGN HRS USED**	**Hrs: Rate: $ /hr**	**Total:**
F	Z Ref. Site Specific	Z-PS-A026	

DRAWING/DESIGN LIMITATIONS:

Lighting design is the property of Philips Lighting NZ. This document is solely for the use of the authorized recipient. This document may not be used, copied or reproduced for any purpose other than that for which it was supplied by Philips. Philips makes no representation, undertakes no duty and accepts no responsibility to any third party who uses this document. Detailed disclaimer concerning this design may be available for request.

Other Notes:
1. Layout is NOT for construction unless approved by concerned parties.
2. Layout and results are as per brief and drawings received.
3. Layout is void if non-Philips fittings are used and when there are deviations from design in actual installation.



SIGNIFY NZ

Level 3,
123 Carlton Gore Rd.,
Newmarket,
Auckland 1023
NEW ZEALAND

Z PETROL

Brookside Road - Rolleston

Z PETROL

SCALE: (on plan)

Lighting Prediction Plan 2
Notes -
- NOT FOR CONSTRUCTION unless approved
- Draft Calculations done to see what levels can be achieved for budgetary purposes.

MAIN PRODUCTS / CODES



DESIGN REFERENCES :			Date: 28/01/2020
Item	Description	Details	Comm. / Summ.
A	Salesforce no. -	000000	
B	Designed by -	RV	
C	Checked by -	MK	
D	Design version -	SET: 01	REVISION: 02
E	DSGN HRS USED	Hrs: Rate: $ /hr	Total:
F	Z Ref. Site Specific	Z-PS-A026	

DRAWING/DESIGN LIMITATIONS:

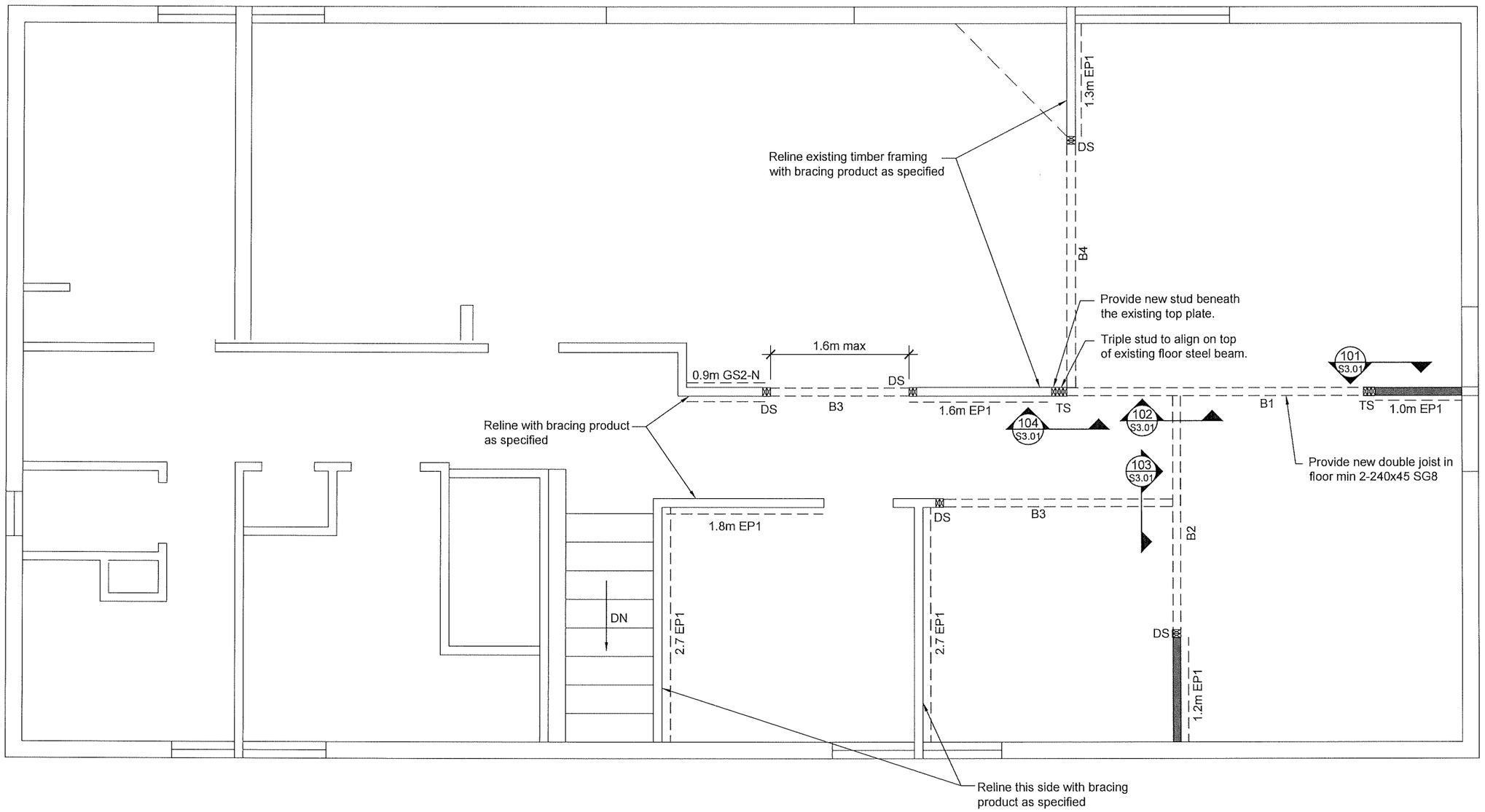
Lighting design is the property of Philips Lighting NZ. This document is solely for the use of the authorized recipient. This document may not be used, copied or reproduced for any purpose other than that for which it was supplied by Philips. Philips makes no representation, undertakes no duty and accepts no responsibility to any third party who uses this document. Detailed disclaimer concerning this design may be available for request.

Other Notes:
1. Layout is NOT for construction unless approved by concerned parties.
2. Layout and results are as per brief and drawings received.
3. Layout is void if non-Philips fittings are used and when there are deviations from design in actual installation.

DO NOT SCALE - IF IN DOUBT CONFIRM DIMENSIONS ON SITE

KEY

B1 - 150UB14
B2 - 2-140x45 SG8
B3 - 2-140x45 SG8
B4 - 2-140x45 SG8
TS - Triple studs
- New 90x45 Timber wall to NZS3604



PROPOSED FIRST FLOOR PLAN

SCALE 1:50

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS

RICHARDS CONSULTING | ENGINEERS

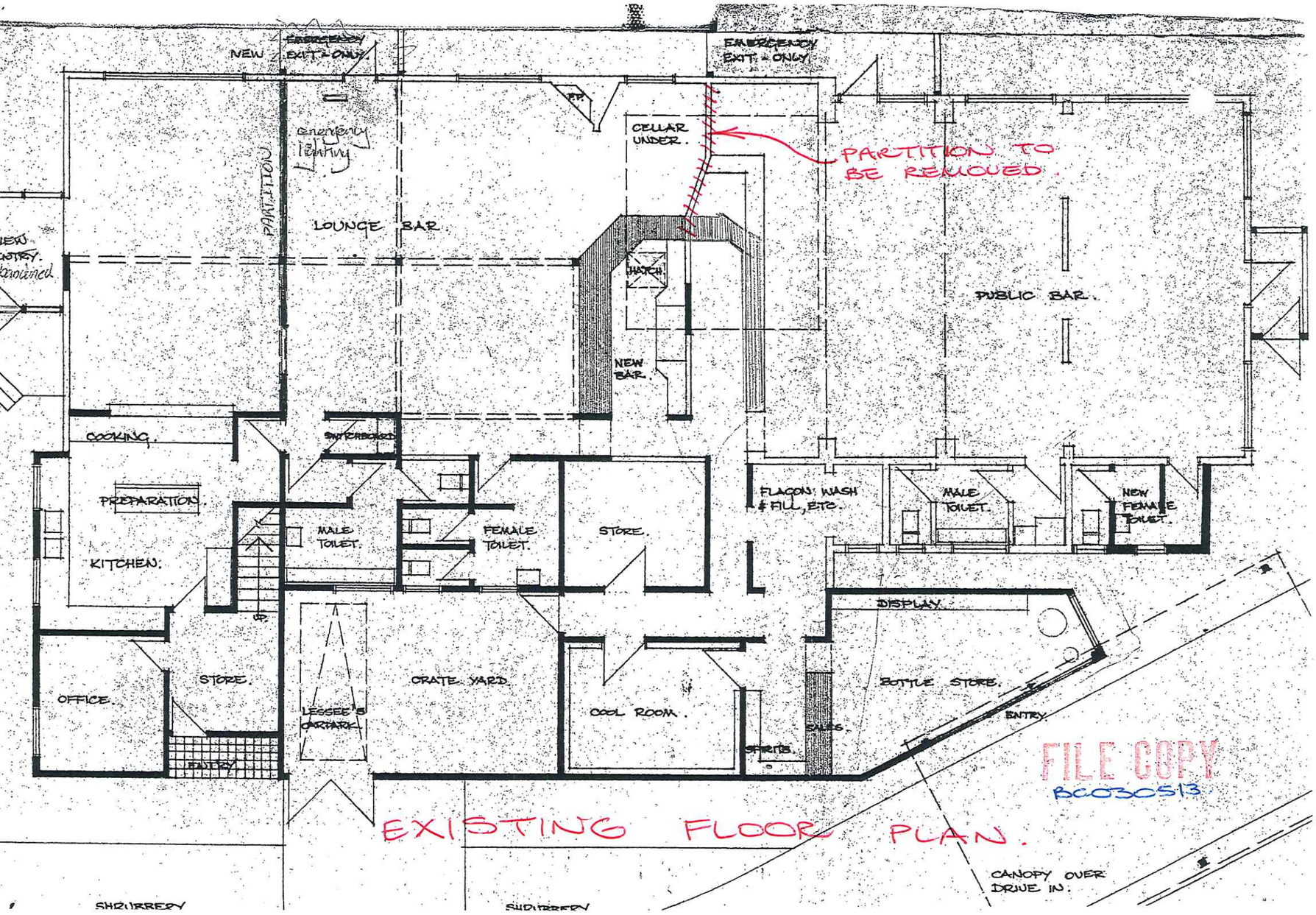
Christchurch office: (03) 347 1624
Auckland office: (09) 3911324
Website: rcengineers.co.nz
Email: rce@rcengineers.co.nz

PROJECT TITLE
INTERNAL ALTERATIONS
ROLLY INN
ROLLESTON

DRAWING TITLE
PROPOSED FIRST FLOOR PLAN

REV NO.	REVISION	DATE	APPROVED
1.	CLIENT REVIEW	SEP 2019	SR

PROJECT NO. 19477
SCALE @ A3
REV NO. 1
DESIGNED AY
DRAWN MA
SHEET NO. S1.03



EXISTING FLOOR PLAN.

FILE COPY
BC030513

Proposed Addition = 38.1m2

Indicates Bracing Elements - showing actual length and location.
Refer to Bracing Schedule for types

FILE COPY

New 300 x 100 lintel over where wall being removed

This wall with window in to be removed - full width of 'room'

Existing site cover of building = 385m2

RESTAURANT

EXISTING PUBLIC BAR

ABLUTIONS

BOTTLE STORE

Exit

3261

1200

1375

A1 New 100 dia DP

A2

N1

This window to here

3600

ANTRIUM AREA

1268

Down - 1:12

A

B

N2

Raised floor to here

Existing DP to be removed

Existing opening

Exit 1800w x 2000h Ranch Slider

ENTRY

N3

C

1600

2 - 100 x 50 DP's

This window to here

Re hang existing door & remove door closer

Re hang mens toilet door

Frame out and Gib line flush with existing

B

M1

New lobby

1400

2000w x 400h Awning window

POKEY ROOM

N4

1400

C2

C1

1600w x 400 h Awning window

Still bring roof out square out

2474

Relocate door from womans, frame up & line existing doorway

New disabled toilet facility to comply with attached NZBC approved documents D1 & G1. New signage indicating UNISEX TOILET.

AMENDED S.D.C. [illegible] 2011

Note:
Electrical requirements to be sorted out between owner and Electrician

DO NOT SCALE - IF IN DOUBT, ASK

ORIGINAL SIZE A3

Ross Abernethy
Architectural Designer
P.O. Box 5 - Kaiapoi
Ph. 03 327 8599
Fax. 03 327 2599
Email. abernethyr@xtra.co.nz

CAD ref : Rolly Inn 1a.mcd		
COPYRIGHT © R. Abernethy		
PRINT DATE		
DRAWN	R. Abernethy	April.2k
DESIGNED	R. Abernethy	April 2k
	BY	DATE

ROLLY INN ~ Addition

SCALE : 1 : 100

STATUS : Construction

REVISION

SHEET 3

Z Energy Limited
3 Queens Wharf
PO Box 2091
Wellington 6140

Project Number: 63235#ChC
BEA/GPD
28 January 2020

For the Attention of Tim Bailey

Dear Tim,

2 Brookside Road, Rolleston 7914
Preliminary Soakage Pit Design

Babbage Consultants Limited (Babbage) were previously engaged by Calder Stewart to complete a preliminary design of soakage pits for the proposed Z Energy Service Station at 2 Brookside Road, Rolleston. Babbage issued a *'Preliminary Soakage Pit Design'* report on 31 July 2018.

More recently Babbage have been engaged directly by Z Energy Limited (Z Energy) to provide a revised preliminary soakage pit design, covering the recent amendments to the development (including both the Z Energy service station and Rolly Inn area)

The general scope of our engagement is outlined below:

- Assessment of stormwater runoff for the site.
- Preliminary design of soakage pits including approximate dimensions, and typical details.
- Preliminary layout of soakage pits.

Site Description

The subject site lies between Main South Road (SH1) to the north, and Brookside Road to the south and is roughly triangular in shape covering a total area of approximately 5,430m^2.

The eastern end of the site is occupied by one main building which comprises the Rolly Inn tavern, the Rolly Thai restaurant and a liquor store. Along the south side and central area of the site is a car park area comprising a combination of gravel and hard standing areas. The western end of the proposed site includes residential properties comprising a garden area and a portion of the adjacent empty lot.

The location of the site is shown in Appendix B.

Architecture
Building Surveying
Structural Engineering
Building Services Engineering
Project Management

Land Surveying
Civil Engineering
Environmental Engineering
Geotechnical Engineering
Process & Mechanical Engineering

Babbage Consultants Limited
128 Montreal Street, Sydenham, Christchurch 8023
PO Box 2373, Christchurch 8140, New Zealand
T 03 379 2734 F 03 379 1642
E admin@babbage.co.nz www.babbage.co.nz

Proposed Development

We are in receipt of a drawing by SHA Architecture Limited titled *'Proposed Site Plan Scheme 28, Z-PS-A028'* dated 21 January 2020 – attached as Appendix C. The drawing illustrates that the proposed development is to comprise the construction of a service station including highway shop, forecourt and canopy, car wash and associated facilities on the western portion of the site. The Rolly Inn is to remain at the eastern end of the site and a new carpark area and vehicle crossings will be included as part of the wider works. The development sees the site split into two separate areas to facilitate Z Energy and the Rolly Inn.

The site is currently classified as 'Living 1' as per the Selwyn District Plan.

Previous Geotechnical Assessment

Babbage have recently issued a Geotechnical Assessment Report, dated 28 January 2020 which included a geotechnical investigation and recommendations on foundations for the various structures. The investigation found that the site was predominantly underlain by dense to very dense sandy fine to coarse gravels, with varying degrees of silt and cobbles – the material generally appeared to be well-graded.

As part of the investigation Babbage completed a soakage test in Test Pit 3, located near the southern boundary, west of the shared boundary. The assessment of the data collected indicated that an infiltration rate of 3.8 x 10-5 m^3/sec/m^2 (136.8 mm/hr) was available for the upper sandy gravels. Further assessment of the data and a review of local infiltration rates indicates that this infiltration rate is sufficiently conservative to use directly in our design within a notional factor of safety of two.

The assessment indicates that groundwater in the area is likely to be deeper than 8m below ground level, based on site investigations and local well boreholes.

Stormwater

Although we have not been engaged to complete a full stormwater assessment and drainage design, we have calculated stormwater run-off to facilitate the sizing of soakage pits. Key assumptions for our stormwater model include the following:

- Sub-catchments have been scaled directly from the drawings;
- Run-off coefficient, C = 0.9 for roof areas, and C = 0.8 for all pavements (< 0.5% gradient);
- Design storm events up to and including the 50-year Return Period (2% annual exceedance probability); 24-hour duration event.
- Rainfall intensities have been taken from the Selwyn District Council 'Design Rainfall Tables' for Rolleston, adjusted for climate change.

We note that although Clause E1[3] of the Building Code indicates that critical storm durations of 1 hour should be used for the design of soakage pits, our assessment found that in all cases the 6-hour duration was critical.

Sub-Catchments

Due to the size of the site, we have split the site into six sub-catchment areas based on their location, surface type, use and expected finished surface levels. The stormwater runoff has been calculated for each of the six sub-catchments, and then directed to the respective soakage pits. The approximate extent of the sub-catchments are shown in Appendix C and summarised below:

1) Z Energy Roofs (highway shop, canopy and carwash);
2) Z Service Station Southern Carpark;
3) Z Service Station Northern Carpark;
4) Z Service Station 'API' Areas;
5) Rolly Inn Carpark;
6) Rolly Inn Roofs (main building and drive-thru canopy).

We note that the runoff from the roofs of buildings and canopies (sub-catchments 1 and 6) is considered to be relatively clean and can be directly discharged to a stormwater outfall or soakage pit. However, runoff from carpark pavements (2, 3, 4 and 5) will at times contain contaminants such as heavy metals, hydrocarbons and sediment that will require treatment prior to discharging the proposed soakage pits. Treatment could be in the form of swales, soakage basins or proprietary treatment devices – design of these facilities is beyond the scope of our engagement but can be completed by Babbage at a later date. Based on the limited landscaped areas and space constraints, the use of proprietary treatment devices are likely to be most appropriate.

As part of the preliminary soakage pit design completed in 2018, runoff from some areas of the site was to be directed to an American Petroleum Institute (API) oil-water separator prior to discharging to the stormwater system. This included the catchment areas beneath the canopy, a washdown area and an area above the UST. The latest drawing (Scheme 26) does not explicitly show an API oil-water separator, however we have assumed this will be the case and will be detailed at a later date. For design purposes we have assumed the area beneath the canopy and adjacent to the fill points will discharge to the API oil-water separator and then to the soakage pits.

Since the forecourt area will be covered by a canopy, the full area is unlikely to be subject to rainfall runoff during a storm event. We have assumed that some 25% of the canopy area will be subject to rainfall and have calculated the runoff for sub-catchment 4 based on an effective area beneath the canopy equal to 160 m^2.

Soakage Pits

The Selwyn District Council's *Engineering Code of Practice* (2012)[1] indicates that the design of soakage pits shall be completed in accordance with the Christchurch City Council's (CCC) *Waterways, Wetlands and Drainage Guide* (2012)[2]. The CCC guide recommends that the design procedure detailed in the *Department of Building and Housing Verification Method E1/VM1* (Department of Building and Housing, 2010)[3] is used to size the soak pits. As such our preliminary design has been completed in general accordance with the Verification Method E1/VM1.

Both the Selwyn District Council and CCC guidelines recommend that soakage pits are constructed in areas where maintenance can be completed with relative ease. Additionally, Selwyn District Council require that the asset should be designed for a life of 100 years with appropriate maintenance.

As above soakage pits require intermittent maintenance through their design life which may include excavation and replacement of the soakage pit gravel, the geotextile or simply flushing of the inlet pipe. As such soakage pits are ideally located beneath landscaped areas (lawns, gardens or gravel court yards) removed from building foundations and property boundaries to allow easy and cost-effective access.

As noted above the site has been split into six sub-catchment areas based on their location, surface type and expected topography. To reduce the number of soakage pits, and the construction and ongoing maintenance costs we have designed three soakage pits to each capture runoff from two respective sub-catchments.

The proposed development includes a number of small landscaped areas, which typically comprise narrow strips of grassed areas adjacent to buildings or boundaries, and are occupied by signs and electrical equipment. Due to the presences of utilities and their size these areas are not ideally suited to soakage pits.

The dimensions of the pits have been selected to best match the nearby landscaped areas, under which they will likely be constructed. We note that in some cases due to the narrow nature of the landscaped areas, the pits may need to extend under the surrounding pavement, unless the design revised in further iterations. Alternative options are discussed later in this report.

Table 1 below, summarises the soakage chamber dimensions and suggested locations. The proposed locations are shown in the sketches provided in Appendix C.

Table 1: Summary of soakage pit details

Soakage Pit	Receiving sub-catchments	Size (L.W.D)*	Suggested location of chamber
1	*Z Service Station:* Roofs & Southern Carpark [1, 2]	7.1m x 7.1m x 3m [52m^2]	South-west corner beneath landscaped area and carpark
2	*Z Service Station:* Northern Carpark & Post-Treatment (API) [3, 4]	5.4m x 5.4m x 2.8m [40m^2]	North-west corner beneath small carpark area
3	*Rolly Inn:* Carpark and roofs [5, 6]	6m x 6m x 2.9m [36m^2]	South-central beneath landscaped area and pavement
* The dimensions provided are indicative, and do not reflect actual dimensions shown on plans. Soakage pits shown on plans (Appendix C) are to meet minimum area requirements.			

During the detailed civil design phase, the sub-catchments, pit sizes and locations may be revised to reflect changes to the development and site falls and gradients.

We note that the sizing of the soakage pits is based on a single in-situ soakage test, from which the design infiltration has been calculated. Onsite soakage testing for all proposed soakage devices should be carried out to confirm that there is adequate soakage flow rates to dispose of the stormwater runoff from the site developments. We consider that further testing will increase the accuracy of design and limit the risk of structures being overwhelmed during a storm event.

Alternative Options

Although the above soakage pits meet the regulatory requirements for disposal of stormwater runoff, there are alternative configurations which may be worth considering. These include the following:

- Runoff from all Z Service Station pavement areas directed to a single treatment system (grassed swale or proprietary treatment device) prior to discharging into one large soakage pit, circa 7m x 7m x 3m. Runoff from roofs and API areas to be directed to soakage pit circa 5.3m x 5.3m x 3m.
- A number of smaller soakage pits (5-6) could be deployed collecting runoff from each of the sub-catchments. There may be an opportunity to distribute these in the small landscaped areas, and may reduce the length of stormwater pipes required. Conversely this would like result in greater maintenance costs, and may require multiple treatment systems for pavement runoff.
- One large soakage pit to receive all stormwater from the Z Service Station site (9.5m x 9.5m x 3m). We note that this would result in less redundancy in the system with all stormwater disposed over via a single point, and it may be difficult to achieve required gradients on pipes and soil cover.

As mentioned above, we recommend that the soakage pits are constructed in landscaped areas where possible, to reduce disturbances and costs associated with their maintenance. Should there be further revisions to the site layout, we recommend that minor changes are made in the landscaped areas to accommodate the soakage pits.

If you require further information please contact one of the undersigned at your discretion. As noted above we would be happy to complete the detailed design of the soakage pits (and full civil design) in support of the Building Consent application.

This type of report will always be produced within certain limits and attention is therefore drawn to the Notes on Limitations included as Appendix A.

This statement has been prepared by Ben Anderton and reviewed by Graham Dean.

Yours Sincerely

Ben Anderton BE(Hons) CMEngNZ CPEng
Senior Geotechnical/Civil Engineer

Graham Dean BSc CEng(UK) MICE CMEngNZ FGS
Senior Geotechnical Engineer
South Island Geotechnical Team Leader

Babbage Consultants Limited
128 Montreal Street, Sydenham, Christchurch 8023
PO Box 2373, Christchurch 8140
T 03 353 5514 **M** 027 288 5056 **E** ben.anderton@babbage.co.nz

Appendices:

A: Notes on Limitations
B: Soakage Pit Calculations
C: Annotated Site Plan
D: Typical Soakage Pit Details

References

[1] Selwyn District Council. (2012). *Engineering Code of Practice.* Selwyn District Council.

[2] Christchurch City Council. (2012). *Waterways, Wetlands and Drainage Guide.* Christchurch; Christchurch City Council.

[3] Ministry of Business, Innovation & Employment. (2016). *E1 Surface Water - Acceptable Solutions and Verification Methods*. Wellington: Ministry of Business, Innovation & Employment

www.babbage.co.nz

2 Brookside Road, Rolleston 7914

Preliminary Soakage Pit Design

Project No 63235#ChC

Appendix A

Notes on Limitations

Babbage Consultants Limited
128 Montreal Street, Sydenham, Christchurch
PO Box 2373, Christchurch 8140
DDI +64 3 353 5514 **M** +64 027 288 5056 **E** ben.anderton@babbage.co.nz

Notes on Limitations

Restriction of Intended Purpose

Babbage Consultants Limited (Babbage) has prepared this report solely for the benefit of the Client with respect to the Client's brief. The reliance by other parties on the information or opinions contained in this report shall, without our prior review and agreement in writing, be at such party's sole risk. Babbage accepts no responsibility or liability for the consequences of this report being used for any purpose or project other than that for which it was commissioned, or by any party with whom an agreement has not been executed.

Legal Interpretation

Opinions and judgements expressed herein are based on our understanding and interpretation of current regulatory standards, and should not be construed as legal opinions. Where opinions or judgements are to be relied on they should be independently verified with appropriate legal advice.

Reliability of Information

Where Babbage have undertaken site specific geotechnical investigations, the recommendations and opinions in this report are based on the data derived from the exploratory holes or tests undertaken specifically for those investigations as described herein.

The nature and continuity of subsoil conditions away from such exploratory holes or tests are inferred and it must be appreciated that actual conditions could vary considerably from those assumed and which have not therefore been taken into account in this report.

The comments made regarding groundwater conditions are based on observations made at the time the field work was carried out. It should be noted that groundwater levels will vary owing to seasonal, tidal, seismic and weather related effects.

The scope of the investigation was selected on the basis of specific requirements of the Client and may be inappropriate to another form of development, scheme or other requirement.

During excavation and construction the site should be examined by a Geotechnical Engineer or Engineering Geologist competent to judge whether the exposed subsoils are compatible with the inferred conditions on which the report has been based. It is possible that the nature of the exposed subsoils may require further investigation and the modification of the design based upon this report.

If during construction or excavation subsoil conditions are found to vary from those described in this report it is essential that Babbage are contacted as any such variations may affect the design parameters and recommendations provided.

Reliability of Third Party Data and Information

Where factual information has been provided to Babbage by the Client including reports, documents, drawings and/or geotechnical investigations undertaken by third parties, and on the basis of which Babbage has been requested to provide recommendations and opinions, Babbage

does not accept any liability whatsoever for the consequences of any errors or omissions in the information supplied, and has accepted such information in good faith as being reasonably representative of the conditions at the site.

As a user of Data extracted from the New Zealand Geotechnical Database (NZGD) Babbage (the User) is required to advise the Client of the following:

The User provides or uses Data from the NZGD and the Data was uploaded into that database without charge and strictly on the basis that any use is at the User's sole risk; no warranty or representation whatsoever (including as to its accuracy, adequacy, completeness, or fitness for any purpose) is provided in connection with the Data; and neither the Data Provider, the Owner or any other Person providing Data to the NZGD accepts any liability (including in negligence) in relation to it; and where any Data includes any other disclaimer or requirement relating to its use, the User will not use that Data unless it accepts or agrees to that disclaimer or requirement.

Babbage does not accept any liability whatsoever for the Data extracted from the NZGD, and the opinions and recommendations provided by Babbage as a result of the use of this Data are given in good faith and are accepted by the Client on this basis.

www.babbage.co.nz

2 Brookside Road, Rolleston 7914

Preliminary Soakage Pit Design

Project No 63235#ChC

Appendix B

Soakage Pit Calculations

Babbage Consultants Limited
128 Montreal Street, Sydenham, Christchurch
PO Box 2373, Christchurch 8140
DDI +64 3 353 5514 **M** +64 027 288 5056 **E** ben.anderton@babbage.co.nz

JOB NAME:	Z Rolleston	**DATE:**	17/01/2020
JOB NO:	63235#ChC	**BY:**	BEA
SUBJECT:	Soakage Pit 1 (Z Roofs & Southern Carpark)		

Babbage partners in excellence®

Stormwater Runoff / Soakage Calculation

Stormwater Volume

Return Period (years)	Storm Duration (min)	Rainfall Intensity (mm/hour)	Pavement Runoff Coefficient	Pavement Area (m^2)	Roof Runoff Coefficient	Roof Area (m^2)	Pavement Stormwater Volume (m^3)	Roof Stormwater Volume (m^3)	Total Stormwater Volume (m^3)
10	10	55.2	0.80	1075	0.90	955	7.91	7.91	15.82
10	30	33.9	0.80	1075	0.90	955	14.58	14.57	29.15
10	60	22.7	0.80	1075	0.90	955	19.52	19.51	39.03
10	**120**	**16.2**	**0.80**	**1075**	**0.90**	**955**	**27.86**	**27.85**	**55.71**
10	360	8.8	0.80	1075	0.90	955	45.41	45.38	90.79
10	720	6.1	0.80	1075	0.90	955	62.95	62.92	125.87
10	1440	3.9	0.80	1075	0.90	955	80.50	80.45	160.95
50	10	78.1	0.80	1075	0.90	955	11.19	11.19	22.38
50	30	47.6	0.80	1075	0.90	955	20.47	20.46	40.92
50	60	30.9	0.80	1075	0.90	955	26.57	26.56	53.13
50	120	23.2	0.80	1075	0.90	955	39.90	39.88	79.78
50	**360**	**13.3**	**0.80**	**1075**	**0.90**	**955**	**68.63**	**68.59**	**137.22**
50	720	8.9	0.80	1075	0.90	955	91.85	91.79	183.64
50	1440	5.3	0.80	1075	0.90	955	109.39	109.33	218.72

Storage Volume

*Soakage Rate (m^3/hour)	*Soakage Volume (m^3)	Required Storage Volume (m^3)
12.586	2.10	13.72
12.586	6.29	22.85
12.586	12.59	26.45
12.586	**25.17**	**30.54**
12.586	75.51	15.28
12.586	151.03	-25.16
12.586	302.05	-141.11
12.586	2.10	20.28
12.586	6.29	34.63
12.586	12.59	40.55
12.586	25.17	54.61
12.586	**75.51**	**61.70**
12.586	151.03	32.62
12.586	302.05	-83.33

* Using 7m long x 7.1m wide x 3m deep effective soakage pit

Proposed Soakage Pit Storage = 62.6 m^3

JOB NAME:	Z Rolleston	**DATE:**	17/01/2020
JOB NO:	63235#ChC	**BY:**	BEA
SUBJECT:	Soakage Pit 2 (Z API & Northern Carpark)		

Babbage partners in excellence®

Stormwater Runoff / Soakage Calculation

Stormwater Volume

Return Period (years)	Storm Duration (min)	Rainfall Intensity (mm/hour)	Pavement Runoff Coefficient	Pavement Area (m^2)	Roof Runoff Coefficient	Roof Area (m^2)	Pavement Stormwater Volume (m^3)	Roof Stormwater Volume (m^3)	Total Stormwater Volume (m^3)
10	10	55.2	0.80	1309	0.00	0	9.63	0.00	9.63
10	30	33.9	0.80	1309	0.00	0	17.75	0.00	17.75
10	60	22.7	0.80	1309	0.00	0	23.77	0.00	23.77
10	**120**	**16.2**	**0.80**	**1309**	**0.00**	**0**	**33.93**	**0.00**	**33.93**
10	360	8.8	0.80	1309	0.00	0	55.29	0.00	55.29
10	720	6.1	0.80	1309	0.00	0	76.66	0.00	76.66
10	1440	3.9	0.80	1309	0.00	0	98.02	0.00	98.02
50	10	78.1	0.80	1309	0.00	0	13.63	0.00	13.63
50	30	47.6	0.80	1309	0.00	0	24.92	0.00	24.92
50	60	30.9	0.80	1309	0.00	0	32.36	0.00	32.36
50	120	23.2	0.80	1309	0.00	0	48.59	0.00	48.59
50	**360**	**13.3**	**0.80**	**1309**	**0.00**	**0**	**83.57**	**0.00**	**83.57**
50	720	8.9	0.80	1309	0.00	0	111.84	0.00	111.84
50	1440	5.3	0.80	1309	0.00	0	133.20	0.00	133.20

Storage Volume

*Soakage Rate (m^3/hour)	*Soakage Volume (m^3)	Required Storage Volume (m^3)
8.126	1.35	8.28
8.126	4.06	13.69
8.126	8.13	15.65
8.126	**16.25**	**17.68**
8.126	48.76	6.54
8.126	97.51	-20.86
8.126	195.02	-97.00
8.126	1.35	12.28
8.126	4.06	20.86
8.126	8.13	24.23
8.126	16.25	32.34
8.126	**48.76**	**34.81**
8.126	97.51	14.33
8.126	195.02	-61.82

* Using 5.4m long x 5.4m wide x 2.8m deep effective soakage pit

Proposed Soakage Pit Storage = 35.0 m^3

JOB NAME:	Z Rolleston	**DATE:**	17/01/2020
JOB NO:	63235#ChC	**BY:**	BEA
SUBJECT:	Soakage Pit 3 (Rolly Inn roofs & carpark)		

Babbage partners in excellence®

Stormwater Runoff / Soakage Calculation

Stormwater Volume

Return Period (years)	Storm Duration (min)	Rainfall Intensity (mm/hour)	Pavement Runoff Coefficient	Pavement Area (m^2)	Roof Runoff Coefficient	Roof Area (m^2)	Pavement Stormwater Volume (m^3)	Roof Stormwater Volume (m^3)	Total Stormwater Volume (m^3)
10	10	55.2	0.80	1030	0.90	487	7.58	4.03	11.61
10	30	33.9	0.80	1030	0.90	487	13.97	7.43	21.40
10	60	22.7	0.80	1030	0.90	487	18.70	9.95	28.65
10	**120**	**16.2**	**0.80**	**1030**	**0.90**	**487**	**26.70**	**14.20**	**40.90**
10	360	8.8	0.80	1030	0.90	487	43.51	23.14	66.65
10	720	6.1	0.80	1030	0.90	487	60.32	32.08	92.40
10	1440	3.9	0.80	1030	0.90	487	77.13	41.02	118.15
50	10	78.1	0.80	1030	0.90	487	10.73	5.71	16.43
50	30	47.6	0.80	1030	0.90	487	19.61	10.43	30.04
50	60	30.9	0.80	1030	0.90	487	25.46	13.54	39.01
50	120	23.2	0.80	1030	0.90	487	38.23	20.34	58.57
50	**360**	**13.3**	**0.80**	**1030**	**0.90**	**487**	**65.76**	**34.98**	**100.73**
50	720	8.9	0.80	1030	0.90	487	88.00	46.81	134.81
50	1440	5.3	0.80	1030	0.90	487	104.81	55.75	160.56

Storage Volume

*Soakage Rate (m^3/hour)	*Soakage Volume (m^3)	Required Storage Volume (m^3)
9.685	1.61	10.00
9.685	4.84	16.55
9.685	9.69	18.97
9.685	**19.37**	**21.53**
9.685	58.11	8.54
9.685	116.23	-23.82
9.685	232.45	-114.30
9.685	1.61	14.82
9.685	4.84	25.20
9.685	9.69	29.32
9.685	19.37	39.20
9.685	**58.11**	**42.62**
9.685	116.23	18.59
9.685	232.45	-71.89

* Using 6m long x 6m wide x 2.9m deep effective soakage pit

Proposed Soakage Pit Storage = 44.5 m^3

www.babbage.co.nz

2 Brookside Road, Rolleston 7914

Preliminary Soakage Pit Design

Project No 63235#ChC

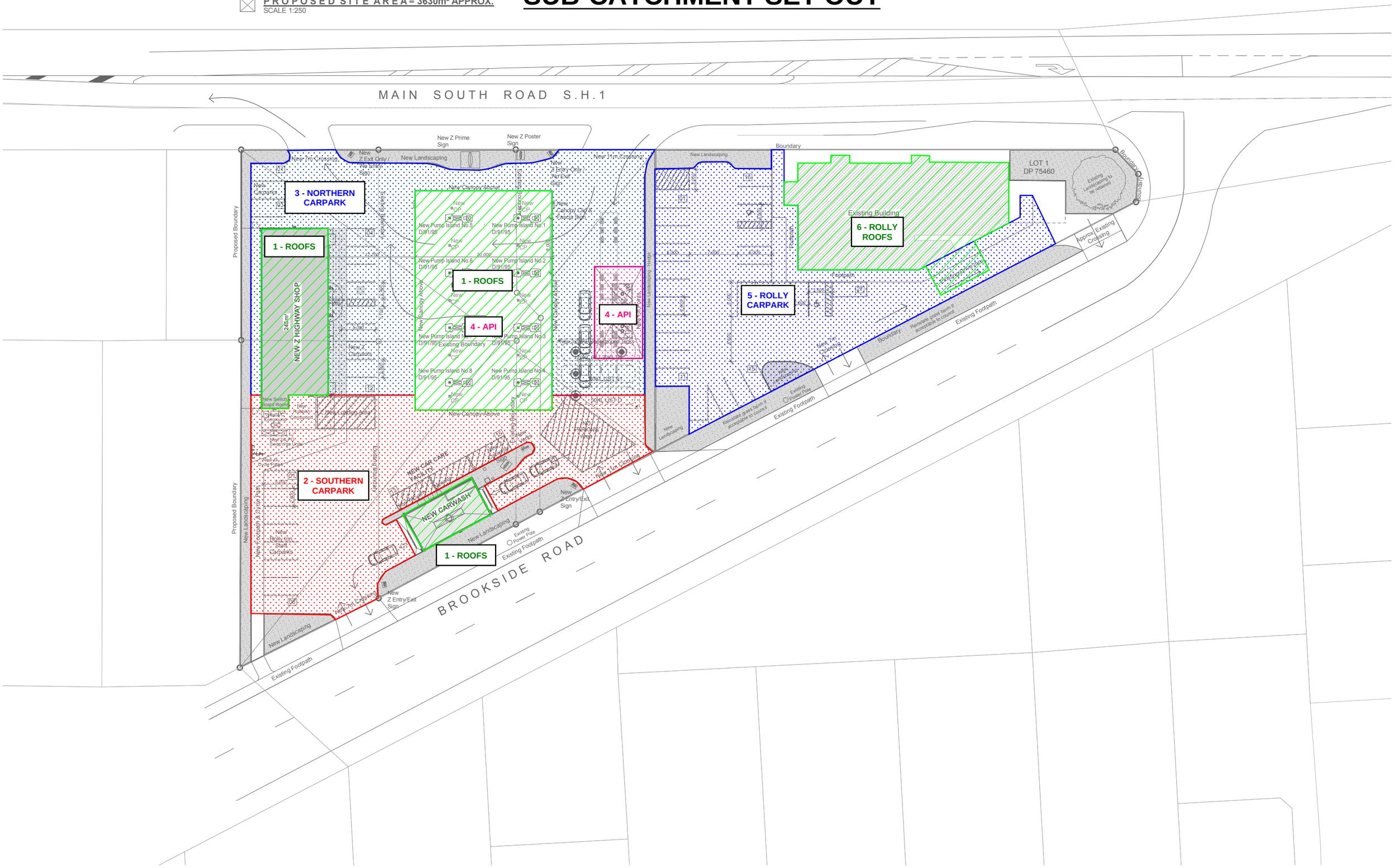
Appendix C

Annotated Site Plan

Babbage Consultants Limited
128 Montreal Street, Sydenham, Christchurch
PO Box 2373, Christchurch 8140
DDI +64 3 353 5514 **M** +64 027 288 5056 **E** ben.anderton@babbage.co.nz

SUB-CATCHMENT SET OUT

PROPOSED SITE AREA = 3630m² APPROX.
SCALE 1:250



Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd-Rolleston NTI
2 Brookside Road
Rolleston

SCHEME

Legal Description
LOT 1 DP 75460

SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS
AUCKLAND P (09) 309 9660 F (09) 309 9661 P.O.BOX 8232 SYMONDS ST AUCKLAND NZ
HAMILTON P (07) 839 5622 F (07) 838 2500 P.O.BOX 1465 HAMILTON NZ WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division. • Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws. • All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommisions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	SCHEME ISSUE	21/01/2020	J.L

PROPOSED SITE PLAN SCHEME 28

SCALE @ A1. 1:250 SCALE @ A3. 1:500

CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

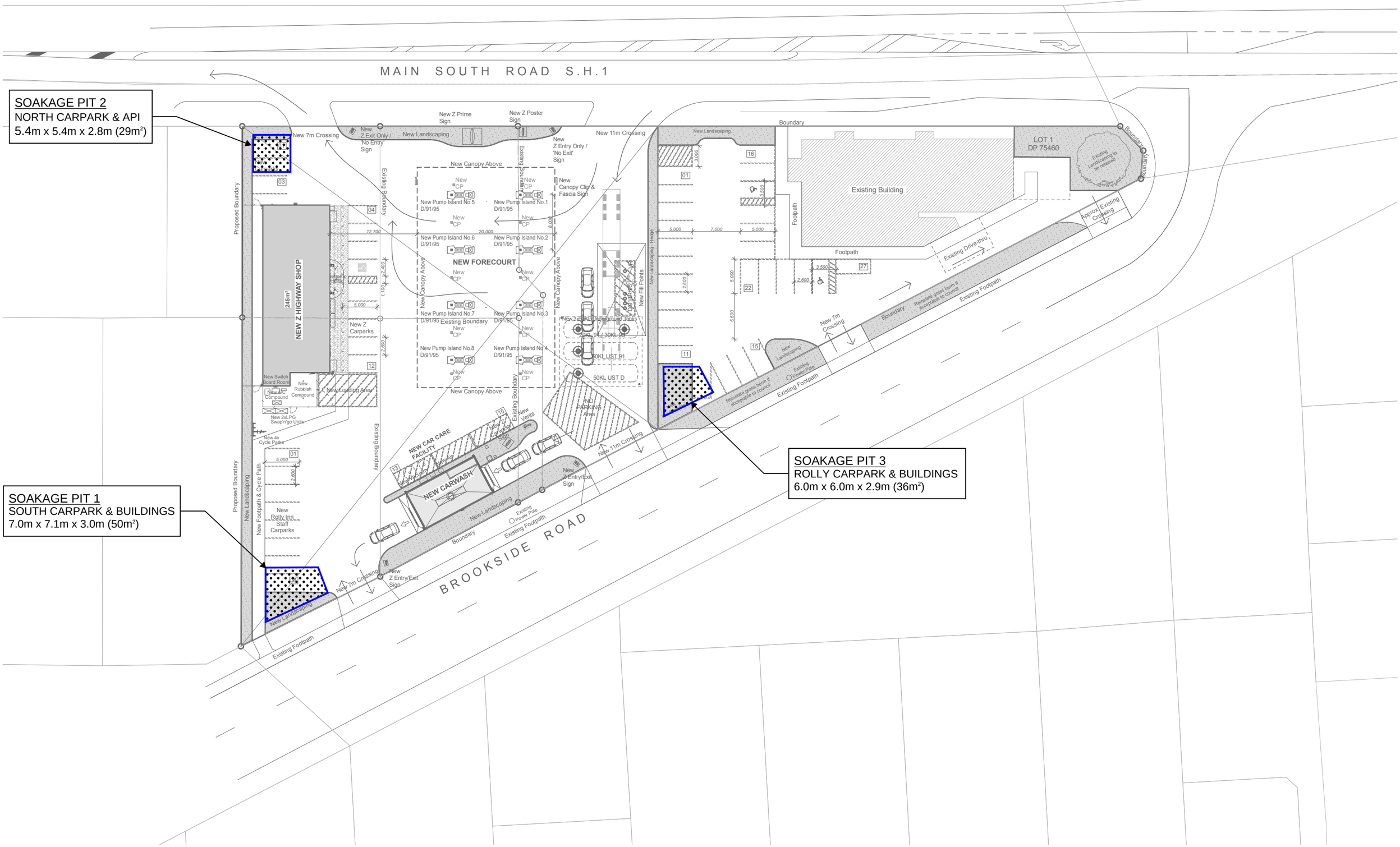
Z ENERGY REF. SITE SPECIFIC

Z-PS-A028

VERSION. REV. A

PROPOSED SOAKAGE PITS

PROPOSED SITE AREA = 3630m² APPROX.
SCALE 1:250


MAIN SOUTH ROAD S.H.1
BROOKSIDE ROAD
SOAKAGE PIT 2
NORTH CARPARK & API
5.4m x 5.4m x 2.8m (29m²)
SOAKAGE PIT 1
SOUTH CARPARK & BUILDINGS
7.0m x 7.1m x 3.0m (50m²)
SOAKAGE PIT 3
ROLLY CARPARK & BUILDINGS
6.0m x 6.0m x 2.9m (36m²)
NEW FORECOURT
NEW Z HIGHWAY SHOP
245m²
NEW CAR CARE FACILITY
NEW CARWASH
New Canopy Above
New Pump Island No.1 D/91/95
New Pump Island No.2 D/91/95
New Pump Island No.3 D/91/95
New Pump Island No.4 D/91/95
New Pump Island No.5 D/91/95
New Pump Island No.6 D/91/95
New Pump Island No.7 D/91/95
New Pump Island No.8 D/91/95
New Canopy Clip & Fascia Sign
New Z Prime Sign
New Z Poster Sign
New Z Exit Only / 'No Entry' Sign
New Z Entry Only / 'No Exit' Sign
New 7m Crossing
New 11m Crossing
New Z Entry/Exit Sign
New Fill Points
New 2 x 50KL Underground Tanks
50KL UST 91
50KL UST D
New Z Carparks
New Loading Area
New Switch Board Room
New Rubbish Compound
New Gas Compound
New 2xLPG Swap'n'go Units
New 4x Cycle Parks
New Rolly Inn Staff Carparks
NO PARKING Area
New Vents
New Screen
New Landscaping
New Landscaping - Height
New Footpath & Cycle Path
Proposed Boundary
Existing Boundary
Boundary
LOT 1 DP 75460
Existing Building
Existing Landscaping to be retained
Footpath
Existing Drive-thru
Approx Existing Crossing
Existing Footpath
Reinstate grass berm if acceptable to council
Existing Power Pole
Existing Kerb Inlet
Existing Manhole
Existing Sewer Manhole
Existing Stormwater Manhole
Existing Water Manhole
New Ramp
New Kerb
New Footpath
New Entry
New Exit
New Island
New Kerb Inlet
New Manhole
New Stormwater Manhole
New Sewer Manhole
New Water Manhole
New Power Pole
New Light Pole
New Tree
New Bollard
New Fence
New Retaining Wall
New Gate
New Sign
New Bench
New Bin
New Cycle Rack
New Planting
New Grass
New Concrete
New Asphalt
New Kerb & Channel
New Footpath
New Crossing
New Drainage
New Stormwater Pipe
New Sewer Pipe
New Water Pipe
New Power Line

www.babbage.co.nz

2 Brookside Road, Rolleston 7914

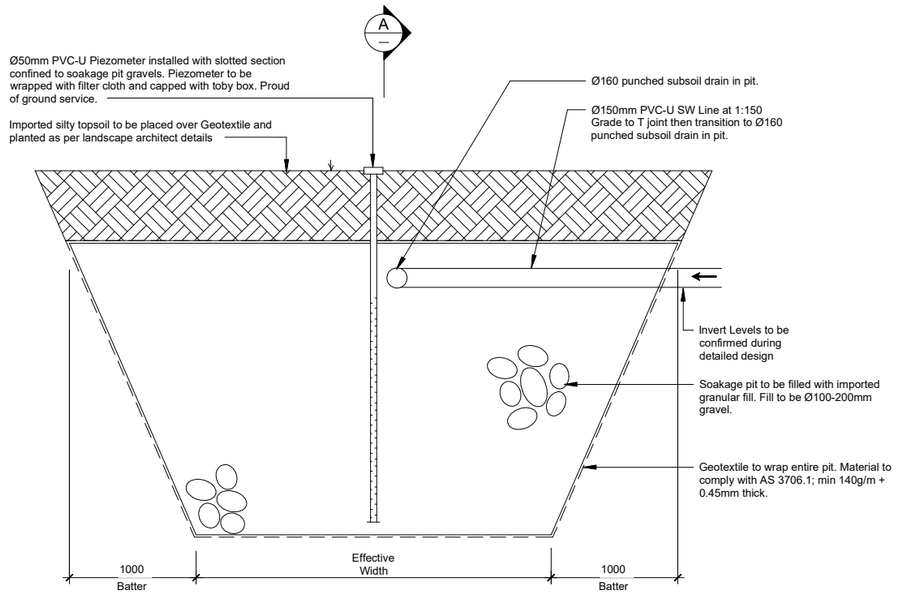
Preliminary Soakage Pit Design

Project No 63235#ChC

Appendix D

Typical Soakage Pit Details

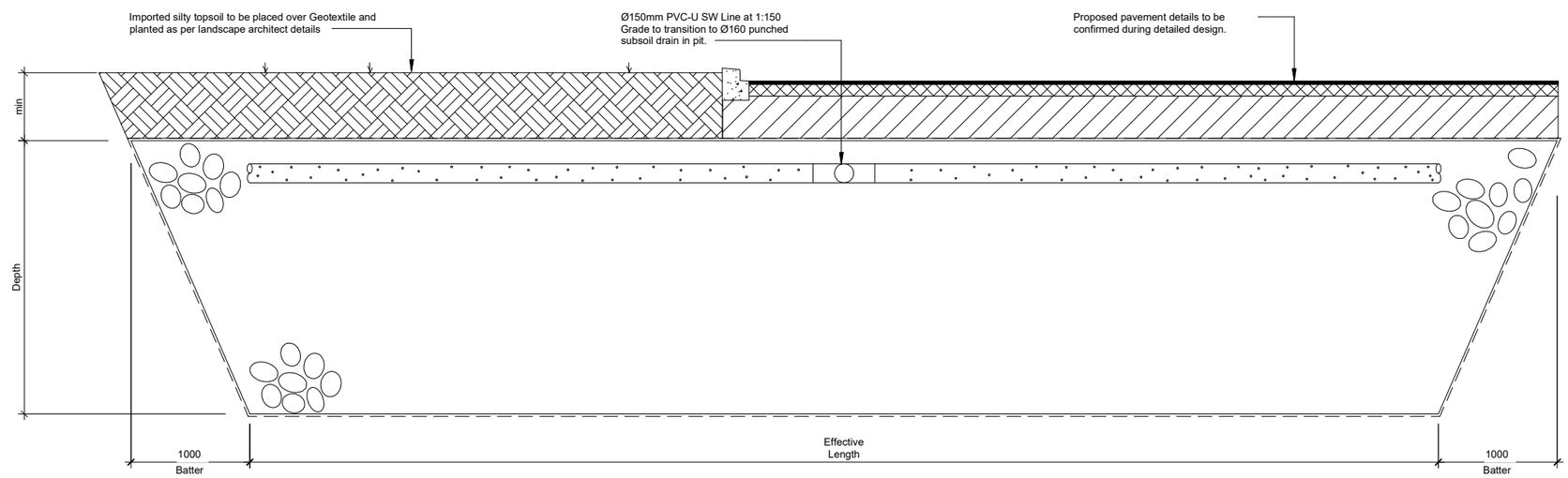
Babbage Consultants Limited
128 Montreal Street, Sydenham, Christchurch
PO Box 2373, Christchurch 8140
DDI +64 3 353 5514 **M** +64 027 288 5056 **E** ben.anderton@babbage.co.nz



NOTE:
Engineer to inspect ground prior to placement of Geotextile

Typical Soakage Pit - Cross section

1 : 25



NOTE:
Engineer to inspect ground prior to placement of Geotextile

A

1 : 25

COPYRIGHT BABBAGE CONSULTANTS LIMITED
UNAUTHORISED COPYING PROHIBITED
DO NOT SCALE THIS DRAWING
PLEASE REFER ALL QUERIES TO
BABBAGE CONSULTANTS LIMITED

General Notes:

1. All Civil Drawings to be read in conjunction with the Landscape Architects Drawings.

DRAWING REVISIONS

REV	DATE	DESCRIPTION
A	17/01/2020	PRELIMINARY - FOR RES. CONSENT

Babbage
partners in excellence®
Babbage Consultants Limited
128 Montreal Street, Sydenham, Christchurch 8023
PO Box 2373 - Christchurch 8140, New Zealand
T: 03 379 2734 F: 03 379 1642
E: chch@babbage.co.nz www.babbage.co.nz

CLIENT / PROJECT / ADDRESS

Z ENERGY

Z ROLLESTON & ROLLY INN

2 BROOKSIDE ROAD, ROLLESTON

DRAWING TITLE

TYPICAL SOAKAGE PIT DETAILS

	DATE	INITIAL
DESIGNED	Jul 19	B.A.
DRAWN	Jul 19	J.C.
CHECKED	Jul 19	B.A.
APPROVED	Aug 19	W.D.

SCALE @ A1 - (HALF SCALE @ A3)

1 : 25

JOB NO.	DRAWING NO.	REVISION
63235	C406	A

FOR RES. CONSENT

Z Energy Limited
3 Queens Wharf
PO Box 2091
Wellington 6140

Project Number: 63235#CHGE
BEA/ GPD
28 January 2020

For the Attention of Tim Bailey

Dear Tim,

Proposed Z Energy Service Station
2 Brookside Road, Rolleston
Geotechnical Assessment Report

1. Introduction

Babbage Consultants Limited (Babbage) were originally engaged by Z Energy Limited (Z Energy) to undertake a geotechnical investigation and assessment at 2 Brookside Road, Rolleston in 2017. More recently we have been engaged to update the geotechnical assessment report to reflect the changes to the development in support of a resource consent application

As part of the original engagement Babbage carried out a geotechnical investigation which comprised 14 deep tests and nine shallow test pits across the site. Following completion of the investigation Babbage compiled a geotechnical assessment which considered geotechnical hazards and provided geotechnical parameters for the design of the proposed structures, pavements and soakage pits.

This report is an updated version of the assessment report issued on 24 May 2017. The general scope of the assessment is outlined below:

- Confirm the ground conditions and consistency (or otherwise) with those indicated by published information.
- Establish the liquefaction hazard during a future seismic event.
- Provide preliminary advice concerning foundation options together with bearing capacities, floor slab construction, and advice concerning the construction of the new underground storage tanks (UST).
- Provide recommendations for road and pavement design.

Architecture
Building Surveying
Structural Engineering
Building Services Engineering
Project Management

Land Surveying
Civil Engineering
Environmental Engineering
Geotechnical Engineering
Process & Mechanical Engineering

Babbage Consultants Limited
128 Montreal Street, Sydenham, Christchurch 8023
PO Box 2373, Christchurch 8140, New Zealand
T 03 379 2734 F 03 379 1642
E admin@babbage.co.nz www.babbage.co.nz

2. Site Description

The subject site lies between Main South Road (SH1) to the north, and Brookside Road to the south and is roughly triangular in shape covering a total area of approximately 5,430m^2.

The eastern end of the site is occupied by one main building which comprises the Rolly Inn tavern, the Rolly Thai restaurant and a liquor store. Along the south side and central area of the site is a car park area comprising a combination of gravel and hard standing areas. The western end of the proposed site includes adjacent residential properties comprising a garden area and a portion of the adjacent empty lot.

There are no existing rivers or streams within close proximity to the site.

The location of the site is shown in Appendix B.

3. Proposed Development

We are in receipt of a drawing by SHA Architecture Limited titled *'Proposed Site Plan Scheme 28, Z-PS-A028'* dated 21 January 2020 – attached as Appendix D. The drawing illustrates that the proposed development is to comprise the construction of a service station including shop, forecourt and canopy, car wash and associated facilities on the western portion of the site. The Rolly Inn is to remain at the eastern end of the site and a new carpark area and vehicle crossings will be included as part of the wider works. The development sees the site split into two separate areas to facilitate Z Energy and the Rolly Inn.

The development is reasonably similar to that proposed in 2017, however the development area has extended westward with the highway shop also moving west. As a result of the change there have been no geotechnical tests completed in the immediate vicinity of the proposed highway shop building.

4. Geological Setting

The GNS Geological Map of the Christchurch area[1] (1:25,000) shows the site to be underlain by alluvial deposits of the Springston Formation, comprising 'grey river alluvium beneath the plains or low-level terraces'. To the west of the site the area is underlain by 'brownish-grey river alluvium".

Our experience of the general area in the near vicinity of the site suggests that the alluvial deposits comprise a thick bed of river gravels often overlain by a superficial layer of clayey silt.

Information available from the New Zealand Geotechnical Database[2] (NZGD) shows that the closest available test pit (TP_63011) is located approximately 130 metres to the east of the site and extended to a depth of 1.0 metre below the ground surface. The test pit log shows fill

to a depth of 0.4 metres underlain by silt to a depth of 0.7 metres, below this is sandy gravel to the full investigation depth of 1.0 metre. Groundwater was not observed in the test pit.

The closest machine borehole (BH_57583) is located 300 metres to the south-east of the site and extended to a depth of 6.0 metres. The borehole log shows sandy silt to a depth of 0.5 metres, underlain by sandy gravel to the full investigation depth of 6.0 metres.

Nearby Environment Canterbury (ECan) well records[3] suggest that the fluvial gravels extend to a depth in excess of 200 metres.

Groundwater observations from nearby ECan well data (M36/0102) and information for the Brookside Road subdivision indicate that the groundwater is likely to be deeper than 8.0 metres below ground level.

5. Land Classification

The property is situated within an area designated as the “Green Zone” by the Christchurch Earthquake Recovery Authority (CERA[4]). The “Green Zone” is defined as land generally considered suitable for residential properties to be repaired or rebuilt. The property is also surrounded by other properties within the “Green Zone”.

The property lies beyond the extent of land damage mapping and therefore has not been given a Technical Category; the site is classified as ‘Rural and Unmapped’.

6. Geotechnical Investigation

The geotechnical investigation was designed to verify or otherwise the available information (as described above) and to provide more specific details relating to the ground and groundwater conditions to inform foundation requirements for the various elements of the proposed development.

The investigation comprised six machine boreholes (BH) and eight super heavy dynamic probes (DPSH) and nine Test Pits (TP). The fieldwork was carried out on 2, 19 and 22 May 2017 by specialist investigation subcontractors LandTest and McMillian Drilling under the technical supervision of Babbage.

The locations of the exploratory holes were selected to cover two of the Scheme options provided to Babbage in 2017. As a result, some of the test locations are not reflective of the current scheme layout.

Prior to undertaking the field investigation all exploratory locations were cleared for the presence of underground services.

A summary of the findings of the investigation are presented in the table below.

Test ID	Termination Depth	Depth to Base of Stratum (m)				
		Topsoil/ Fill	Sandy silty GRAVEL	Clayey SILT	Silty SAND	Sandy GRAVEL
TP01	1.5	1.5*	-	-	-	-
TP02	1.5	0.3	-	-	-	1.5*
TP03	1.5	0.2	0.4	-	0.6	1.5*
TP04	1.5	0.8	-	-	-	1.5*
TP05	1.8	0.2	-	-	-	1.8*
TP06	1.5	0.2	-	-	0.35	1.5*
TP07	1.5	0.2	-	-	-	1.5*
TP08	1.5	0.2	-	-	-	1.5*
TP09	1.1	0.3	-	1.1*	-	1.1*
BH01	6.375	0.5	-	-	-	6.375*
BH02	4.3	0.5	-	-	-	4.3*
BH03	6.375	0.3	-	-	-	6.375*
BH04	4.45	0.5	-	-	-	4.45*
BH05	6.15	0.5	-	-	-	6.15*
BH06	6.15	0.5	-	-	-	6.15*
DPSH01	1.4	0.4#	-	-	-	-
DPSH02	1.8	0.4#	-	-	-	-
DPSH03	0.6	0.4#	-	-	-	-
DPSH04	1.8		-	-	-	-
DPSH05	2	0.6#	-	-	-	-
DPSH06	3.8	1.2#	-	-	-	-
DPSH07	1.8	0.8#	-	-	-	-
DPSH08	0.8	-	-	-	-	-

* Full depth investigated at each test location
# Depth of topsoil/ fill assumed where rapid change in density was noted

The approximate locations of the exploratory positions are shown on the attached Investigation Location Plans in Appendix B. The factual logs for the exploratory holes are included in Appendix C.

7. Investigation Findings

Ground conditions were found to be reasonably consistent across the site and comprised a predominantly sandy gravelly fill material that in general varied in thickness from 0.2 to 0.5m. This was underlain by natural alluvial deposits comprising sandy fine to coarse gravel with some cobbles and silt. The sandy gravels were found to be dense near surface becoming very dense with depth, with in-situ standard penetration tests (SPT's) often recording blow-counts in excess of 60.

In localised areas the overlying fill material was found to be thicker than indicated above. At the location of TP01 (northwest corner of existing car park) the fill extended to the full depth of the test pit suggesting a localised (or perhaps the edge) of a deeper filled area. No other exploratory holes immediately surrounding this test pit encountered fill to this depth.

At the location of TP04 (south-central area of existing car park) the superficial fill was found to be locally underlain with what appeared to be pipe surround or bedding fill comprising medium-coarse gravel. This extended to a depth of 0.8m before the natural sandy gravel deposits were encountered.

At the location of DPSH06 (west-central area), the probe blow counts suggest that the overlying sandy gravelly fill could extend to a depth of up to 1.2m before the natural sandy gravels were encountered. Similarly, at the location of DPSH07 (south-central area) the probe blow counts suggested a fill depth of up to 0.8m before the natural sandy gravels were encountered.

Near surface ground conditions at the location of TP09 (eastern end of the site) were found to differ from the rest of the site with stiff to very stiff clayey silt underlying the sandy gravel fill (0.3m thick); this extended to the full depth excavated of 1.1m.

None of the exploratory holes (maximum depth 6.0m) encountered groundwater during excavation. Standpipe piezometers were installed in BH's 1 and 3 to a depth of 6.0m to facilitate long term groundwater monitoring. These were measured on 24 May 2017 and (as expected) found to be dry. As indicated above nearby ECan well records and geotechnical information from the nearby Brookside sub-division suggests a depth to groundwater in excess of 8.0m. This echoes our previous experience in the Rolleston area.

A soakage test was undertaken in TP03 in order to provide an indicative soakage rate for use in the design of soakage pits should they be required; the measured infiltration rate in the test pit for the sandy gravel was 3.8×10^{-5} m/sec and based on our local experience this is consistent with other tests carried out within the natural sandy gravels near surface.

8. Liquefaction Potential

The GNS Science Report R12/83 “Review of Liquefaction Hazard Information in Eastern Canterbury”[5] and in particular Figure 2.1 indicates that Rolleston lies within a substantial area to the west of Christchurch which is mapped as “damaging liquefaction unlikely”. This definition, amongst other things, is where the geological nature of the ground is such that future design level earthquakes are unlikely to cause land damage from liquefaction.

Sandy gravels are not typically prone to liquefaction and in any event these particular deposits are considered too dense to liquefy during design level earthquakes. Moreover, the groundwater table is expected to lie at some depth, certainly in excess of 8m and the sandy gravels are known to extend to depths in excess of 200 metres. Liquefaction cannot occur above the groundwater table.

Based on the above there is very limited risk of damaging liquefaction occurring at this site even following a substantial earthquake.

9. Discussion and Recommendations

The subsurface conditions across the site are reasonably consistent with no significant geotechnical hazards identified. Groundwater is not an issue at the site and is expected to be deeper than 8m from the surface. There is considered to be no risk of liquefaction at the site even following a substantial earthquake.

With respect to NZ1170.5 definitions the soils beneath the site would be designated as class D: Deep or Soft Soil.

At the time of writing the final layout of the proposed new facility has not been finalised, however as noted in Section 3 of this report the new location of the shop building is beyond the extent of the current geotechnical investigation. As such we recommend that additional shallow testing is completed prior to detailed design of the building and building consent application.

Prior to the placement of any additional fill or construction of foundations, the receiving subgrade or basecourse should be inspected and approved by an experienced geotechnical engineer familiar with the findings of this investigation and report.

Z Shop Building

The proposed Z Highway Shop building is located along the western boundary of the property, which at the time of our original geotechnical investigation was not part of the development site. Although we have not completed geotechnical testing in the immediate vicinity of the proposed Z Highway Shop building, we consider that the ground conditions are relatively consistent across the site and the preliminary foundation recommendations below are likely applicable, subject to further shallow testing.

The ground conditions in the western end of the site were generally found to comprise sandy and gravelly fill material to depths of 0.3m to 0.5m depth, and underlain by medium dense becoming very dense sandy gravel.

With respect to foundations, traditional concrete strip footings are recommended (or slab edge thickenings) are considered suitable for the support of the building and should be founded on the underlying sandy gravels. A geotechnical ultimate bearing capacity of at least 300 kPa is likely to be available for the design of the foundations subject the additional round of testing.

Forecourt Canopy, Pump Islands and Pavement Areas

The in-situ fill in vicinity of the proposed forecourt is generally 0.5m thick as recorded in BH 4-6 and DPSH 2-4, however TP1 and DPSH6 indicate that the fill could be 1.2m to 1.5m thick along the northern and eastern perimeter of the forecourt, respectively.

We recommend that the entire area is stripped down to the competent natural sandy gravels, which are likely to be present from 0.5m depth, down to 1.2m depth in some locations. Where it is necessary to bring the subgrade up to a suitable founding level, imported aggregate fill (AP40) should be placed and compacted in loose layers no less than 150mm thick. Any fill greater than 150mm thick should be subject to post compaction density testing by way of Nuclear Density Meter to achieve no less than 92% of the maximum dry density of the compacted material.

We consider that the pump islands can be supported on shallow pad footings, founded on competent natural sandy gravels which are likely to be encountered from 0.5m depth. Where our recommendations have been followed we consider that a geotechnical ultimate bearing capacity of 600 kPa is available for design. Strength reduction factors of 0.5 and 0.8 should be used for static and seismic design scenarios.

Pavements can be placed directly on the sandy gravelly fill material provided that the exposed surface is heavily compacted using a vibrating roller and any identified soft or spongy areas are removed and replaced with compacted AP40. For pavement and slab design a minimum CBR of 15% can be adopted.

Underground Storage Tanks (UST)

On the assumption that the proposed tanks are 2.5m in diameter and that there will be a minimum of 1.5m between ground level and the top of the tanks, then the likely founding depth will be approximately 4.0m below existing ground level.

It is understood that Z Energy has standard construction details in relation to the tanks and, following excavation, the tanks are usually installed with concrete deadman anchors and are laid on a bed of pea gravel up to 300mm thick. The tanks are then covered with a 200mm thick concrete slab.

The following site-specific ground related issues will need to be considered:

- The groundwater table is expected to be deeper than 8m below ground level across the whole site.
- The ground conditions in the area of the proposed UST generally comprise fill overlying dense sandy gravels. However, the depth of fill in the area varies from 0.2m to 1.2m, and is likely to be some 0.8m thick.
- The results of the DPSH tests completed in the area indicate that underlying sandy gravel is dense to very dense with values increasing from 23 to greater than 45 blows per 200mm.
- The standard penetration tests (SPT's) undertaken in the nearby borehole show very high field values, typically 60+, within the natural sandy gravels with occasionally lower values in the upper 2.0 metres of the soil profile. The trip hammer used to carry out the tests has an efficiency factor of 91.3% and therefore these values when compared to typical published values for trip hammers with 60% efficiency suggest that the SPT values are considerably higher than those recorded. The sandy gravels are therefore considered to be dense near surface increasing rapidly to very dense with depth.

It is considered unlikely that the groundwater will rise to a level within 4.0m of the ground surface so that only nominal design for potential buoyancy will need to be considered. The geotechnical ultimate bearing capacity at the base of the proposed excavations will be very high and certainly in excess of 1000kPa.

Because of the density of the sandy gravels and the presence of cobbles, the installation of sheet piles is likely to prove to be problematic and consideration should be given to undertaking the excavation for the tank pit in open cut. It is unlikely there will be issues with groundwater at the required excavation level.

Given the results of the SPT's we consider that a minimum angle of internal friction of the natural sandy gravels will be 45°; in order to maintain a short term factor of safety of 1.2 for temporary slopes, batters should be cut no steeper than 38.7° (1 vertical : 1.25 horizontal). Care should be taken to remove any locally loosened cobble sized debris in the slopes to

prevent falls into the open excavation during tank installation and construction at the base. We note that in the overlying fill excavations should be cut no steeper than 1 vertical : 1.75 horizontal. The excavations should be monitored by an experienced geotechnical engineer.

It should be noted that at the required temporary slopes the excavated tank pit at the surface will be some 6 metres wider all around the pit. Based on the drawing provided the excavation is likely to encroach on the canopy and underlying concrete forecourt, and may be close to the edge of Pump Island 4. It is therefore recommended that filling around the finished tank pit be undertaken by compacting the excavated materials in layers not exceeding 250mm and that the compaction requirement be a minimum of 92% of the maximum dry density of the material.

If this compaction standard is achieved then the recommendations as outlined above for Pump Island 4 foundations will still apply.

We note that the proximity of the pump islands and canopy should be considered from a long-term management perspective, as future maintenance or replacement of the tanks may prove difficult.

Car Care Facilities and Carwash

There is a car care facility and carwash building which will form part of the development, located adjacent to Brookside Road at the south-western end of the site. The ground conditions appear to be relatively consistent in the area comprising 0.3m to 0.4m of fill overlying dense sandy gravels to depths in excess of 6.0m.

It is recommended that the structures are supported on conventional strip and pad foundations, with foundations located on natural sandy gravels. A geotechnical ultimate bearing capacity of 600kPa is available for design. Strength reduction factors of 0.5 and 0.8 should be used for static and seismic design scenarios.

General Pavement and Road Areas

After stripping of any near surface soft and deleterious materials (fill and topsoil included) it is recommended that the exposed formation (natural sandy gravel) be compacted with a vibrating roller and any remaining localised soft areas removed and replaced with compacted AP65 or residual sandy gravel arisings from the tank pit excavations. For pavement design a CBR of 15% may be adopted.

We note that the above pavement recommendations apply to both the Z Energy and Rolly Inn carparks and vehicle crossings.

10. Report Limitations

This type of report will always be produced within certain limits and attention is therefore drawn to the Notes on Limitations included as Appendix A.

This report has been prepared by Ben Anderton and reviewed by Graham Dean.

We trust that the above information is sufficient for your present purposes. Should you have any queries please do not hesitate to contact the writer.

Yours Sincerely,





Ben Anderton BE(Hons) CMEngNZ CPEng
Senior Geotechnical Engineer

Graham Dean BSc CEng(UK) MICE CMEngNZ FGS
Senior Geotechnical Engineer
South Island Geotechnical Team Leader

Babbage Consultants Limited
128 Montreal Street, Sydenham, Christchurch 8023
PO Box 2373, Christchurch 8140
T 03 353 5514 **M** 027 288 5056 **E** ben.anderton@babbage.co.nz

Appendices

A: Notes on Limitations
B: Geotechnical Investigation Location Plans
C: Test Results
D: Proposed Site Plan

References

[1] Brown L.J. & Weeber J.H. 1992, Geology of the Christchurch Urban Area, scale 1:25,000, Institute of Geological & Nuclear Sciences, geological map 1, 1 sheet +104p.
[2] New Zealand Geotechnical Database: https://www.nzgd.org.nz, developed for the use of professional engineers to access geotechnical data shared by other engineers and clients.
[3] Canterbury Maps Viewer https://mapviewer.canterburymaps.govt.nz/?webmap=0c3ca2ccfe1145c5849dc39864590d0
[4] Technical Categories Map, Central City, http://cera.govt.nz/maps/technical-categories
[5]GNS Science Report R12/83 December 2012. 'Review of liquefaction hazard information in eastern Canterbury, including Christchurch City and parts of Selwyn, Waimakariri and Hurunui Districts.'

www.babbage.co.nz

2 Brookside Road, Rolleston 7914

Geotechnical Assessment Report

Project No 63235#CHGE

Appendix A

Notes on Limitations

Babbage Consultants Limited

128 Montreal Street, Sydenham, Christchurch
PO Box 2373, Christchurch 8140
DDI +64 3 353 5514 **M** +64 027 288 5056 **E** ben.anderton@babbage.co.nz

Notes on Limitations

Restriction of Intended Purpose

Babbage Consultants Limited (Babbage) has prepared this report solely for the benefit of the Client with respect to the Client's brief. The reliance by other parties on the information or opinions contained in this report shall, without our prior review and agreement in writing, be at such party's sole risk. Babbage accepts no responsibility or liability for the consequences of this report being used for any purpose or project other than that for which it was commissioned, or by any party with whom an agreement has not been executed.

Legal Interpretation

Opinions and judgements expressed herein are based on our understanding and interpretation of current regulatory standards, and should not be construed as legal opinions. Where opinions or judgements are to be relied on they should be independently verified with appropriate legal advice.

Reliability of Information

Where Babbage have undertaken site specific geotechnical investigations, the recommendations and opinions in this report are based on the data derived from the exploratory holes or tests undertaken specifically for those investigations as described herein.

The nature and continuity of subsoil conditions away from such exploratory holes or tests are inferred and it must be appreciated that actual conditions could vary considerably from those assumed and which have not therefore been taken into account in this report.

The comments made regarding groundwater conditions are based on observations made at the time the field work was carried out. It should be noted that groundwater levels will vary owing to seasonal, tidal, seismic and weather related effects.

The scope of the investigation was selected on the basis of specific requirements of the Client and may be inappropriate to another form of development, scheme or other requirement.

During excavation and construction the site should be examined by a Geotechnical Engineer or Engineering Geologist competent to judge whether the exposed subsoils are compatible with the inferred conditions on which the report has been based. It is possible that the nature of the exposed subsoils may require further investigation and the modification of the design based upon this report.

If during construction or excavation subsoil conditions are found to vary from those described in this report it is essential that Babbage are contacted as any such variations may affect the design parameters and recommendations provided.

Reliability of Third Party Data and Information

Where factual information has been provided to Babbage by the Client including reports, documents, drawings and/or geotechnical investigations undertaken by third parties, and on the basis of which Babbage has been requested to provide recommendations and opinions, Babbage

does not accept any liability whatsoever for the consequences of any errors or omissions in the information supplied, and has accepted such information in good faith as being reasonably representative of the conditions at the site.

As a user of Data extracted from the New Zealand Geotechnical Database (NZGD) Babbage (the User) is required to advise the Client of the following:

The User provides or uses Data from the NZGD and the Data was uploaded into that database without charge and strictly on the basis that any use is at the User's sole risk; no warranty or representation whatsoever (including as to its accuracy, adequacy, completeness, or fitness for any purpose) is provided in connection with the Data; and neither the Data Provider, the Owner or any other Person providing Data to the NZGD accepts any liability (including in negligence) in relation to it; and where any Data includes any other disclaimer or requirement relating to its use, the User will not use that Data unless it accepts or agrees to that disclaimer or requirement.

Babbage does not accept any liability whatsoever for the Data extracted from the NZGD, and the opinions and recommendations provided by Babbage as a result of the use of this Data are given in good faith and are accepted by the Client on this basis.

www.babbage.co.nz

2 Brookside Road, Rolleston 7914

Geotechnical Assessment Report

Project No 63235#CHGE

Appendix B

Geotechnical Investigation Plans

Babbage Consultants Limited

128 Montreal Street, Sydenham, Christchurch
PO Box 2373, Christchurch 8140
DDI +64 3 353 5514 **M** +64 027 288 5056 **E** ben.anderton@babbage.co.nz



Notes: Shallow testing was carried out by suitably trained and experienced Babbage Engineers. Aerial imagery obtained from Canterbury Maps Viewer: https://mapviewer.canterburymaps.govt.nz.
Lot/legal boundaries are approximate - Drawing not to be used for design / surveying purposes. Test Locations are approximate. Not to scale.

Scala Penetrometer (SP) | Hand Auger (HA) | HA + SP | Cone Penetration Test (CPT) | Borehole (BH) | Test Pit (TP)

Babbage
partners in excellence®

Babbage Consultants Limited
128 Montreal Street, Sydenham, Christchurch
PO Box 2373 - Christchurch 8140, New Zealand
T: 03 379 2734 E: solutions@babbage.co.nz
www.babbage.co.nz

PROJECT

2 Brookside Road, Rolleston 7614
Lot 1 DP 507204

DRAWING TITLE

Geotechnical Investigation Plan

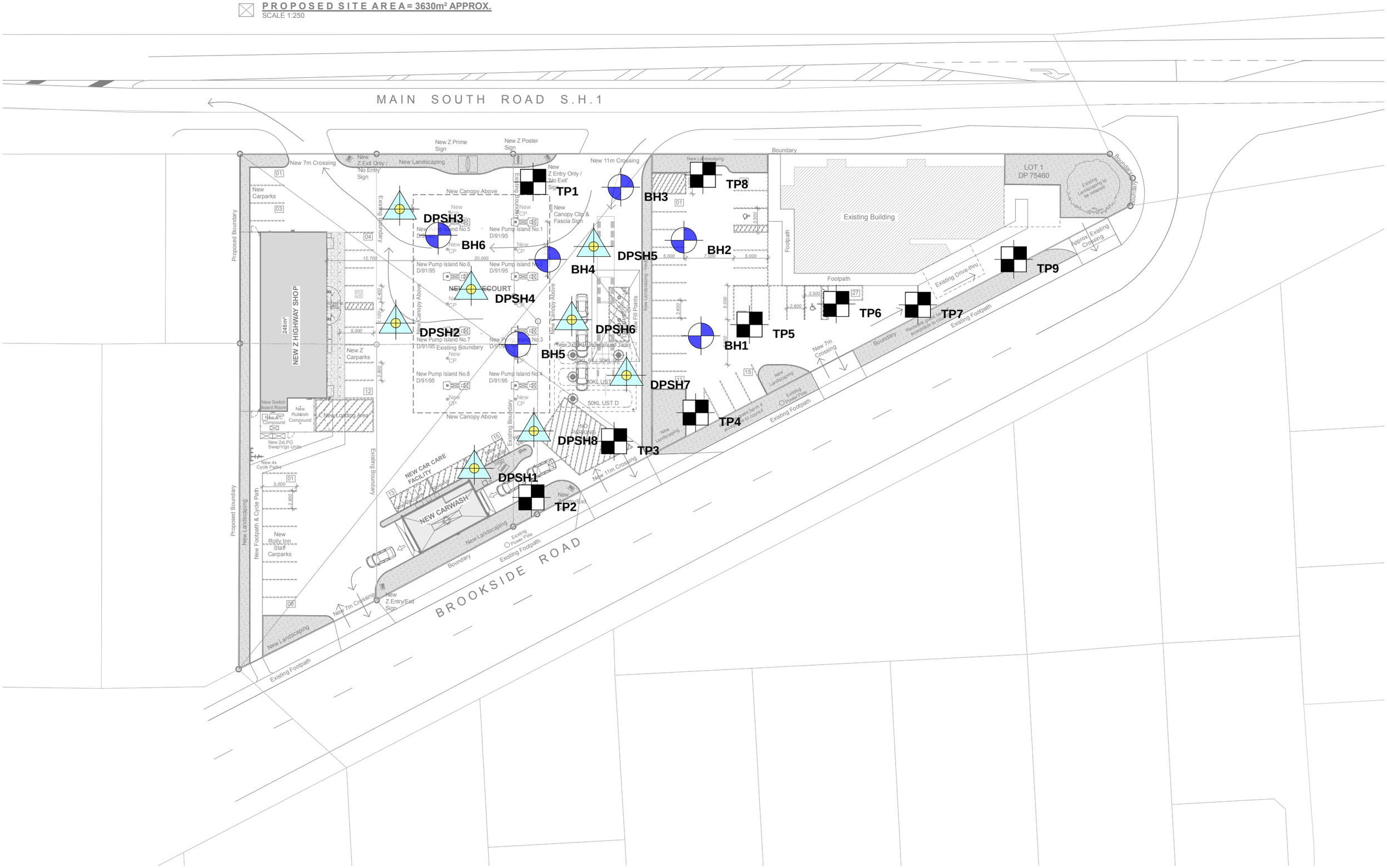
Job No.	Drawing No.	Revision
63235#CHGE	DWG G01	A

Designed	Drawn	Checked
BEA	BEA	GPD

Date: 14 January 2020

N

PROPOSED SITE AREA = 3630m² APPROX.
SCALE 1:250



Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd-Rolleston NTI
2 Brookside Road
Rolleston

SCHEME

Legal Description
LOT 1 DP 75460

SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS

AUCKLAND	HAMILTON
P (09) 309 9660	P (07) 839 5622
F (09) 309 9661	F (07) 838 2500
P.O.BOX 8232	P.O.BOX 1465
SYMONDS ST	HAMILTON NZ
AUCKLAND NZ	WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division. • Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws. • All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommissions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	SCHEME ISSUE	21/01/2020	J.L

PROPOSED SITE PLAN SCHEME 28

SCALE @ A1. 1:250 SCALE @ A3. 1:500

CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

Z-PS-A028

VERSION. REV. A

www.babbage.co.nz

2 Brookside Road, Rolleston 7914

Geotechnical Assessment Report

Project No 63235#CHGE

Appendix C

Test Results

Babbage Consultants Limited

128 Montreal Street, Sydenham, Christchurch
PO Box 2373, Christchurch 8140
DDI +64 3 353 5514 **M** +64 027 288 5056 **E** ben.anderton@babbage.co.nz

SUMMARY OF SOIL PROFILE & TESTING

Babbage®	JOB No.	60570#CHGE
PROJECT: Z Energy Rolleston	TEST PIT No.	TP01
DATE STARTED: 02/05/2017	METHOD: EX	EXCAVATOR: 5.5 tonne	SHEET 1 of 1
DATE FINISHED: 02/05/2017	DUG BY: LandTest	FLUID: None	LOGGED BY: SM

SOIL/ROCK DESCRIPTION*

DATUM:
EASTING: 5173313.053 mE
NORTHING: 1549730.564 mN
SURFACE ELEVATION:
For an explanation of the terms & symbols used see attached sheets.

SAMPLES RECOVERED & TEST RESULTS

MOISTURE CONTENTS = ●
LIMITS: PLASTIC = × LIQUID = +
20 40 60
IN SITU VANE (kPa) = ✳
50 100 150

OTHER TESTS
Corrected Shear Vane Result **
U = peak / R = remoulded
SPT / Scala Penetrometer

DEPTH (m)	SOIL SYMBOL	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE	DEPTH (m)
0.00									0
1.00									1
2.00									2
3.00									3
4.00									4
5.00									5

Sandy fine to coarse gravelly FILL; greyish brown. Moist; Subrounded to rounded. Sand medium to coarse.

Sandy fine to coarse gravelly FILL; some cobbles. Dense; moist; subrounded to rounded; sand fine to coarse. Brick fragments.

CONDITION: O — TYPE: EX

End of Test Pit at 1.5 m

Remarks: Groundwater was not observed.

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

TEST PIT LOG M:\GEOTECHNICAL TEAM\PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\TEST RESULTS\TEST PITS\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®	JOB No.	60570#CHGE
PROJECT: Z Energy Rolleston	TEST PIT No.	TP02
DATE STARTED: 02/05/2017	METHOD: EX	EXCAVATOR: 5.5 tonne	SHEET 1 of 1
DATE FINISHED: 02/05/2017	DUG BY: LandTest	FLUID: None	LOGGED BY: SM

SOIL/ROCK DESCRIPTION*

DATUM:
EASTING: 5173266.315 mE
NORTHING: 1549751.544 mN
SURFACE ELEVATION:
For an explanation of the terms & symbols used see attached sheets.

SAMPLES RECOVERED & TEST RESULTS

MOISTURE CONTENTS = ●
LIMITS: PLASTIC = × LIQUID = +
20 40 60
IN SITU VANE (kPa) = ✳
50 100 150

OTHER TESTS
Corrected Shear Vane Result **
U = peak / R = remoulded
SPT / Scala Penetrometer

DEPTH (m)	SOIL SYMBOL	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE
0.00		Sandy fine to coarse gravelly FILL; grey. Moist; sand fine to coarse.						
		Sandy fine to coarse GRAVEL with minor silt and some cobbles; brown. Medium dense; moist; subrounded to rounded greywacke; sand fine to medium.			O	EX	100	
1.00								
		End of Test Pit at 1.5 m						
2.00								
3.00								
4.00								
5.00								

DEPTH (m): 1, 2, 3, 4, 5

Remarks: Groundwater was not observed.

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

TEST PIT LOG M:\GEOTECHNICAL TEAM\PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\TEST RESULTS\TEST PITS\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®

JOB No.	60570#CHGE		
PROJECT: Z Energy Rolleston	TEST PIT No.	TP03	
DATE STARTED: 02/05/2017	METHOD: EX	EXCAVATOR: 5.5 tonne	SHEET 1 of 1
DATE FINISHED: 02/05/2017	DUG BY: LandTest	FLUID: None	LOGGED BY: SM

SOIL/ROCK DESCRIPTION*

DATUM:
EASTING: 5173277.484 mE
NORTHING: 1549759.757 mN
SURFACE ELEVATION:

For an explanation of the terms & symbols used see attached sheets.

SAMPLES RECOVERED & TEST RESULTS

MOISTURE CONTENTS = ●
LIMITS: PLASTIC = × LIQUID = +
20 40 60
IN SITU VANE (kPa) = ✳
50 100 150

OTHER TESTS
Corrected Shear Vane Result **
U = peak / R = remoulded
SPT / Scala Penetrometer

DEPTH (m)	SOIL SYMBOL		GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE
0.00		Sandy fine to coarse gravelly FILL; brown.							
		Sandy silty fine to medium GRAVEL; light brown. Medium dense; moist; subrounded to rounded, greywacke.							
		Silty SAND; dark brown. Dense; moist; Sand medium to coarse.							
1.00		Sandy fine to coarse GRAVEL some cobbles; dark brown. Medium dense; moist; subrounded to rounded, greywacke; sand medium to coarse.				O	EX	100	
		End of Test Pit at 1.5 m							
2.00									
3.00									
4.00									
5.00									

DEPTH (m): 1, 2, 3, 4, 5

Remarks: Groundwater was not observed.

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

TEST PIT LOG M:\GEOTECHNICAL TEAM\PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\TEST RESULTS\TEST PITS\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®	JOB No.	60570#CHGE
PROJECT: Z Energy Rolleston	TEST PIT No.	TP04
DATE STARTED: 02/05/2017	METHOD: EX	EXCAVATOR: 5.5 tonne	SHEET 1 of 1
DATE FINISHED: 02/05/2017	DUG BY: LandTest	FLUID: None	LOGGED BY: SM

SOIL/ROCK DESCRIPTION*

DATUM:
EASTING: 5173290.499 mE
NORTHING: 1549767.508 mN
SURFACE ELEVATION:
For an explanation of the terms & symbols used see attached sheets.

SAMPLES RECOVERED & TEST RESULTS

DEPTH (m)	SOIL SYMBOL	SOIL/ROCK DESCRIPTION*	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE	MOISTURE CONTENTS = ● LIMITS: PLASTIC = × LIQUID = + (20, 40, 60) IN SITU VANE (kPa) = ✳ (50, 100, 150)	OTHER TESTS: Corrected Shear Vane Result ** U = peak / R = remoulded; SPT / Scala Penetrometer	DEPTH (m)
0.00		Sandy fine to medium gravelly FILL; brown. Slabs of concrete present.										0
		Sandy medium to coarse GRAVEL (PIPE BACKFILL), medium to coarse gravel some cobbles.				O	EX	100				
1.00		Sandy medium to coarse GRAVEL with silt some cobbles; dark brown. Dense, moist. Subrounded to rounded, greywacke. Sand fine to coarse.										1
2.00		End of Test Pit at 1.5 m										2
3.00												3
4.00												4
5.00												5

Remarks: Groundwater was not observed.

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

TEST PIT LOG M:\GEOTECHNICAL TEAM\PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\TEST RESULTS\TEST PITS\BABBAGE_JOB TEMPLATE FOLDER\GINT BABBAGE_JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®

JOB No.	60570#CHGE		
PROJECT: Z Energy Rolleston	TEST PIT No.	TP05	
DATE STARTED: 02/05/2017	METHOD: EX	EXCAVATOR: 5.5 tonne	SHEET 1 of 1
DATE FINISHED: 02/05/2017	DUG BY: LandTest	FLUID: None	LOGGED BY: SM

SOIL/ROCK DESCRIPTION*

DATUM:
EASTING: 5173305.021 mE
NORTHING: 1549767.508 mN
SURFACE ELEVATION:
For an explanation of the terms & symbols used see attached sheets.

SAMPLES RECOVERED & TEST RESULTS

MOISTURE CONTENTS = ●
LIMITS: PLASTIC = × LIQUID = +
20 40 60
IN SITU VANE (kPa) = ✳
50 100 150

OTHER TESTS
Corrected Shear Vane Result **
U = peak / R = remoulded
SPT / Scala Penetrometer

DEPTH (m)	SOIL SYMBOL	SOIL/ROCK DESCRIPTION*	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE	OTHER TESTS	DEPTH (m)
0.00		Sandy fine to medium gravelly FILL; brown.									0
		Sandy fine to coarse GRAVEL with some silt; dark brown. Moist. Subrounded to rounded greywacke.									
		Sandy fine to coarse Gravel with some silt and cobbles; dark brown. Moist, subrounded to rounded greywacke.				O	EX	100			
1.00											1
2.00		End of Test Pit at 1.8 m									2
3.00											3
4.00											4
5.00											5

Remarks: Groundwater was not observed.

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

TEST PIT LOG M:\GEOTECHNICAL TEAM\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\TEST RESULTS\TEST PITS\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®	JOB No.	60570#CHGE
PROJECT: Z Energy Rolleston	TEST PIT No.	TP06
DATE STARTED: 02/05/2017	METHOD: EX	EXCAVATOR: 5.5 tonne	SHEET 1 of 1
DATE FINISHED: 02/05/2017	DUG BY: LandTest	FLUID: None	LOGGED BY: SM

SOIL/ROCK DESCRIPTION*

DATUM:
EASTING: 5173316.538 mE
NORTHING: 1549783.907 mN
SURFACE ELEVATION:
For an explanation of the terms & symbols used see attached sheets.

SAMPLES RECOVERED & TEST RESULTS

MOISTURE CONTENTS = ●
LIMITS: PLASTIC = × LIQUID = +
20 40 60
IN SITU VANE (kPa) = ✳
50 100 150

OTHER TESTS
Corrected Shear Vane Result **
U = peak / R = remoulded
SPT / Scala Penetrometer

DEPTH (m)	SOIL SYMBOL	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE	DEPTH (m)
0.00									0
	Sandy fine to medium gravelly FILL; brown. Moist, subrounded to rounded greywacke.								
	Sandy medium to coarse GRAVEL with some silt; dark brown. Moist, subrounded to rounded greywacke.								
	Sandy medium to coarse GRAVELwith some cobbles; brown. Moist, subrounded to rounded greywacke.				O	EX	100		
1.00									1
	End of Test Pit at 1.5 m								
2.00									2
3.00									3
4.00									4
5.00									5

Remarks: Groundwater was not observed.

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

TEST PIT LOG M:\GEOTECHNICAL TEAM\PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\TEST RESULTS\TEST PITS\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®	JOB No.	60570#CHGE	
PROJECT: Z Energy Rolleston	TEST PIT No.	TP07	
DATE STARTED: 02/05/2017	METHOD: EX	EXCAVATOR: 5.5 tonne	SHEET 1 of 1
DATE FINISHED: 02/05/2017	DUG BY: LandTest	FLUID: None	LOGGED BY: SM

SOIL/ROCK DESCRIPTION*

DATUM:
EASTING: 5173318.124 mE
NORTHING: 1549789.726 mN
SURFACE ELEVATION:
For an explanation of the terms & symbols used see attached sheets.

SAMPLES RECOVERED & TEST RESULTS

MOISTURE CONTENTS = ●
LIMITS: PLASTIC = × LIQUID = +
20 40 60
IN SITU VANE (kPa) = ✳
50 100 150

OTHER TESTS
Corrected Shear Vane Result **
U = peak / R = remoulded
SPT / Scala Penetrometer

DEPTH (m)	SOIL SYMBOL	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE
0.00								
	Sandy fine to coarse gravelly FILL; dark brown.							
	Sandy fine to coarse GRAVEL with some cobbles; light brown. Moist; subrounded to rounded, greywacke; Sand medium to coarse.				O	EX	100	
1.00								
	End of Test Pit at 1.5 m							
2.00								
3.00								
4.00								
5.00								

DEPTH (m): 1, 2, 3, 4, 5

Remarks: Groundwater was not observed.

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

TEST PIT LOG M:\GEOTECHNICAL TEAM\PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\TEST RESULTS\TS\TEST PITS\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®	JOB No.	60570#CHGE
PROJECT: Z Energy Rolleston	TEST PIT No.	TP08
DATE STARTED: 02/05/2017	METHOD: EX	EXCAVATOR: 5.5 tonne	SHEET 1 of 1
DATE FINISHED: 02/05/2017	DUG BY: LandTest	FLUID: None	LOGGED BY: SM

SOIL/ROCK DESCRIPTION*

DATUM:
EASTING: 5173323.713 mE
NORTHING: 1549753.356 mN
SURFACE ELEVATION:

For an explanation of the terms & symbols used see attached sheets.

DEPTH (m)	SOIL SYMBOL	DESCRIPTION	GEOLOGIC UNIT	GROUND WATER
0.00		Sandy medium to coarse gravelly FILL; light brown.		
		Sandy medium to coarse gravels with some silt and cobbles; dark brown. Medium Dense, moist. Subrounded to rounded greywacke; sand fine to medium.		
1.00		End of Test Pit at 1.5 m		
2.00				
3.00				
4.00				
5.00				

SAMPLES RECOVERED & TEST RESULTS

CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE
	O	EX	100	

MOISTURE CONTENTS = ●
LIMITS: PLASTIC = × LIQUID = +
20 40 60
IN SITU VANE (kPa) = ✳
50 100 150

OTHER TESTS
Corrected Shear Vane Result **
U = peak / R = remoulded
SPT / Scala Penetrometer

DEPTH (m): 1, 2, 3, 4, 5

Remarks: Groundwater was not observed.

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

TEST PIT LOG M:\GEOTECHNICAL TEAM\PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\TEST RESULTS\TEST PITS\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®

JOB No.	60570#CHGE		
PROJECT: Z Energy Rolleston	TEST PIT No.	TP09	
DATE STARTED: 02/05/2017	METHOD: EX	EXCAVATOR: 5.5 tonne	SHEET 1 of 1
DATE FINISHED: 02/05/2017	DUG BY: LandTest	FLUID: None	LOGGED BY: SM

SOIL/ROCK DESCRIPTION*

DATUM:
EASTING: 5173340.12 mE
NORTHING: 1549801.894 mN
SURFACE ELEVATION:
For an explanation of the terms & symbols used see attached sheets.

SAMPLES RECOVERED & TEST RESULTS

DEPTH (m)	SOIL SYMBOL	SOIL/ROCK DESCRIPTION*	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE	MOISTURE CONTENTS = ● LIMITS: PLASTIC = × LIQUID = + (20 / 40 / 60) IN SITU VANE (kPa) = ✳ (50 / 100 / 150)	OTHER TESTS: Corrected Shear Vane Result ** U = peak / R = remoulded; SPT / Scala Penetrometer	DEPTH (m)
0.00		Sandy fine to coarse gravel (FILL); brown										0
		Clayey SILT; yellow brown. Dry, Stiff.										
		Clayey SILT with lots of roots; dark brown. Dry, Stiff.				O	EX	100				
1.00		Clayey SILT; yellow brown. Dry, very stiff.										1
		End of Test Pit at 1.1 m										
2.00												2
3.00												3
4.00												4
5.00												5

Remarks: Groundwater was not observed.

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

TEST PIT LOG M:\GEOTECHNICAL TEAM\PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\TEST RESULTS\TEST PITS\BABBAGE_JOB TEMPLATE FOLDER\GINT BABBAGE_JOB TEMPLATE.GPJ

DPSH TEST LOG

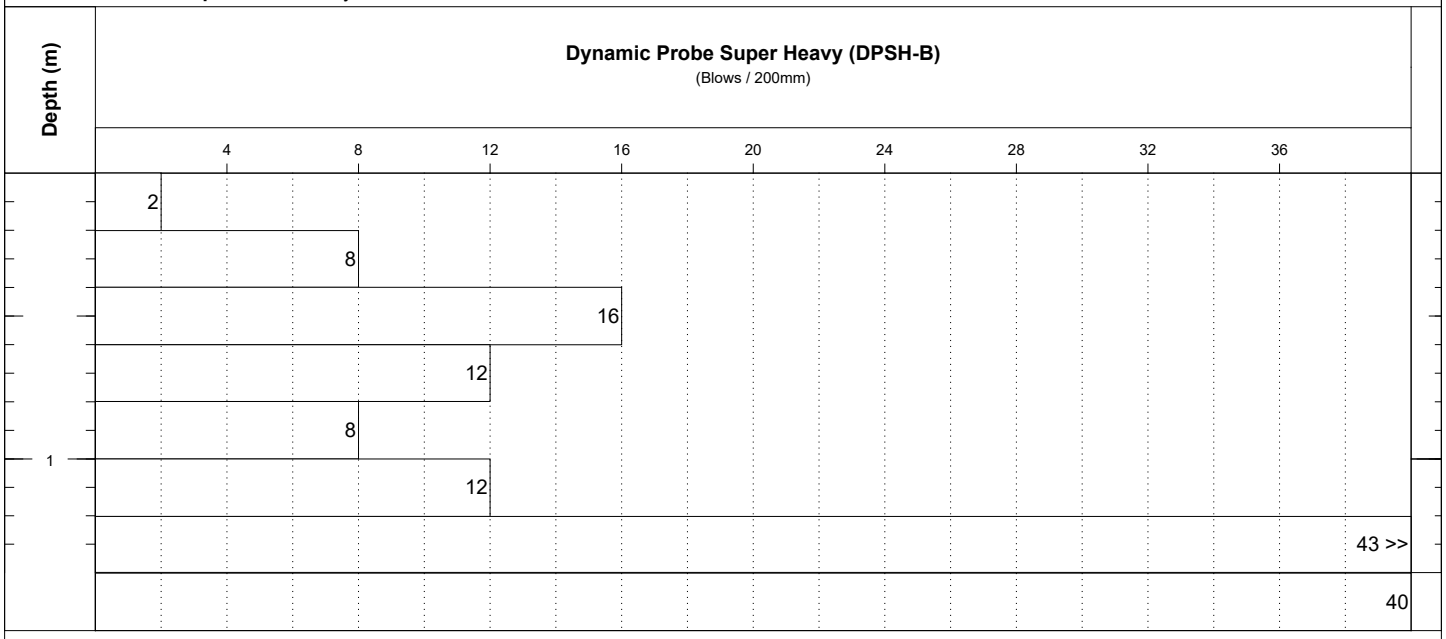
Job Number: 17224

Client: Babbage
Project: 2 Brookside Road

Test Label: 2B_DPSH001

Site Location: 2 Brookside Road, Rolleston
Test Date: 2/05/2017
Coordinates: -43.59188, 172.37743 (WGS84)
Supervisor: Sally Mitchell

Operator: Ross Lawler
Rig: P001245
Hole Depth: 1.4m
EOH Reason: Hammer refusal



Remarks

DPSH-B refusal at two consecutive increments of 40 blows or over

Average Energy Transfer Ratio for the DPSH-B hammer on each rig:

P 001245: 95%
P 001249: 90%

Calibration performed on 4th November 2014

Generated with Core-GS by Geroc

Created: 8/05/2017 10:48:07 AM

DPSH TEST LOG

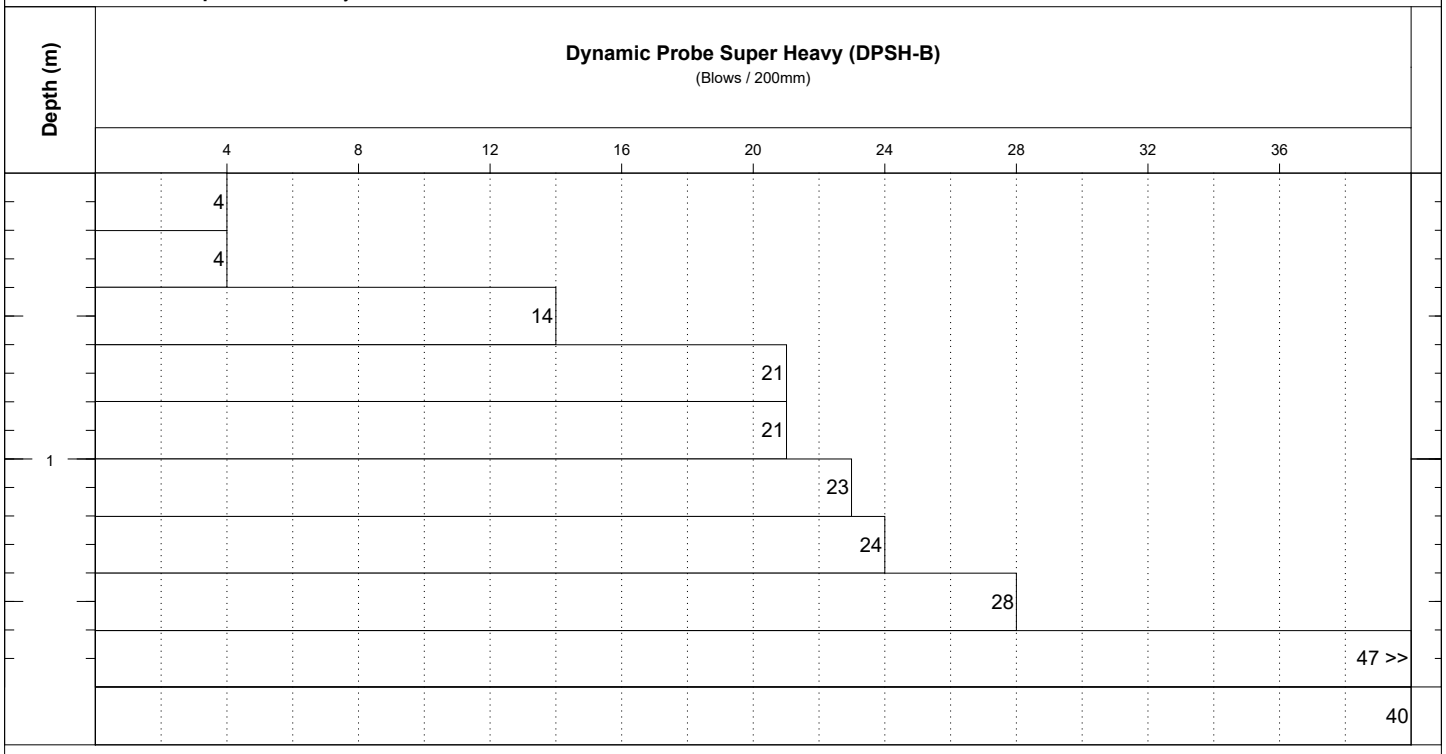
Job Number: 17224

Client: Babbage
Project: 2 Brookside Road

Test Label: 2B_DPSH002

Site Location: 2 Brookside Road, Rolleston
Test Date: 2/05/2017
Coordinates: -43.59175, 172.37715 (WGS84)
Supervisor: Sally Mitchell

Operator: Ross Lawler
Rig: P001245
Hole Depth: 1.8m
EOH Reason: Hammer refusal



Remarks

DPSH-B refusal at two consecutive increments of 40 blows or over

Average Energy Transfer Ratio for the DPSH-B hammer on each rig:

P 001245: 95%
P 001249: 90%

Calibration performed on 4th November 2014

Generated with Core-GS by Geroc

Created: 8/05/2017 10:48:37 AM

DPSH TEST LOG

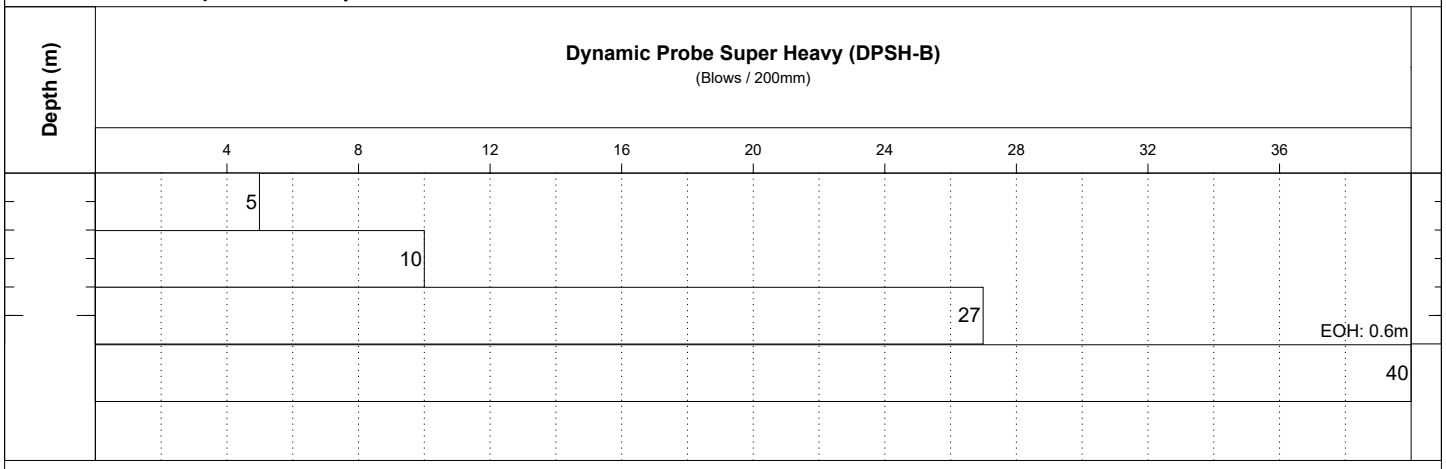
Job Number: 17224

Client: Babbage
Project: 2 Brookside Road

Test Label: 2B_DPSH003

Site Location: 2 Brookside Road, Rolleston
Test Date: 2/05/2017
Coordinates: -43.59158, 172.37712 (WGS84)
Supervisor: Sally Mitchell

Operator: -
Rig: P001245
Hole Depth: 0.6m
EOH Reason: Hammer refusal



Remarks

DPSH-B refusal at two consecutive increments of 40 blows or over

Average Energy Transfer Ratio for the DPSH-B hammer on each rig:

P 001245: 95%
P 001249: 90%

Calibration performed on 4th November 2014

Generated with Core-GS by Geroc

Created: 8/05/2017 11:13:08 AM

DPSH TEST LOG

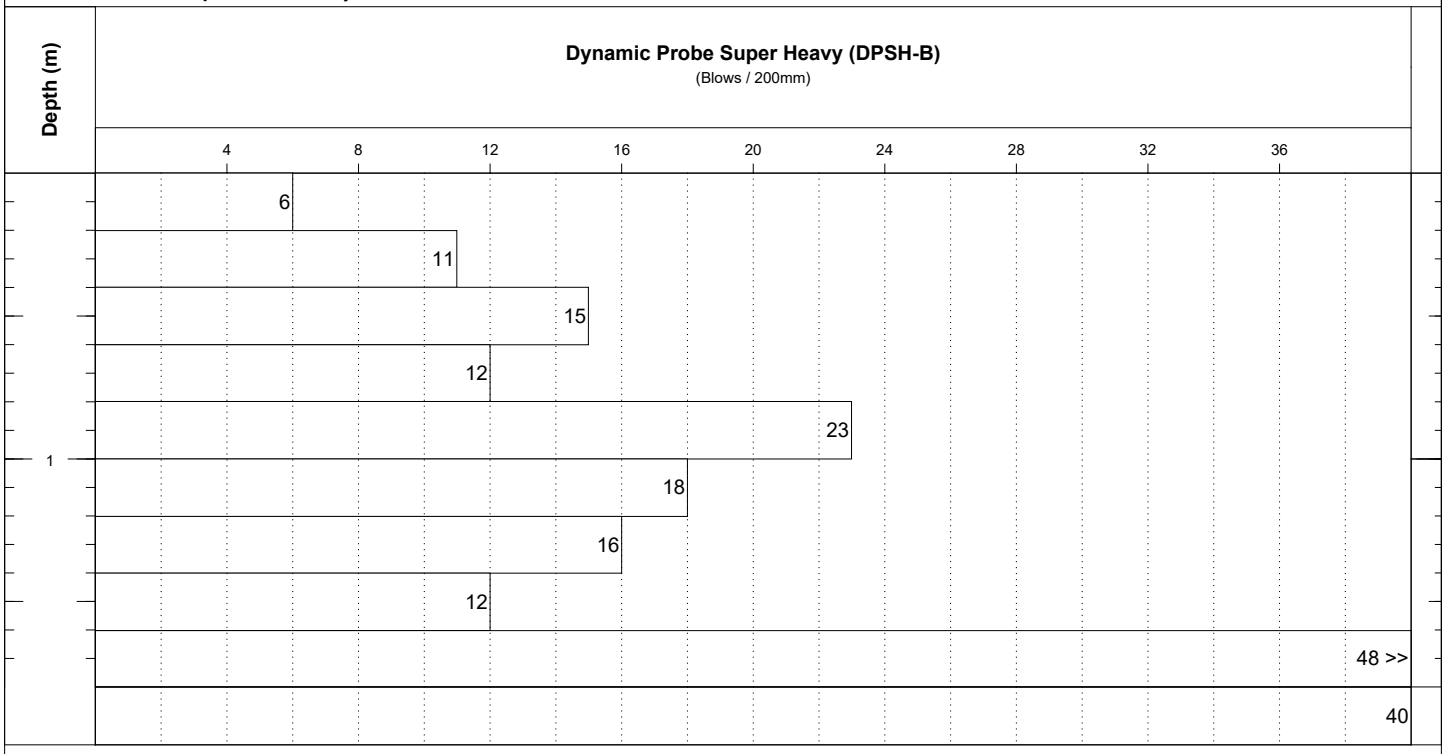
Job Number: 17224

Client: Babbage
Project: 2 Brookside Road

Test Label: 2B_DPSH004

Site Location: 2 Brookside Road, Rolleston
Test Date: 2/05/2017
Coordinates: -43.59164, 172.37735 (WGS84)
Supervisor: Sally Mitchell

Operator: Ross Lawler
Rig: P001245
Hole Depth: 1.8m
EOH Reason: Hammer refusal



Remarks

DPSH-B refusal at two consecutive increments of 40 blows or over

Average Energy Transfer Ratio for the DPSH-B hammer on each rig:

P 001245: 95%
P 001249: 90%

Calibration performed on 4th November 2014

Generated with Core-GS by Geroc

Created: 8/05/2017 11:12:13 AM

DPSH TEST LOG

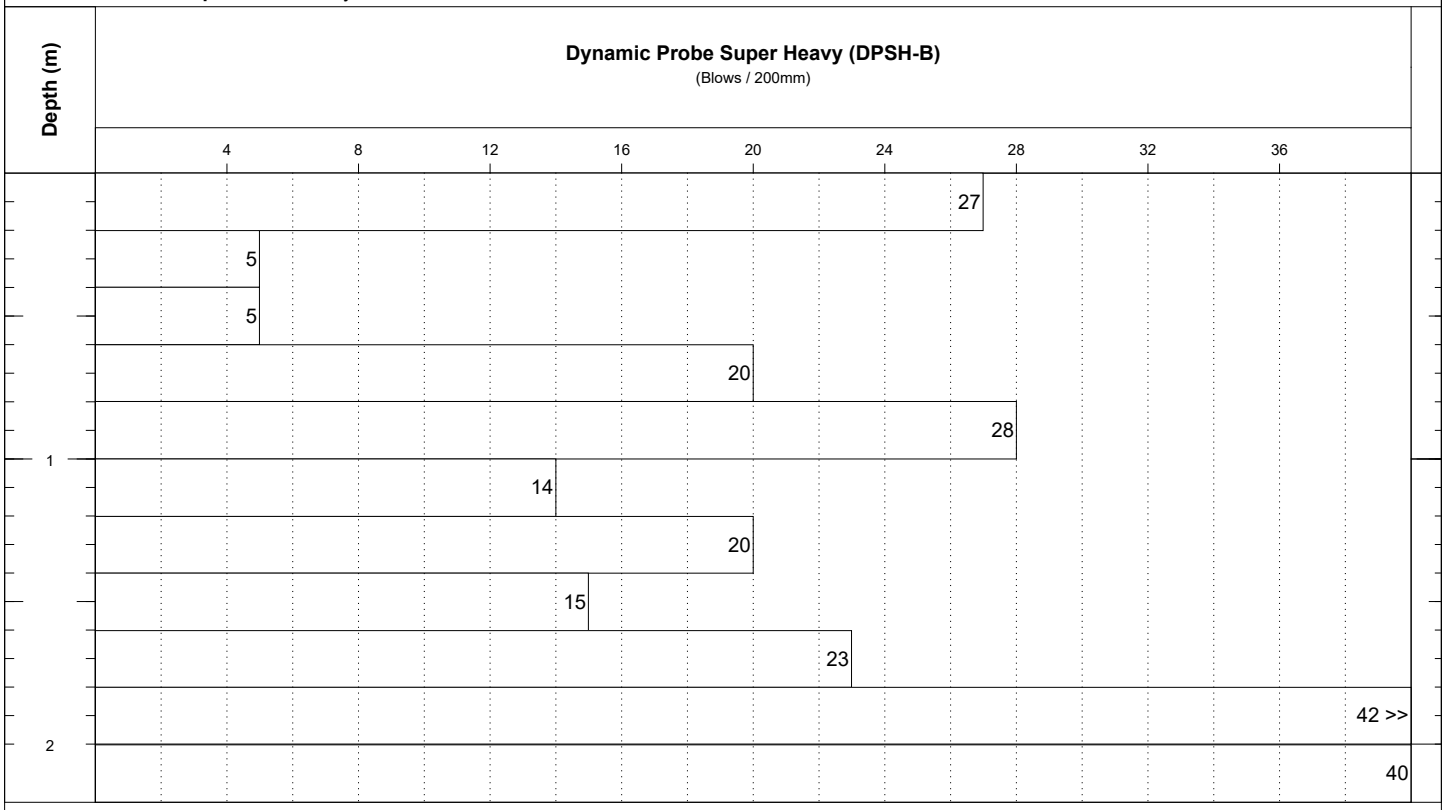
Job Number: 17224

Client: Babbage
Project: 2 Brookside Road

Test Label: 2B_DPSH005

Site Location: 2 Brookside Road, Rolleston
Test Date: 2/05/2017
Coordinates: -43.59152, 172.37735 (WGS84)
Supervisor: Sally Mitchell

Operator: Ross Lawler
Rig: P001245
Hole Depth: 2m
EOH Reason: Hammer refusal



Remarks

DPSH-B refusal at two consecutive increments of 40 blows or over

Average Energy Transfer Ratio for the DPSH-B hammer on each rig:

P 001245: 95%
P 001249: 90%

Calibration performed on 4th November 2014

Generated with Core-GS by Geroc

Created: 8/05/2017 11:11:32 AM

DPSH TEST LOG

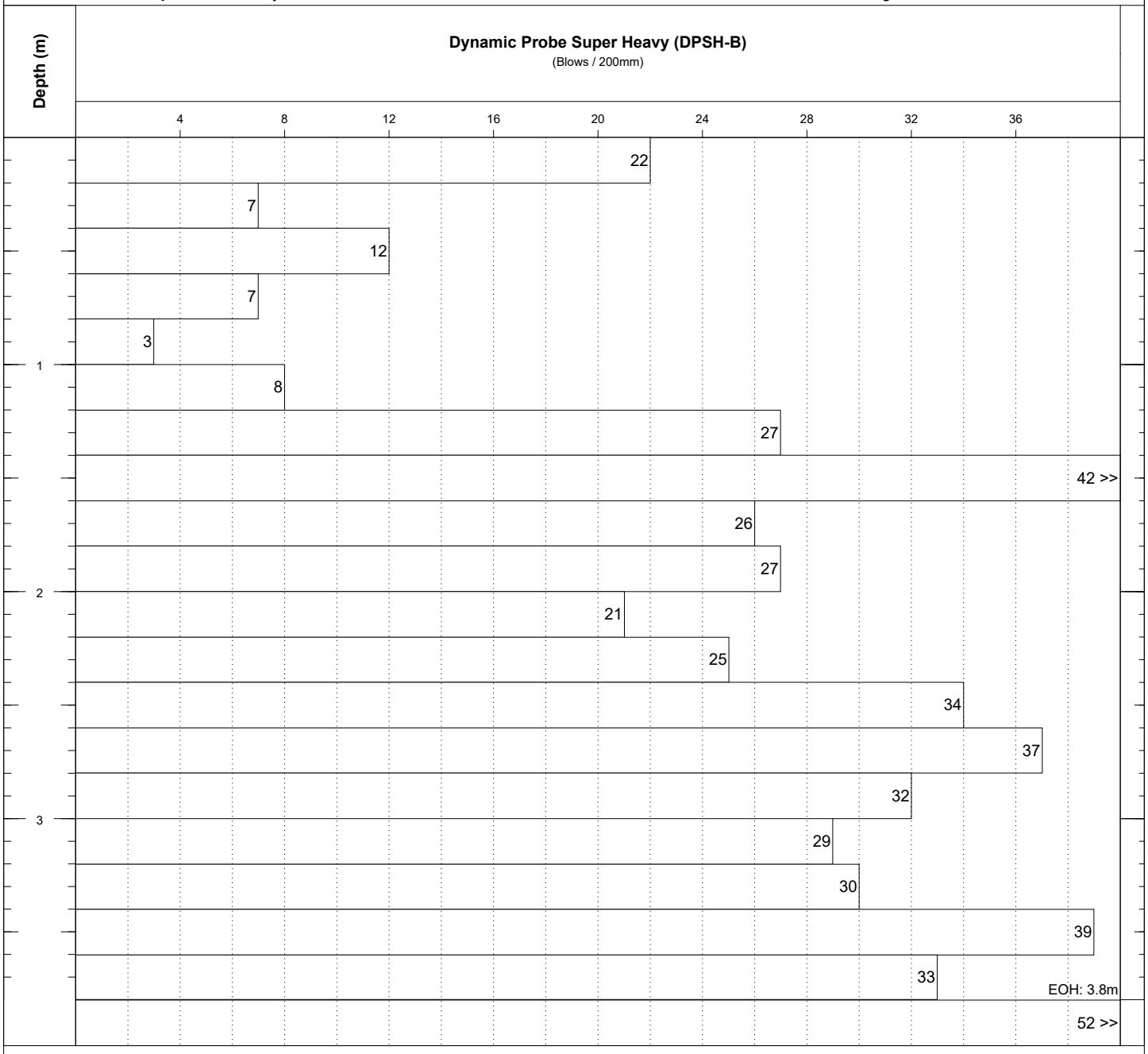
Job Number: 17224

Client: Babbage
Project: 2 Brookside Road

Test Label: 2B_DPSH006

Site Location: 2 Brookside Road, Rolleston
Test Date: 2/05/2017
Coordinates: -43.59163, 172.37752 (WGS84)
Supervisor: Sally Mitchell

Operator: Ross Lawler
Rig: P001245
Hole Depth: 3.8m
EOH Reason: Target



Remarks

DPSH-B refusal at two consecutive increments of 40 blows or over

Average Energy Transfer Ratio for the DPSH-B hammer on each rig:

P 001245: 95%
P 001249: 90%

Calibration performed on 4th November 2014

Generated with Core-GS by Geroc

Created: 8/05/2017 11:11:06 AM

DPSH TEST LOG

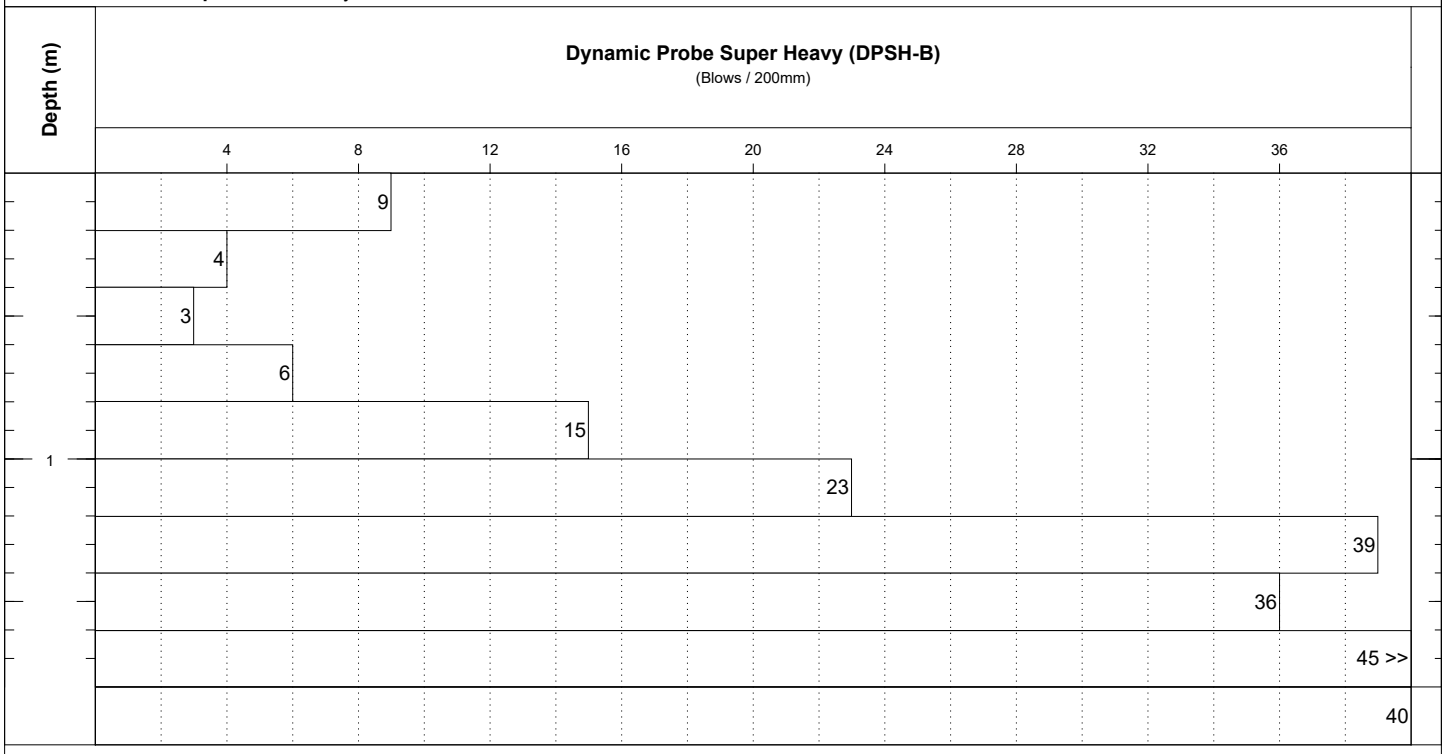
Job Number: 17224

Client: Babbage
Project: 2 Brookside Road

Test Label: 2B_DPSH007

Site Location: 2 Brookside Road, Rolleston
Test Date: 2/05/2017
Coordinates: -43.59168, 172.37759 (WGS84)
Supervisor: Sally Mitchell

Operator: Ross Lawler
Rig: P001245
Hole Depth: 1.8m
EOH Reason: Hammer refusal



Remarks

DPSH-B refusal at two consecutive increments of 40 blows or over

Average Energy Transfer Ratio for the DPSH-B hammer on each rig:

P 001245: 95%
P 001249: 90%

Calibration performed on 4th November 2014

Generated with Core-GS by Geroc

Created: 8/05/2017 11:10:47 AM

DPSH TEST LOG

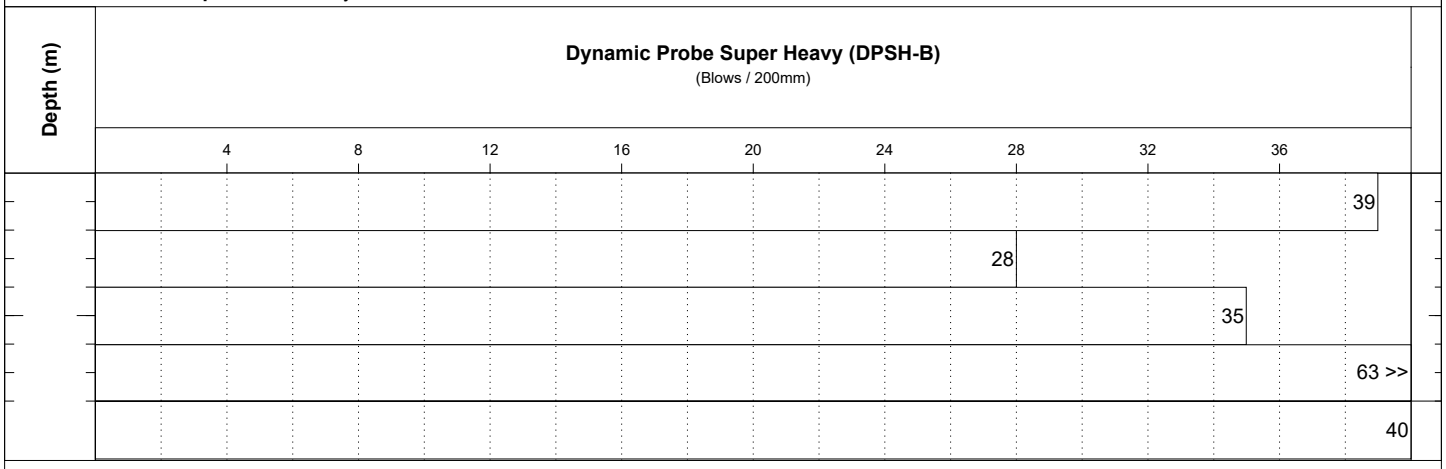
Job Number: 17224

Client: Babbage
Project: 2 Brookside Road

Test Label: 2B_DPSH008

Site Location: 2 Brookside Road, Rolleston
Test Date: 2/05/2017
Coordinates: -43.59179, 172.37749 (WGS84)
Supervisor: Sally Mitchell

Operator: Ross Lawler
Rig: P001245
Hole Depth: 0.8m
EOH Reason: Hammer refusal



Remarks

DPSH-B refusal at two consecutive increments of 40 blows or over

Average Energy Transfer Ratio for the DPSH-B hammer on each rig:

P 001245: 95%
P 001249: 90%

Calibration performed on 4th November 2014

Generated with Core-GS by Geroc

Created: 8/05/2017 11:10:30 AM

SUMMARY OF SOIL PROFILE & TESTING

Babbage®

JOB No.	60570#CHGE		
PROJECT: 2 Brookside Road, Rolleston	HOLE No.	BH01	
DATE STARTED: 19/05/2017	METHOD: SD/SPT	RIG: Geoprobe 8140LS	SHEET 1 of 1
DATE FINISHED: 19/05/2017	DRILLED BY: McMillan	FLUID: Water	LOGGED BY: SM

DEPTH (m)	SOIL SYMBOL	SOIL/ROCK DESCRIPTION*	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE	MOISTURE CONTENTS = ● LIMITS: PLASTIC = × LIQUID = + (20 40 60) IN SITU VANE (kPa) = ✳ (50 100 150)	OTHER TESTS: Corrected Shear Vane Result ** U = peak / R = remoulded; SPT / Scala Penetrometer	DEPTH (m)
		DATUM: EASTING: NORTHING: SURFACE ELEVATION: For an explanation of the terms & symbols used see attached sheets.										
		Silty fine to coarse gravelly FILL; Dark brown.				D	SD	100				
		Sandy fine to coarse GRAVELwith some cobbles; light brown. Very dense, subangular to subrounded greywacke. Sand medium to coarse.										
1.00						S	SPT	100			N = 41 10/12/12/11/9/9	1
						D	SD	100				
2.00						S	SPT	100			N = 60+ 12/15/21/18/21	2
						D	SD	100				
3.00						S	SPT	100			N = 56 8/15/18/14/11/13	3
						D	SD	100				
4.00		Sandy fine to coarse GRAVEL; grey. Very dense, subangular to subrounded greywacke. Sand medium to coarse.				S	SPT	100			N = 60+ 15/19/23/22/15	4
						D	SD	100				
5.00						S	SPT	100			N = 60 13/16/17/16/14/13	5
						D	SD	100				
6.00						S	SPT	100			N = 60+ 4/14/22/24/14	6
		End of Borehole at 6.375 m										

Remarks: Groundwater was not observed.
Efficiency 91.3%

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

BABBAGE LOG NEW LOGO M:\GEOTECHNICAL TEAM\PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®

PROJECT: 2 Brookside Road, Rolleston		JOB No.	60570#CHGE
		HOLE No.	BH02
DATE STARTED: 22/05/2017	METHOD: SD/SPT	RIG: Geoprobe 8140LS	SHEET 1 of 1
DATE FINISHED: 22/05/2017	DRILLED BY: McMillan	FLUID: Water	LOGGED BY: SM

DEPTH (m)	SOIL SYMBOL	SOIL/ROCK DESCRIPTION*	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE	MOISTURE CONTENTS = ● LIMITS: PLASTIC = × LIQUID = + (20 40 60) IN SITU VANE (kPa) = ✳ (50 100 150)	OTHER TESTS: Corrected Shear Vane Result ** U = peak / R = remoulded; SPT / Scala Penetrometer	DEPTH (m)
		DATUM: EASTING: NORTHING: SURFACE ELEVATION: For an explanation of the terms & symbols used see attached sheets.										
		Sandy gravelly FILL; dark brown.				D	SD	100				
		Silty sandy medium to coarse GRAVEL; brown. Medium to fine sand. Subangular to subrounded greywacke.										
1.00		Sandy fine to coarse GRAVELwith some cobbles; dark grey. Fine to coarse sand. Subangualr to subrounded greywacke.				S	SPT	100			N = 60+ 12/15/19/22/19	1
						D	SD	100				
2.00						S	SPT	100			N = 60+ 12/17/22/21/17	2
						D	SD	100				
3.00						S	SPT	100			N = 60+ 13/24/32/28	3
						D	SD	100				
4.00						S	SPT	100			N = 60+ 25/29/35/25	4
		End of Borehole at 4.3 m										

Remarks: Groundwater was not observed.
Efficiency 91.3%

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

BABBAGE LOG NEW LOGO M:\GEOTECHNICAL TEAM\PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®

JOB No.	60570#CHGE		
PROJECT: 2 Brookside Road, Rolleston	HOLE No.	BH03	
DATE STARTED: 19/05/2017	METHOD: SD/SPT	RIG: Geoprobe 8140LS	SHEET 1 of 1
DATE FINISHED: 19/05/2017	DRILLED BY: McMillan	FLUID: Water	LOGGED BY: SM

SOIL/ROCK DESCRIPTION*

DATUM:
EASTING:
NORTHING:
SURFACE ELEVATION:
For an explanation of the terms & symbols used see attached sheets.

SAMPLES RECOVERED & TEST RESULTS

MOISTURE CONTENTS = ●
LIMITS: PLASTIC = × LIQUID = +
20 40 60
IN SITU VANE (kPa) = ✳
50 100 150

OTHER TESTS
Corrected Shear Vane Result **
U = peak / R = remoulded
SPT / Scala Penetrometer

DEPTH (m)	SOIL SYMBOL	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE	OTHER TESTS	DEPTH (m)
					D	SD	100			
1.00					S	SPT	100		N = 44 12/14/13/10/11/10	1
					D	SD	100			
2.00					S	SPT	100		N = 32 12/10/9/7/8/8	2
					D	SD	100			
3.00					S	SPT	100		N = 60+ 13/20/28/32	3
					D	SD	100			
4.00					S	SPT	100		N = 60+ 15/24/37/23	4
					D	SD	100			
5.00					S	SPT	100		N = 60+ 18/28/26/28/6	5
					D	SD	100			
6.00					S	SPT	100		N = 60+ 12/18/20/24/16	6

Fine to coarse gravelly FILL; brown. Subangular to subrounded gravel.

Sandy fine to coarse GRAVELwith some cobbles; brown. Dense. Sand medium to coarse. Subangular to subrounded greywacke.

Fine to coarse GRAVELwith some cobbles; grey. Very dense. Subangular to subrounded greywacke. * fines have been washed out.

Sandy fine to coarse GRAVEL with some cobbles; grey. Very dense. Subangular to subrounded greywacke. Sand medium to coarse.

End of Borehole at 6.375 m

Remarks: Groundwater was not observed.
Efficiency 91.3%

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

BABBAGE LOG NEW LOGO M:\GEOTECHNICAL TEAM\ PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®

PROJECT: 2 Brookside Road, Rolleston		JOB No.	60570#CHGE
		HOLE No.	BH04
DATE STARTED: 22/05/2017	METHOD: SD/SPT	RIG: Geoprobe 8140LS	SHEET 1 of 1
DATE FINISHED: 22/05/2017	DRILLED BY: McMillan	FLUID: Water	LOGGED BY: SM

SOIL/ROCK DESCRIPTION*

DATUM:
EASTING:
NORTHING:
SURFACE ELEVATION:
For an explanation of the terms & symbols used see attached sheets.

SAMPLES RECOVERED & TEST RESULTS

MOISTURE CONTENTS = ●
LIMITS: PLASTIC = × LIQUID = +
20 40 60
IN SITU VANE (kPa) = ✳
50 100 150

OTHER TESTS
Corrected Shear Vane Result **
U = peak / R = remoulded
SPT / Scala Penetrometer

DEPTH (m)	SOIL SYMBOL	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE	OTHER TESTS	DEPTH (m)
					D	SD	100			
									Sandy gravelly FILL; Brown.	
					D	SD	100			
									Sandy fine to coarse GRAVEL with some cobbles; brown. Very dense to dense, subangular to subrounded greywacke.	
1.00					S	SPT	100		N = 50 8/7/13/13/12/12	1
					D	SD	100			
2.00					S	SPT	100		N = 43 12/12/12/11/10/10	2
					D	SD	100			
									Fine to coarse GRAVEL; grey. Medium dense. Sand fine to medium. Subangular to subrounded greywacke.	
3.00					S	SPT	100		N = 60+ 16/15/17/16/16/17	3
					D	SD	100			
4.00					S	SPT	100		N = 21 5/3/2/4/7/8	4
									End of Borehole at 4.45 m	

Remarks: Groundwater was not observed.
Efficiency 91.3%

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

BABBAGE LOG NEW LOGO M:\GEOTECHNICAL TEAM PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®

PROJECT: 2 Brookside Road, Rolleston		JOB No.	60570#CHGE
		HOLE No.	BH05
DATE STARTED: 22/05/2017	METHOD: SD/SPT	RIG: Geoprobe 8140LS	SHEET 1 of 1
DATE FINISHED: 22/05/2017	DRILLED BY: McMillan	FLUID: Water	LOGGED BY: SM

DEPTH (m)	SOIL SYMBOL	SOIL/ROCK DESCRIPTION*	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE	MOISTURE CONTENTS = ● LIMITS: PLASTIC = × LIQUID = + (20 40 60) IN SITU VANE (kPa) = ✳ (50 100 150)	OTHER TESTS: Corrected Shear Vane Result ** U = peak / R = remoulded; SPT / Scala Penetrometer	DEPTH (m)
		DATUM: EASTING: NORTHING: SURFACE ELEVATION: For an explanation of the terms & symbols used see attached sheets.										
		Sandy gravelly FILL. fine to coarse gravel. Brown.				D	SD	100				
1.00		Sandy silty fine to coarse GRAVEL. Very dense. Subangular to subrounded greywacke. Sand fine to medium.				S	SPT	100			N = 60+ 17/17/21/19/20	1
						D	SD	88				
2.00		Silty fine to coarse GRAVEL; grey. Dense, subangular to subrounded greywacke.				S	SPT	100			N = 30 11/8/6/4/7/13	2
						D	SD	100				
3.00		Sandy fine to coarse GRAVEL; brown. Medium to coarse sand. Subangular to subrounded greywacke.				S	SPT	100			N = 60+ 11/23/25/23/12	3
						D	SD	100				
4.00		Sandy fine to medium GRAVEL; brown. medium to coarse sand. Very dense, subangular to subrounded greywacke.				S	SPT	100			N = 55 6/10/12/12/15/16	4
						D	SD	100				
5.00						S	SPT	100			N = 60+ 8/10/16/19/23/5	5
						D	SD	100				
6.00						S	SPT	100			N = 60+ 28/32	6
		End of Borehole at 6.15 m										

Remarks: Groundwater was not observed.
Efficiency 91.3%

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

BABBAGE LOG NEW LOGO M:\GEOTECHNICAL TEAM PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

SUMMARY OF SOIL PROFILE & TESTING

Babbage®

PROJECT: 2 Brookside Road, Rolleston		JOB No.	60570#CHGE
		HOLE No.	BH06
DATE STARTED: 22/05/2017	METHOD: SD/SPT	RIG: Geoprobe 8140LS	SHEET 1 of 1
DATE FINISHED: 22/05/2017	DRILLED BY: McMillan	FLUID: Water	LOGGED BY: SM

DEPTH (m)	SOIL SYMBOL	SOIL/ROCK DESCRIPTION*	GEOLOGIC UNIT	GROUND WATER	CONDITION	TYPE	METHOD	RECOVERY (%)	PENETRATION RESISTANCE	MOISTURE CONTENTS = ● LIMITS: PLASTIC = × LIQUID = + (20 40 60) IN SITU VANE (kPa) = ✳ (50 100 150)	OTHER TESTS: Corrected Shear Vane Result ** U = peak / R = remoulded; SPT / Scala Penetrometer	DEPTH (m)
		DATUM: EASTING: NORTHING: SURFACE ELEVATION: For an explanation of the terms & symbols used see attached sheets.										
		TOPSOIL; dark brown. some small rootlets.				D	SD	100				
		Sandy coarse gravelly FILL with some cobbles; dark brown. Very dense.										
		Silty sandy fine to coarse GRAVEL with some cobbles. Very dense, subangular to subrounded greywacke.				D	SD	100				
1.00						S	SPT	100			N = 53 12/14/16/15/13/9	1
						D	SD	100				
2.00		Fine to coarse GRAVEL; some cobbles. Very dense, subrounded to subangular greywacke.				S	SPT	100			N = 60+ 14/17/19/21/20	2
						D	SD	100				
3.00		Sandy silty fine to coarse GRAVEL; light brown. Very dense. Sand fine to medium. Subangular to subrounded greywacke.				S	SPT	100			N = 60+ 12/10/16/17/22/7	3
						D	SD	100				
4.00		Coarse Gravel some cobbles; grey. Very dense. Subangular to subrounded greywacke.				S	SPT	100			N = 60+ 10/10/13/15/19/18	4
		Sandy fine to coarse GRAVEL; light brown. Very dense. Sand fine to coarse. Subangular to subrounded greywacke.				D	SD	100				
5.00						S	SPT	100			N = 60+ 16/18/23/22/15	5
						D	SD	100				
6.00						S	SPT	100			N = 60+ 31/29	6
		End of Borehole at 6.15 m										

Remarks: Groundwater was not observed.
Efficiency 91.3%

*Soil descriptions based on NZ Geotechnical Society Guidelines 2005. **Shear vane test based on NZ Geotechnical Society Guidelines 2001.

23/5/17

BABBAGE LOG NEW LOGO M:\GEOTECHNICAL TEAM PROJECT FOLDERS\PROJECT FOLDERS\60570#CHGE - Z ENERGY - ROLLESTON\BABBAGE JOB TEMPLATE FOLDER\GINT BABBAGE JOB TEMPLATE.GPJ

www.babbage.co.nz

2 Brookside Road, Rolleston 7914

Geotechnical Assessment Report

Project No 63235#CHGE

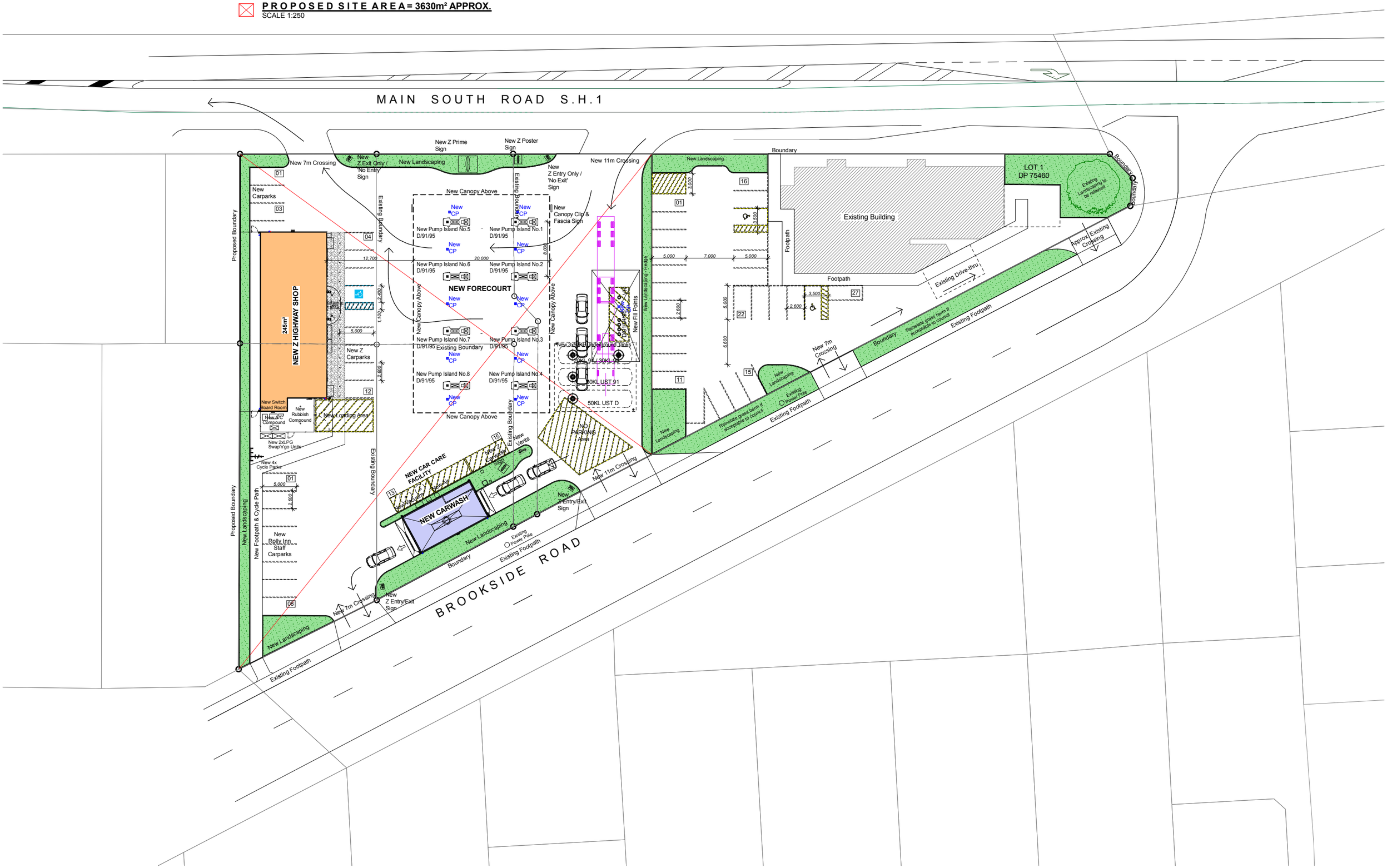
Appendix D

Proposed Site Plan

Babbage Consultants Limited

128 Montreal Street, Sydenham, Christchurch
PO Box 2373, Christchurch 8140
DDI +64 3 353 5514 **M** +64 027 288 5056 **E** ben.anderton@babbage.co.nz

PROPOSED SITE AREA = 3630m² APPROX.
SCALE 1:250



Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd-Rolleston NTI
2 Brookside Road
Rolleston

SCHEME

Legal Description
LOT 1 DP 75460

SHA Architecture LIMITED
SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS

AUCKLAND	HAMILTON
P (09) 309 9660	P (07) 839 5622
F (09) 309 9661	F (07) 838 2500
P.O.BOX 8232	P.O.BOX 1465
SYMONDS ST	HAMILTON NZ
AUCKLAND NZ	WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division.• Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws.• All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommissions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	SCHEME ISSUE	21/01/2020	J.L

PROPOSED SITE PLAN SCHEME 28

SCALE @ A1. 1:250 SCALE @ A3. 1:500

CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

Z-PS-A028

VERSION. REV. A

PROCEDURE

Environmental Management Plan for Site Works at Petroleum Handling Facilities

HS-ENV-PRO-002



ZORM

Revision Summary

Version	Author	Reasons for Change	Approver	Date Approved
1.0	M Robertson	Final	R Renouf/N Moon	19/5/08
2.0	M Robertson	Naming	N Moon	2/6/10
3.0	M Robertson	Incl all site works	A Lukey	14/4/11
4.0	M Robertson	Z Energy and PDP edits	A Lukey	19/5/11
5.0	M Robertson	Z Energy and PDP edits		26/6/13
6.0	T Evans-Tracey	Z Energy and HSSE edits	M Robertson	31/04/14
7.0	M Robertson	New Template Format	N Moon	28/08/16
8.0		General improvements and terminal activity inclusion	M Robertson	11/04/19
9.0		SPH Protocol edits	M Robertson	30/10/19

Document classification	Unclassified
Document location	Controlled copies of this document are accessible in electronic form via the Z Energy server. All paper versions are uncontrolled documents.
Document custodian	Environmental Manager
Document authority	Deviation/variation from this procedure can only be done with the approval of General Manager - HSSE or delegated authority



1: Purpose and Scope 4

2: Responsibilities 5

3: UPPS Removal Activities 6

3.1 Typical Scope 6

3.2 Removal of the UPSS 7

3.3 Removal of Soils and Fill 8

4: General Requirements to Protect the Environment and Minimise Nuisance 9

4.1 General 9

4.2 Heritage and Landscape 9

4.3 Resources 9

4.4 Contamination 9

4.5 Nuisance 10

5: On-site Soil Management 12

5.1 General 12

5.2 Perimeter Controls 12

5.3 Detention Devices 13

5.4 Stockpiling 13

5.5 Dust Management / Odour Management 14

5.6 Prevention of Preferential Pathways Along Pipelines 14

5.7 Removal / Disposal of Materials 14

6: Separate Phase Hydrocarbons 16

7: Other Contaminants 18

8: Environmental Testing 19

9: Surface Water Management 20

10: Dewatering 21

11: Air Quality Management 23

12: Dust 24

13: Noise Management 25

14: Equipment Control Measures 26

15: General Requirements to Minimise Effects on Human Health 27

15.1 NES for Contaminants in Soil 27

15.2 Z's Permit to Work System 27

15.3 Excavation Safety Management 28

16: Hazardous Materials, including Chemicals and Asbestos 30

16.1 Storage, Use or Contact 30

16.2 Spill Response 30

17: Affected Parties 31

18: Reporting to Z 32

19: Consent Conditions 33

19.1 Compliance with Controls 33

19.2 Recommended Conditions 33

1: Purpose and Scope

Z Energy Limited ("Z") has prepared this Environmental Management Plan ("Plan") to detail environmental management measures which are to be implemented during site works on petroleum handling facility sites. Intrusive works at petroleum handling facility sites have the potential to encounter contaminants such as hydrocarbon in soil, dissolved in groundwater plumes and/or as separate phase hydrocarbons (i.e. product), and which will require management during the works. While works at service station and truckstop sites are most likely to encounter hydrocarbons, works at terminal sites may encounter other contaminants than hydrocarbons, including lead, asbestos, heavy metals, solvents and volatile contaminants. It is important to be aware of the specific risks and manage them appropriately.

The Plan is most applicable to works likely to encounter contaminated soils but also is applicable (as practicable) to earthworks generally (for example on greenfield sites)

Intrusive works range from minor service excavations to full site redevelopments. One of the more complicated activities to manage is underground petroleum storage system (UPSS) removal. A UPSS removal (including for the purposes of site exit and/or tank replacement in the same or different location within a site) will include removal of the UPSS itself and may include removal of the tank bedding material and the natural ground material from beneath the fuel dispensers and the base of the tank pits. UPSS removal activities are specifically detailed in Section 2.0.

Other intrusive site works will be required, for example in conjunction with retail site rebuilds or terminal sites upgrades. These will include those associated with maintenance works, civil works (e.g.: tank foundations, excavation of footings and regarding to the site levels required to facilitate pavement construction), clean-up of minor spills and/or replacement and maintenance of underground services. Intrusive site works at terminal sites may include bund repair.

The key objective of the Plan is to identify and outline specific measures to be undertaken during intrusive works to prevent adverse environmental and human health impacts occurring. This document is not intended to permit wholesale remediation of a site.

All relevant legislative requirements, licences, consents, approvals and notices must be obtained and complied with. The works must also be undertaken in accordance with relevant standards and guidelines, such as the:

- *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health)* Regulations 2011 (*NESCS*);
- *Contaminated Land Management Guidelines No. 1 – Reporting on Contaminated Sites in New Zealand (revised 2011),* Ministry for the Environment); and
- *Contaminated Land Management Guidelines No. 5 – Site Investigation and Analysis of Soil (revised 2011),* Ministry for the Environment).

All works are to be undertaken in accordance with this document. In the event of any proposed changes or deviations from this document, written approval must be obtained from the Z Engineer[1].

[1] The Z Engineer refers to the Z Project Manager or the Z Environmental Manager as appropriate.

2: Responsibilities

The Environmental Management Plan ("Plan") stipulates how the work will be completed to avoid adverse environmental effects. All parties involved in a project must be familiar with the document and a copy must be present on-site during works.

Z Environmental Manager – responsible for maintaining this document and advising and approving all environmental aspects of the project.

Suitably Qualified and Experienced Practitioner or "SQEP" - An expert representative of the Environmental Consultancy appointed to oversee the project and provide guidance on environmental matters. Typically, a Chartered Environmental Professional with Contaminated Land specialisation. The SQEP will identify appropriate facilities for disposal of contaminated material from site.

Z Project Manager – responsible for appointing and managing the contractor undertaking the work.



3: UPPS Removal Activities

3.1 Typical Scope

The decommissioning of a typical UPSS involves:

- Acquiring appropriate consents/permits from regional and/or local authority (where necessary).
- Review of the site asbestos register.
- Removal of above ground equipment and, for site exits, debranding (removal of logos and colours).
- Concrete cutting and breaking.
- Excavation and exposure of UPSS elements (tanks, lines, fill points).
- Removal of UPSS elements for off-site disposal/destruction.
- Excavation of any hydrocarbon impacted soils adjacent to the UPSS.
- Disposal of any hydrocarbon impacted soils to Z approved facilities.
- Validation sampling of excavations.
- Backfilling.
- Re-surfacing.

Where a UPPS is being installed or replaced, the following are also involved:

- Sheet piling of the tank pit (where required).
- De-watering of the excavated tank pit (where required).
- UPSS installation.
- Installation of related infrastructure (e.g. interceptors).

UPSS removal and installation is undertaken in accordance with the relevant legislative requirements at the time. These could be:

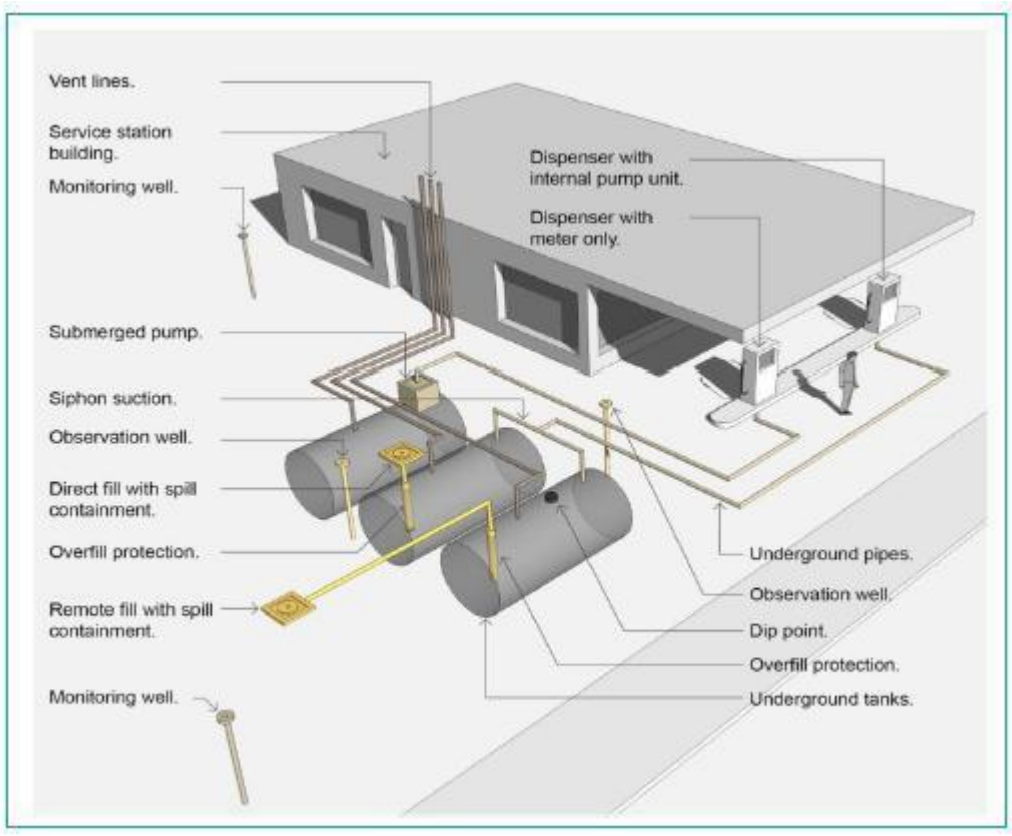
- Department of Labour 1992 Code of Practice for the Design, Installation and Operation of Underground Petroleum Storage Systems ("DOL COP").
- Environmental Protection Agency, May 2012, Below Ground Stationary Container Systems for Petroleum – Design and Installation HSNOCOP 44. ("EPA COP44").
- Environmental Protection Agency, May 2012, Below Ground Stationary Container Systems for Petroleum – Operation HSNOCOP 45 ("EPA COP45").
- Ministry for the Environment 1999 Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand ("MfE Guidelines").
- Health and Safety at Work Act (Asbestos) Regulations 2017
- EPA Safe Work Instrument 2017 Management of Pre-2006 Stationary Container Systems up to 60,000l

Note aspects of each of these older guidance documents may be relevant depending on the age of the UPSS being removed. In any event, what is important is that the works will be completed in accordance with the legislation that is relevant at the time.

3.2 Removal of the UPSS

The UPSS will be removed by an appropriately licensed contractor. The UPSS removal will include the existing system and any elements from an historical (UPPS) system that may still be in place. Removal of the UPSS will require concrete cutting and breaking and excavation of soil. The removal will be completed in compliance with the relevant legislation and guidelines.

A typical service station UPSS is illustrated in the Figure below (taken from HSNOCOP 44, version 1.1 June 2013 (Figure 10.9(1) Tank Installation (Typical))).



The tank will be inerted by using nitrogen to displace any volatiles inside the tank. The tank is then removed from the pit by either crane or excavator.

Once the tank is removed the Environmental Consultant visually inspects the tank and pipework for any defects which may indicate potential loss of containment.

Signage as determined by HSNO or WorkSafe legislation is marked on the tank which is then transported off site for disposal or destruction.

The site condition will be benchmarked at the completion of the UPSS removal by soil sampling from the excavations carried out as part of the removal. Results will be compared to relevant guidelines to determine if further works are required. Further investigation and/or remedial works related to contamination encountered may be subject to a separate consent application.

3.3 Removal of Soils and Fill

During the UPSS removals, UPSS replacements or other intrusive site works potentially hydrocarbon impacted soils may be exposed.

The potentially hydrocarbon impacted soils may comprise:

- Bedding and surround material (typically sand or pea metal) for lines and tanks.
- Fill and natural soils from beneath fuel dispensers and fill points.
- Natural soils in immediate proximity to the UPSS.
- Soils adjacent to former UPSS elements (older tanks or lines that have since been replaced).
- More widespread soils if identified during the UPSS removal and accessible for excavation.

Hydrocarbon impacted soils will typically be removed through excavation.

Typical soil removal volumes for a UPSS removal are $20m^3$ to $100m^3$ per tank. Larger volumes sometimes require removal where there has been some form of product loss at the site. When assessing the potential effects of the activity which is the subject of a Resource Consent, consideration should be given to the possible range of excavation volumes, including an allowance for unforeseen removal if required as part of the UPPS removal works. It may not be feasible or necessary to remove all the hydrocarbon impacted soils from the site.

In addition to replacing any contaminated soil that is removed, where the tanks are to be removed, imported clean fill will be used to fill the voids left by removal of the tanks. Typical tank volumes range from $5m^3$ for commercial sites to $100m^3$ or more for large retail sites.

Tank installations (including within new locations within a site) typically require larger scale earthworks.



4: General Requirements to Protect the Environment and Minimise Nuisance

4.1 General

- ❑ The contractor shall comply with:
  - Applicable planning and building Laws.
  - All conditions of any consents issued (note that these may affect the obligations in this document).
  - All applicable rules of any regional, town or district plans.
- ❑ The contractor shall ensure that the works are carried out in such a manner to minimise any adverse effects on the environment and the normal operation of the business and life of others.
- ❑ The contractor shall ensure that all materials and equipment removed from the site are either, stored; or disposed of legally and responsibly.

4.2 Heritage and Landscape

- ❑ Unless the contract indicates otherwise the contractor is required to protect any significant, vegetation, structures and landscape features from damage.
- ❑ The contactor shall not remove, trim, damage or work within the dripline of any tree without checking for any operative tree protection provisions and/or approved resource consent for those works.
- ❑ The Heritage New Zealand Pouhere Taonga Act 2014 makes it unlawful for any person to modify or destroy, or cause to be modified or destroyed, the whole or any part of an archaeological site without the prior authority of Heritage New Zealand. The Heritage New Zealand Pouhere Taonga Act 2014 defines an archaeological site as a place associated with pre-1900 human activity, where there may be evidence relating to the history of New Zealand.

  If evidence is encountered of any historically significant previous occupation of the site, the contractor shall take immediate provisions to stabilise the evidence and notify appropriate authorities and the Z Engineer so that an archaeological assessment / approval can be carried out to the extent required.
- ❑ Some councils' have a protocol that must be followed in the event of accidental discovery. The contractor should ensure that they are familiar with the accidental discovery protocol relevant to the locality or, if there is no such protocol, have one ready to be adopted if required.

4.3 Resources

- ❑ The contractor shall not waste water.
  If water restrictions are in place the contractor shall implement a water conservation plan.
- ❑ The contractor shall not waste electricity.
  If electricity restrictions are in place the contractor shall implement an electricity conservation plan.

4.4 Contamination

If a pre commencement site investigation reveals, or contamination can be reasonably expected, (such as in tank removal operations); then the contractor shall develop a plan with the Z Engineer to handle and dispose of the contaminants. This plan shall include any required testing, precautions, and disposal location and documentation.



If contaminated soils are not expected, then there remains a need to proceed with caution. Indicators that contamination may be present can include:

- A hydrocarbon odour;
- Other odours not normally associated with soils;
- Discoloured, stained or unnaturally coloured soil;
- An oily substance or sheen on the surface of the soil or the surface of water in an excavation; and
- Soil with unexpected materials such as waste, indicating that the ground may have been filled.

Compliance with this document should be sufficient to ensure works in and around unexpected contaminants are appropriately managed.

In some instances, it will be more cost effective to simply assume that soil is contaminated and manage it as such rather than pre-test before earthworks. This is particularly the case for small volume works.

4.4.1 Contamination to Soil

- ❑ The Contractor has a duty to ensure that contamination of soil does not occur. In the event of any contamination occurring through the actions on site the contractor shall take immediate steps to contain and recover the contaminated material.
- ❑ In the event the contractor discovers contamination or if contamination is such that it causes an immediate hazard or cessation of work then notification shall be made immediately to the Z Engineer.

4.4.2 Contamination to Water

- ❑ The Contractor is to ensure that no liquid passes from the site except to an appropriate and approved receptor.
  - **Silt.** The contractor shall ensure that effective silt traps to maintain the quality of site runoff water to that of normal rainwater runoff are in place. These must be properly maintained. Also refer to Sections 4.0 and 8.0.
  - **Concrete Washings.** Concrete cutting slurry and concrete cooling water are Ecotoxic. The contractor shall ensure that runoff of such water does not enter any storm water system, or natural drainage system. Such water can be diverted to an unsealed area for natural soakage, or filtered using hay bales or filter cloth and disposed of to-sewer with the approval of the territorial authority, or collected and disposed of by a reputable trade waste contractor.
  - **Asphalt Cutting.** All wastewater must be disposed of to-sewer with the approval of the territorial authority, or alternatively collected and disposed of by a reputable trade waste contractor.
  - **Separate Phase Hydrocarbons.** These may be pumped into an operative hydrocarbon separator with approval from territorial authority, or otherwise a Vacuum Truck with the appropriate Dangerous Goods Rating shall be used to take the material to an approved location. Also refer to Section 5.0.

4.5 Nuisance

- ❑ The contractor is to conduct their work to minimise the creation of nuisance to others on the site, neighbours and the general public.
- ❑ There shall be no unauthorised obstruction of access to public footpaths, berms, private properties, public services/utilities, or public reserves resulting from the earthworks activity.
- ❑ All materials and equipment shall be stored within the subject site's boundaries.



4.5.1 Noise

- The contractor is to select, operate and maintain their plant and equipment to minimise noise nuisance. On some projects or sites there may be a requirement to implement a Construction Noise Management Plan. This may involve undertaking noisy tasks outside sensitive hours and may impose a restriction on working hours.
- Noise levels shall not exceed any levels imposed by law or by project specific consent.
- Also refer to Section 12.

4.5.2 Dust

- The contractor is required to operate an effective dust suppression regime.
- Also refer to Section 11.

4.5.3 Site Management and Appearance

- The contractor is required to keep the site neat and tidy, and to arrange his plant, materials, and any rubbish areas in a way that minimises any adverse appearance and inconvenience to others.
- Hazardous materials and/or flammable liquids must not be stored in areas that contain flammable materials.
- The contractor is required to remove all rubbish and unwanted materials and spoil promptly.
- The contractor is to ensure any damage caused by the works, including damage to planted areas and lawns is repaired in a timely manner.
- The contractor is to remove from the site all left-over materials, rubbish, and spoil promptly at the completion of the project, and leave the site clean and tidy to the Z Engineer's satisfaction.



5: On-site Soil Management

Excavated soil is generally not re-used on-site although opportunities to do this will be assessed on a case by case basis. All soil excavated as part of intrusive site works that requires off-site disposal will be disposed of at an appropriate off-site licensed waste management facility. However, it may be necessary for excavated soil to be temporarily stockpiled on-site prior to off-site removal.

5.1 General

- Priority is to be given to protection of adjacent watercourses and stormwater drains.
- A plan should be prepared for the site which details the location(s) and nature of the erosion and sediment control device(s), having regard to the anticipated extent and quantity of earthworks. Unless required as part of the resource consent process, these plans are to be prepared by the contractor to meet the requirements of the site, and the local council (as relevant). The site-specific plan is to be available on-site at all times during the earthworks and is to be reviewed and amended if required upon the commencement of, and during, the works.
- Most works undertaken at Z sites (e.g. UPSS removal, service station installations) can be categorised as being small earthworks jobs (<1,000 m3, <0.25 Ha exposed area). Staging is generally not required for works that are categorised as small earthworks jobs (<1,000 m3, <0.25 Ha exposed area).
- Sites where greater quantities of earthworks are to be undertaken may need to be staged and/or to require a more detailed site-specific erosion and sediment control plan. If a more detailed erosion and sediment control plan is required, it should be prepared in accordance with Auckland Council's GD05[2] or other more relevant guideline specific to the locality in which the works are proposed.
- Earthworked areas are to be stabilised as soon as is practical in order to minimise erosion potential on site.
- Where possible, excavation shall be undertaken in a manner that isolates and separates soils of a different contaminant level. Cleaner material may be able to be disposed of at a lower level landfill, subject to meeting the facilities waste acceptance criteria.
- The primary mechanism for sediment spreading on the site is spillage during excavation and tracking by machinery. Any soils tracked beyond the site boundary should be swept up promptly and appropriately disposed of.
- Where practical, material shall be loaded directly onto trucks for disposal, to minimise tracking of material about the site.

5.2 Perimeter Controls

Perimeter controls need to be in place around the perimeter of the area or areas where soil disturbance is to occur.

Perimeter controls serve a dual purpose:

- To prevent sediment transport off the site; and
- To prevent excessive overland flow (from upstream catchments) onto/from the site, if applicable.

[2] Leersnyder, H., Bunting, K., Parsonson, M., and Stewart, C. (2018). Erosion and sediment control guide for land disturbing activities in the Auckland region. Auckland Council Guideline Document GD2016/005. Incorporating amendment 1. Prepared by Beca Ltd and SouthernSkies Environmental for Auckland Council.
This document, known as GD05, provides technical guidance for the selection, design and use of erosion and sediment control (ESC) practices and measures for land disturbing activities in an Auckland context.

Perimeter controls must be in place before the earthworks commence, for the duration of the earthworks and until the area disturbed is stabilised/reinstated. Perimeter controls should be checked for integrity following a major rainfall event and replaced if required. Perimeter controls should be checked for integrity following a major rainfall event and replaced if required.

Staging of earthworks may potentially reduce quantities of perimeter controls required at the site. Consideration should be given to filter (or silt control) socks as perimeter controls. If re-using filter socks, they should be visually inspected for integrity before installation. A visual assessment of the through-flow capacity of the filter sock should be undertaken (including, if possible, during a rainfall event in the course of the project).

5.3 Detention Devices

For small earthworks (<1,000 m^3, <0.25 Ha) and typical Z sites (i.e. flat sites with low sediment generation potential), stormwater detention devices are generally not required.

For large earthworks projects, or where sediment generation potential is high at the site, detention devices and erosion/sediment controls outside the scope of this plan may be required. If specific erosion and sediment control measures are required, these should be prepared in accordance with Auckland Council's GD05 or other more relevant guideline specific to the locality in which the works are proposed.

5.4 Stockpiling

All measures shall be taken to ensure prompt removal from the site of any material that is known to be heavily impacted with petroleum hydrocarbons and particularly if material is odorous.

Temporary stockpiling of such material within the excavated pit may be undertaken. Prompt disposal of impacted material from the site will minimise the potential for impacted sediments to enter watercourses/stormwater systems and/or further contamination of soils.

Stockpiles are generally short term and tend to be carted off-site on the same day or the day following excavation. Where necessary (e.g. for long term stockpiles of lightly impacted or clean spoil), perimeter controls may be installed around the stockpile itself to prevent sediment transport from the stockpile area. The stockpile area should be managed (e.g. fenced) to prevent public or unauthorised access.

All stockpiles should be kept tidy, less than 4m in height and with a stable slope.

Any stockpiled material should be dampened or covered with an impermeable material (as per odorous material (refer below)) to prevent dust nuisance. Dampening of stockpiles should be such that excess water is not generated as a result, which would itself require appropriate management. Stockpiles are to be covered with polythene sheets, or similar, during rain events or windy conditions to prevent stormwater discharge or wind-blown dust generation.

Any potentially hydrocarbon impacted soil excavated and temporarily stockpiled on the site is to be managed in a manner protective of on-site workers, the public and off-site migration pathways such as stormwater drains.

Potentially hydrocarbon impacted material that must be temporarily stockpiled on- site should be stored on concrete hard standing or polythene sheets to minimise potential leaching of any soil contaminants to underlying soils. In some cases, it may be appropriate to temporarily stockpile material back in the originating pit while awaiting soil test information to determine the disposal facility.

Material containing separate phase hydrocarbons shall not be stockpiled and shall be directly loaded onto lined trucks for removal off site.

Hydrocarbon impacted material is to be disposed of in accordance with Sections 4.7 or 5.

Imported fill required for backfilling excavations may be temporarily stockpiled in a designated, clean area on site. All imported fill is required to be free of contaminants.



5.5 Dust Management / Odour Management

Dust generated from contaminated soils has the potential to contain contaminants and, in windy conditions, can migrate offset. Where there is exposed ground, the contractor is required to visually monitor dust and manage it accordingly.

Stockpiled material may be wetted down or covered to limit dust generation potential. The volume of water used should not cause surface ponding, runoff, or soil erosion or pugging.

Where stockpiled material is odorous, it should be covered with an impermeable material (e.g. polythene) or other form of odour suppression (e.g. application of odour suppressant compounds) to limit the potential release of odours.

Where the discharge of odour continues, the Z appointed Environmental Consultant or alternative suitably qualified environmental practitioner ("SQEP"), shall assess the potential for volatile compounds and advise on health and safety requirements.

It may be necessary to stop works in very windy conditions in order to effectively manage dust or odour.

5.6 Prevention of Preferential Pathways Along Pipelines

Installation of underground services and/or pipes through highly contaminated soils can provide a preferential flow path through which contaminants can migrate. When laying pipework through areas of contaminated soil with high groundwater where the contaminants may be mobile, measures such as pipe dams, may be required to prevent these contaminants from travelling along the permeable bedding of the pipeline.

The Z appointed Environmental Consultant or alternative SQEP, shall provide advice on the necessity and design of such mitigation measures and approval prior to their installation shall be obtained from the Z Engineer.

5.7 Removal / Disposal of Materials

All trucks / plant carrying excavated materials off-site are to be securely covered, with wheels cleaned (e.g. brushed or washed) before leaving the site. Trucks should proceed directly to the landfill.

All trucks transporting material from Z sites must be accompanied by an approved Z Manifest form. The Manifest form has details of the materials origin onsite, disposal destination, load weight details and authorisation of the environmental consultant. It is the responsibility of the contractor to ensure that the Manifest is completed and returned to the appropriate contact designated on the Manifest.

5.7.1 Soil Disposal

Should soil disposal be required as part of the intrusive works, it will be disposed to a facility consented to receive such wastes.

Relevant controls include:

- Sampling and laboratory analyses of representative samples of soil to be disposed (may be omitted depending on disposal facility requirements);
- Where necessary, comparison of analyses results with relevant facility limits;
- Formal approval from Z Environmental Manager before any soil can leave site;
- Formal approval from the landfill operator/local authority; and
- Completion of waste manifest forms to document the soil chain of custody and final disposal location.



As above, all trucks transporting material from Z sites must be accompanied by an approved Z Manifest form. The Manifest form has details of the materials origin onsite, disposal destination, load weight details and authorisation of the environmental consultant. It is the responsibility of the contractor to ensure that the Manifest is completed and returned to the appropriate contact designated on the Manifest.

The contractor must also obtain permission from the disposal destination before the material is transported off site. A weighbridge docket from the disposal destination must be obtained and it is the contractor's responsibility to forward this to the Z Engineer, in accordance with the reporting requirements in Section 18.

5.7.2 Removal of Unforeseen Structures

If any subsurface structures are encountered that may have the potential to cause ground contamination, e.g. pipelines, waste tanks or sumps, these are to be removed following advice from the Z appointed Environmental Consultant or alternative SQEP as to handling, disposal and site validation procedures.

Any abandoned drainage shall be capped.

If UPPS are encountered, refer to Section 2.0.



6: Separate Phase Hydrocarbons

Z adopts a Separate Phase Hydrocarbon ("SPH") Discovery Protocol. In the event that SPH is identified during land disturbance activities, steps 1 - 3 will be followed:

STEP 1 – IMMEDIATELY STOP WORKS AND NOTIFY PROJECT MANAGER

- **Stop** all works in the immediate area of the discovery of SPH (*note: it is not necessary to stop all works on the site*).
- **Contact** the project manager (PM).

STEP 2 - SQEP INSPECTION AND ASSESSMENT

- A SQEP (usually the Environment Consultant) will **inspect and assess** the extent and risk of the discovery. Council shall be notified of the discovery and the results of the initial assessment.
- The SQEP and PM will **seek planning advice** regarding whether the SPH can be removed within the limitations of the relevant consents or the rules in the relevant planning documents, and if so, whether there are any conditions that will need to be met.

No additional consents required **OR** **Additional consents required**

STEP 3 – REMOVAL OF SPH

- If **removal of SPH** is deemed feasible by the SQEP and PM a procedure will be prepared for its handling, storage, transport and/or disposal. If there is any doubt, confirmation should be sought from the planner or Council that the procedure meets the requirements of the consent and/or the relevant planning documents, before it is implemented.
  Note: The procedure may vary dependent on any relevant consent conditions or plan standards, and also whether the SPH is above the water table or is detected on the surface of ground. In no instance, however, shall SPH shall be discharged to the environment.
- The **SQEP and PM** will advise the contractors of the correct procedure to follow.
- **Recommence works in accordance with the agreed procedures**. The SQEP or the PM will supervise the key works if and as necessary and will notify the Council that the works have been recommenced, and on what basis.

- **Stop** works until relevant consents / approvals are obtained. The SQEP and PM will advise timeframe and procedure.
- **Recommence works in accordance with relevant consents /approvals.**

The SPH Discovery Protocol that Z adopts is intended to satisfy the requirements of the accidental discovery (of SPH) protocol provisions of the Auckland Unitary Plan: Operative in Part ("AUP:OIP") (Chapters E11 & E12 – land disturbance). This protocol reflects good practice procedures and reflects the Separate Phase Hydrocarbon Discovery Protocol developed by the Oil Companies Z Energy Limited, Mobil Oil New Zealand Limited and BP Oil NZ Limited, in March 2019. While the procedures are specifically developed to meet the requirements of the AUP:OPI, they are not specific to that region and are to be adopted when SPH is encountered during intrusive works, unless a different protocol is required by resource consent or the permitted activity rules of the relevant regional council.

7: Other Contaminants

At terminal sites other contaminants such as lead, asbestos, heavy metals, solvents and volatile contaminants may be encountered. Each terminal has an Environmental Management Plan and any specific issues will be noted in that site-specific plan.

Each terminal site and any retail site constructed during a target time interval has had an asbestos register prepared and there will generally be an asbestos management survey.

From time to time unexpected contamination is encountered. Unexpected contamination is significantly different in extent and concentration from that anticipated (or that anticipated in the original site investigations if undertaken). While unexpected, Z adopts controls to ensure that all conceivable contamination can be managed under this plan and standard operating procedures. There have been rare exceptions where site specific controls have been required (I.e. one site that was a former gasworks).

In the event of the discovery of unexpected contaminants during earthworks, the Consent Holder shall immediately cease the works in the vicinity of the unexpected contaminants and notify the Z Engineer. All sampling and testing undertaken on site, and testing for the characterisation of unexpected contaminated material, if encountered, shall be overseen by a suitably qualified and experienced contaminated land professional. All sampling shall be undertaken in accordance with the *Ministry for the Environment's Contaminated Land Management Guidelines, No. 5 – Site Investigation and Analysis of Soils* (revised 2011).

Works shall not recommence until the SQEP has confirmed to the Z Project Manager that appropriate procedures are in place to address the unexpected contaminants. Any contingency measures shall be overseen by the SQEP and documented in the Site Validation Report.



8: Environmental Testing

The extent of any testing will depend on the nature of the project. Controls are in place so that Contractors manage the Health and Safety of workers around the typical range of contaminants likely to be present so for small earthworks soil testing may not be carried out in advance.

Similarly, testing will not generally be carried out in advance of a tank removal due to the ease of identifying contaminated material from odour and instrument (PID) readings. Typically, a consent will be applied for to remove a moderate volume of soil and this will only be exercised if contamination is encountered. This has proven to be more effective than attempting to drill in proximity to underground storage tanks and fuel lines: indeed, drilling is not permitted in close proximity to the UPSS so pre-drilling a site is unlikely to provide information about contamination in and under infrastructure. Z considers a more effective approach to be to simply assume there will be contamination and to manage and plan for it.

Testing is necessary to determine the appropriate disposal location for soils. This will often be undertaken as part of the earthworks programme rather than in the form of pre-testing.

During the removal of a UPSS, Z's Environmental Consultants will carry out soil and groundwater validation testing. Z will generally commission a more limited scope environmental assessment for greenfield tank installations and minor intrusive works.

In some cases, no sampling will be required, but the Environmental Consultant will be on notice to attend if unexpected contamination is detected.

Z will notify the Z appointed Environmental Consultant prior to commencing works which require observation. That consultant will then be on-call as required (requests are to be made through the Z Engineer, unless pre-agreed) and may inspect the excavations at any time as requested by Z.

Testing undertaken by the Environmental Consultant as part of any works is unlikely to necessarily represent a complete environmental assessment of the site but should be sufficient to conclude whether that area of the site being disturbed complies with relevant guidelines. Alternatively, the results of the soil and groundwater validation testing referred to above may indicate the need for subsequent environmental investigations by Z. Any such environmental investigations will be carried out in accordance with the relevant MfE Guidelines and will determine whether any remediation/management is required to ensure that any potential hydrocarbon impact that is directly attributable to Z's use and occupation of the site, is acceptable under the MfE Guidelines. Any such environmental investigation will also take into consideration the receiving environment (e.g. groundwater sensitivity and nearby surface waterways).

9: Surface Water Management

In order to ensure adequate water management, clean water (i.e. stormwater) will be diverted away from excavations and stockpiles. For anything other than small earthworks the Contractor will be required to prepare an Erosion and Sediment Control Plan comprising a site plan annotated with the controls to be in place during the works. All erosion and sediment control measures (see Section 4.0) shall be operational prior to works commencing on the site.

Shallow perched water and stormwater may collect in open excavations. Potentially hydrocarbon impacted perched water may be encountered, particularly in excavations associated with infrastructure removal. In the event potentially impacted water is encountered, this water may be removed, if removal is necessary to assist in infrastructure removal, and transported to a licensed waste treatment facility. Records on the quantity of water removed will be retained and reported to the Z Engineer (see Section 18.0).

10: Dewatering

Where groundwater is encountered in tank removal excavations, excavation will generally be limited and dewatering activities will not take place: de-watering is more commonly required during tank installations. Dewatering may or may not be required for other earthworks depending on the nature of the earthworks and the level of the water table.

Where excavations extend beneath the water table, de-watering will be carried out in a carefully controlled manner as necessary to facilitate the installation of tanks and services. Specific measures will be put in place to ensure the stability of excavations below the water table and de-watering will be subject to site specific controls that must either be agreed and approved by the relevant local or regional authority or be permitted activity standards that must be complied with for dewatering to be permitted.

The specific dewatering procedure will depend on likely groundwater yield and the degree to which the water has been impacted by hydrocarbons (if any). Z Energy has adopted a dewatering process that should be employed on-site. This document has not been included as an Annexure to the Plan but should be read in conjunction with this Plan if dewatering is anticipated.

Observational monitoring is required and must be recorded. In general, the approach will consist of elements from the following sequence:

- Installation of sheet piling (reducing horizontal groundwater inflow). Sheet piling is installed for most UPSS replacements or installation;
- Shielding or boxing may be adopted when trenching;
- Where there are particularly stable soils/rock excavations may be completed without sheet piling but this is rare and generally would not be considered for wet excavations;
- Well pointing to draw the water table down in advance of excavation below the water table (note that water is typically drawn from beneath the water surface and is therefore typically much cleaner than shallow water which is impacted by agitation of soil and any hydrocarbons floating on the water surface); or
- Sump pumping – in some instances a pump in the excavation is sufficient for de-watering.
- Care is taken to submerge the pump in an excavated sump in the pit corner to minimise turbidity and entrainment of floating hydrocarbon emulsions. In some cases (e.g. sites with high fines content) the sump may include a casing and pea gravel and filter cloth to filter fines;
- Dewatering at an initial high rate to effect water table drawdown followed by a period of "maintenance pumping" at a lower rate to maintain the drawdown;
- Discharge of water through a treatment train comprising elements such as:
    - Phase separation by pump intake positioning below any floating hydrocarbons and/or
    - Aeration to reduce dissolved volatiles and/or
    - Gravitational separation (e.g. in a mobile multi compartment settling tank) and/or
    - Sorbent booms and/or
    - Filtration sock or hay bale weir and/or
    - Discharge through site API; and
- Excavation of impacted soil and, if required, skimming (by an authorised contractor) to remove floating emulsions and product.



Where impact is anticipated or detected, the requirements of the relevant local or regional authority must be met and an environmental consultant can assist the contractor in determining the receiving environment and/or final treatment train.

11: Air Quality Management

The primary source of potential odour issues is expected to be associated with hydrocarbon vapours that could potentially be released from the walls and floors of open excavations and from soil stockpiles where potentially hydrocarbon impacted soil is exposed. The actual concentrations of any air emissions will vary depending on weather conditions, type of fuel (e.g. petrol or diesel), the composition of the soils and the degree of any potential hydrocarbon impact. Air emission and odour controls will be used to limit the potential for nuisance odours. Vapour levels will be monitored by contractors to identify any potential hazards.

If considered necessary by Z and/or the Environmental Consultant, the following vapour/odour management procedures could be used:

- Undertaking the excavation works in a staged manner to limit the surface area of potentially odorous material exposed.
- Wetting-down of excavations.
- Application of odour suppressants.
- Covering any portion of the site that is generating odour to reduce the odours.
- Covering stockpiled soil with polythene sheeting to suppress the potential release of odours.
- Considering backfilling excavations at end of day's work.

Excavation works are typically of short duration and odour effects (if any) will be temporary.

If odour is expected to be a potential issue, then the Environmental Consultant can be asked by Z to develop a site-specific Odour Management Plan to be implemented.



12: Dust

Excavation and stockpiling of soil and on-site vehicle movements are potential dust generating activities. Where appropriate, the generation and impact of dust on the surrounding environment can be minimised by undertaking the following measures:

- Advising all site workers of the need to minimise dust by the responsible operation of machinery.
- Suspending or limiting dust generating activities during periods of high wind.
- Using water on exposed soil (excavations and stockpiles) to suppress dust, ensuring that any water used is not allowed to migrate off-site by the stormwater, sewer, or any other means.
- Covering areas of exposed soil with polythene sheeting.
- Ensuring that all trucks transporting fill material to site and removing soil/material from the site are covered and vehicle tyres are adequately cleaned prior to departure from the site.
- Sweeping up any soil left on site sealed surfaces.

13: Noise Management

Noise will be generated by normal earthworks activities such as concrete breaking, soil excavation and truck movements. It is not expected that the equipment to be used during the UPSS removal will generate unacceptable levels of noise. Z's contractors will endeavour to keep noise levels to a minimum.

Tank removal and minor intrusive works tend to be of short duration and any noise effects will be temporary.

Tank installations have a similar noise profile although sheet piling, if required, has potential to generate higher levels of noise. Again, this is of relatively short duration.

Where site specific restrictions on working hours are in place, these shall be met. Otherwise the potential for any noise nuisance will be minimised by:

- Controlling construction noise by reference to NZS 6803:1999 Acoustics – Construction Noise,
- Limiting noise producing site works to normal working hours with no noise producing work occurring on Sundays/Public Holidays, and
- Avoiding unnecessary noise, such as loud radios and public address systems.

14: Equipment Control Measures

Equipment and plant to be used on site during the works has the potential to create a hazard to both site personnel and the environment.

- ❑ Equipment and plant should only be operated by competent, trained and licensed personnel, and should be maintained regularly.
- ❑ All plant and vehicles should be regularly inspected and, if necessary, cleaned to prevent the removal of soil on vehicles leaving the site.
- ❑ All vehicles and plant should be driven carefully within the site to help prevent loss of materials during loading, transporting and unloading of soil and/or other materials to be removed from site.

15: General Requirements to Minimise Effects on Human Health

15.1 NES for Contaminants in Soil

The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 ("NESCS") is the main RMA control on earthworks.

Petroleum industry sites are specifically included on the Hazardous Activities and Industries List ("HAIL"), and therefore subject to the NESCS.

The NESCS can permit the removal or replacement of underground fuel storage systems, soil sampling, the disturbance of soil or change in land use as a permitted activity subject to meeting certain requirements (refer Clause 8 of the NESCS). Depending on the activity, these requirements can include limits on volume and duration of soil disturbance or requirements for prior notification to the district council. If compliance with the permitted activity standards cannot be achieved, then resource consent from the territorial authority is required, with an emphasis on the control of the management of the effects of human health.

When applying the NESCS, it is important to note that:

- Soil is not defined in the NESCS, so it has its ordinary meaning and means the native substrate. Soil does not include bedding material associated with the tank and/or ancillary equipment, any concrete/steel or any associated hardstanding.
- The "piece of land" may or may not be the entire site.
- Volumes are calculated in-situ.
- The limit on the removal of soil is a limit on the total of all soil arising from all disturbances within a year. A year is not defined within the NESCS, and therefore the volume limits can be applied over two consecutive days, with each day considered as occurring in consecutive years – assuming that no soil has been disturbed in the previous 12 months and noting that no earthworks could then occur as a permitted activity under the NESCS in the following 12 months.
- Land use change relates to the assessment of a level of risk, rather than necessarily a change to the activity being undertaken on the site.

If there is a requirement to advise the district council prior to the commencement of the works, then the contractor must liaise with the Z Engineer to ensure that this is done within the required timeframe.

15.2 Z's Permit to Work System

The general civil engineering works associated with intrusive works will be completed in accordance with industry practice and will be subject to additional controls specific to work on petroleum handling sites. Experienced petroleum industry contractors will complete the works under Z's rigorous Permit to Work ("PTW") system.

The PTW System is one part of managing safety at Z sites. It applies to all persons working for and on behalf of Z or its subsidiaries, i.e. employees, contractors, sub-contractors, franchisees, and retail site staff, as well as visitors on premises operated by Z or its subsidiaries, and to all work being completed at sites under Z operational control, or when working on Z owned equipment at independent/commercial sites. Based on a three-tier level of risk, this system requires contractors to identify potential HSSE risks and implement measures to protect workers and the environment. The hierarchy of controls for managing hazards is as follows:



1. Eliminate the hazard e.g. by changing the work.
2. Isolate the hazard e.g. by providing a form of barrier.
3. Minimise the hazard e.g. by providing protective equipment.

Furthermore, as required by health and safety legislation, a comprehensive Health and Safety Plan is developed prior to commencement of works and all contractors review this prior to starting at the site. Each operator at the site must be inducted in terms of health and safety requirements (including hazards) at the site, and each person is then required to confirm (by signature) that they have understood these requirements.

15.3 Excavation Safety Management

The contractor shall ensure that the Site Hazard Board shall include information pertaining to the contamination likely to be identified. The contractor's contact details shall be provided on the Site Hazard Board.

Reference should be made to the WorkSafe 2016 Excavation Safety – Good Practise Guidelines.

Personal protective equipment ("PPE") relevant to the expected contamination shall be available on the site. At the minimum, workers should wear:

- Cloth coveralls and these should be removed at the end of each day and stored on site. This is to prevent contaminated materials being tracked off site. The coveralls shall be laundered daily or weekly by a commercial laundry, depending on the degree of soiling.
- Chemical resistant disposable gloves (to be changed regularly).
- P2 dust masks, during dusty conditions.

Workers should also minimise hand to mouth/ skin contact and wash hands prior to eating, drinking, or using the bathroom. No smoking is allowed on site.

Terminal sites are already secured to prevent access by the public or unauthorised personal. Other sites may need to be suitably secured.

The following table details the potential hazards which may exist at the site. The associated risk control methods are also outlined:

Hazard	Risk Control Action Required
Open excavations of a depth greater than 1.5 metres which have not been shored, battered or benched may collapse or present a fall hazard.	Limit entry to excavations greater than 1.5m unless suitably safeguarded. Erect barricading and signage. Close off site with security fencing and appropriate signage erected to restrict entry by members of the public.
Open excavations in close proximity to a public footpath and roadway which have not been shored, battered or benched.	Identify the stability envelope around an excavation (1v on 2 H) and consider potential risk to services and structures within this envelope. Consult a Geotechnical engineer or suitably qualified person if buildings foundations or retaining walls are within this envelope. Restrict access to the footpath by members of the public as required. Prevent public access to the site. Backfill excavations as soon as possible in a safe manner.
Uneven ground which may present a roll-over risk to plant and machinery.	Minimise working on, or the traversing of, uneven ground and exercise extreme care when required to do so.



Rubble and soil which presents a potential slip/trip-hazard to workers.	Keep the work-site tidy and ensure good house-keeping practices. Protective footwear is to be worn at all times.
Hydrocarbon vapours emitted from potentially impacted soils have the potential to cause nausea and dizziness to workers on-site or nuisance to neighbouring properties if present in high concentrations.	Where possible workers are to be located upwind of contamination and measures implemented such as covering impacted stockpiled soils.
In extremely low wind conditions, hydrocarbon vapours emitted from potentially impacted soils may accumulate in excavations or depressions. Hydrocarbon vapours are heavier than air and will displace oxygen. Explosion or suffocation hazards may be present may result.	In periods of low wind, testing of air concentrations may be required and ignition sources should be restricted as a matter of course in the proximity of excavations where hydrocarbon impact is present. Access of persons to excavations or depressions of any depth should be restricted until air testing shows acceptable and stable conditions exist.
Entry and exit of trucks and other vehicles to the site is restricted by the presence of excavations which may restrict the ability of those vehicles to manoeuvre on-site.	Keep the work-site tidy and ensure good house-keeping practices. Erect barricading and signs to restrict access to open excavations. Spotter to be used to assist in vehicle movements onsite.
Moving machinery with limited fields of vision may lead to collision with workers.	Hardhats and high visibility vests are to be worn. Eye contact and communication must be established prior to entering within the work or swing areas of moving equipment. Equipment to be stopped before entering the work or swing area and equipment to remain stationary until personnel have left the work area. Spotter to be used to assist in vehicle movements onsite.
Machinery noise may present a hazard to workers in proximity to equipment.	Hearing protection to be worn when operating or adjacent to loud machinery.

15.4 Asbestos Management

The Z Asbestos Register should be consulted before any project. The register records whether asbestos is present or has been present on site. If asbestos has been present or is assumed to be present then soil may be contaminated with asbestos and the additional requirements of Z's Asbestos Management Plan will apply to excavation works. An Asbestos demolition survey is required when demolishing structures where asbestos may be present. The SQEP will address any asbestos in soil concerns and communicate these to the contractor.



16: Hazardous Materials, including Chemicals and Asbestos

16.1 Storage, Use or Contact

- Storage and use of any Hazardous materials shall be in accordance with the law. The contractor shall be familiar with the requirements of any such laws.
- All storage tanks or containers of petroleum products, chemicals and corrosives must be clearly labelled indicating the nature of the contents. If necessary, barricade or tape off areas where these are stored.
- Material Safety Data Sheets should be held by the contractor for all hazardous substances held or used at the site.
- All areas where hazardous substances are stored, used or present must be clearly marked as such.
- If asbestos materials are suspected or known to be on the site, appropriate precautions must be taken. If in any doubt, an asbestos survey should be carried out prior to commencing demolition to ensure clear identification of where asbestos is present.
- If contractors suspect/uncover asbestos while work is being carried out, all work in that area is to be stopped immediately until an asbestos survey has been conducted and appropriate precautions determined.
- Any works involving contact with asbestos products must be carried out in accordance with law and require a PTW.
- Any building suspected or known to have been built and/or modified prior to 1980 may have lead-based paint. If in any doubt, testing of surfaces should be undertaken prior to commencing demolition and if test results are positive for lead, appropriate precautions taken.

Advice from a SQEP is required and must be followed.

16.2 Spill Response

It is the responsibility of the contractor, in conjunction with the Site Operator, to develop an emergency response plan and ensure everyone on site is familiar with the procedures to be carried out in an emergency. The emergency response plan must include:

- Location of the assembly point;
- Location of nearest telephone;
- Location of nearest first aid kit and fire extinguisher; and
- Local emergency numbers (emergency, hospital, fire department, policy, MBIE Health and Safety Inspectors, SQEP).

- The contractor is required to maintain on site in a container labelled "Spill Kit" or similar, appropriate materials and equipment to deal with any reasonable spill event.
- In the event of any spill the contractor shall take immediate steps to minimise the effects. This shall include:
    - Immediate containment and if possible, recovery;
    - Immediate notification to Z Energy and appropriate emergency response staff;
    - Provide full assistance to Emergency Response Staff; and
    - Reporting to Z Energy of the incident as per the call tree.
- The contractor shall provide reasonable assistance to any other parties on the site that suffers a spill event.

The above applies to spills of over 5 litres only, unless the spill is directly to ground or over Z Energy's boundary. In these cases, all spills shall be reported.

17: Affected Parties

As the works involve soil disturbance, potentially the removal of Z owned equipment, are generally undertaken on privately owned land and within an existing petroleum handling facility, the effects beyond the boundary are expected to be short term and less than minor. Consultation with external parties is therefore not considered to be necessary. Furthermore, in the case of terminals, these are highly controlled environments remote from sensitive activities and receptors by virtue of the nature of the activity. Standard site control measures will be implemented as follows:

1. The following information will be posted in a visible location on-site:
   - Name of site manager;
   - Contact details for Site Manager; and
   - Work Hours.

2. The Site Manager will maintain daily records, including the following:
   - Location and type of machinery;
   - Weather;
   - Any complaints / contacts received; and
   - Mitigation / follow up measures taken in response to complaints / contacts.



18: Reporting to Z

The contractor shall keep records of the works and report these to the Z Engineer. These records shall, at a minimum, include:

- Confirmation of works completion;
- Total volume of soil disturbed on the site, total volume of soil removed and date of disturbance and, if different, removal;
- Whether or not any contaminated material was encountered;
- A summary of works undertaken and any relevant observations;
- Records of all contaminated land inspections;
- Any contaminated land reports or testing undertaken (by the Environmental Consultant and or alternative SQEP);
- Quantity of any water removed and transported to a licensed waste treatment facility;
- Information relating to the location, type and depths of contamination observed (if any), photographs, any monitoring / validation;
- Details of any incidents relating to contamination, such as fuel spills, encountering of contaminants not expected, health and safety incidents;
- Disposal records;
- Records of visits by Council;
- Details of any complaints;
- Health and Safety incidents relating to contamination; and
- Details of any variations to the procedures herein, including what the variations were and who approved them.

The contractor shall liaise with the Z Engineer to ensure compliance with any reporting requirements of the local authority / authorities.

19: Consent Conditions

19.1 Compliance with Controls

Contractors must comply with all consent conditions. They must retain a copy of this plan and any consent on-site during the works.

19.2 Recommended Conditions

Z places the following controls on earthworks and recommends Councils include these in Consents for Z sites to demonstrate Z's commitment to controlling the potential adverse effects of intrusive site works:

UPSS Removals (including for replacement)

> *"The tank pit shall be assessed by an independent consultant in accordance with the Ministry for the Environment Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand, June 1999. The assessment report shall be provided to the Regional and Territorial Authority within 30 days of receipt of the final report from the consultant."*

All Intrusive Works

> *"All intrusive works shall be completed in general accordance with the latest version of the Z Energy Ltd document Environmental Management Plan For Site Works at Petroleum Handling Facilities"*
>
> *"Areas of exposed soil shall be stabilised once the works are complete".*

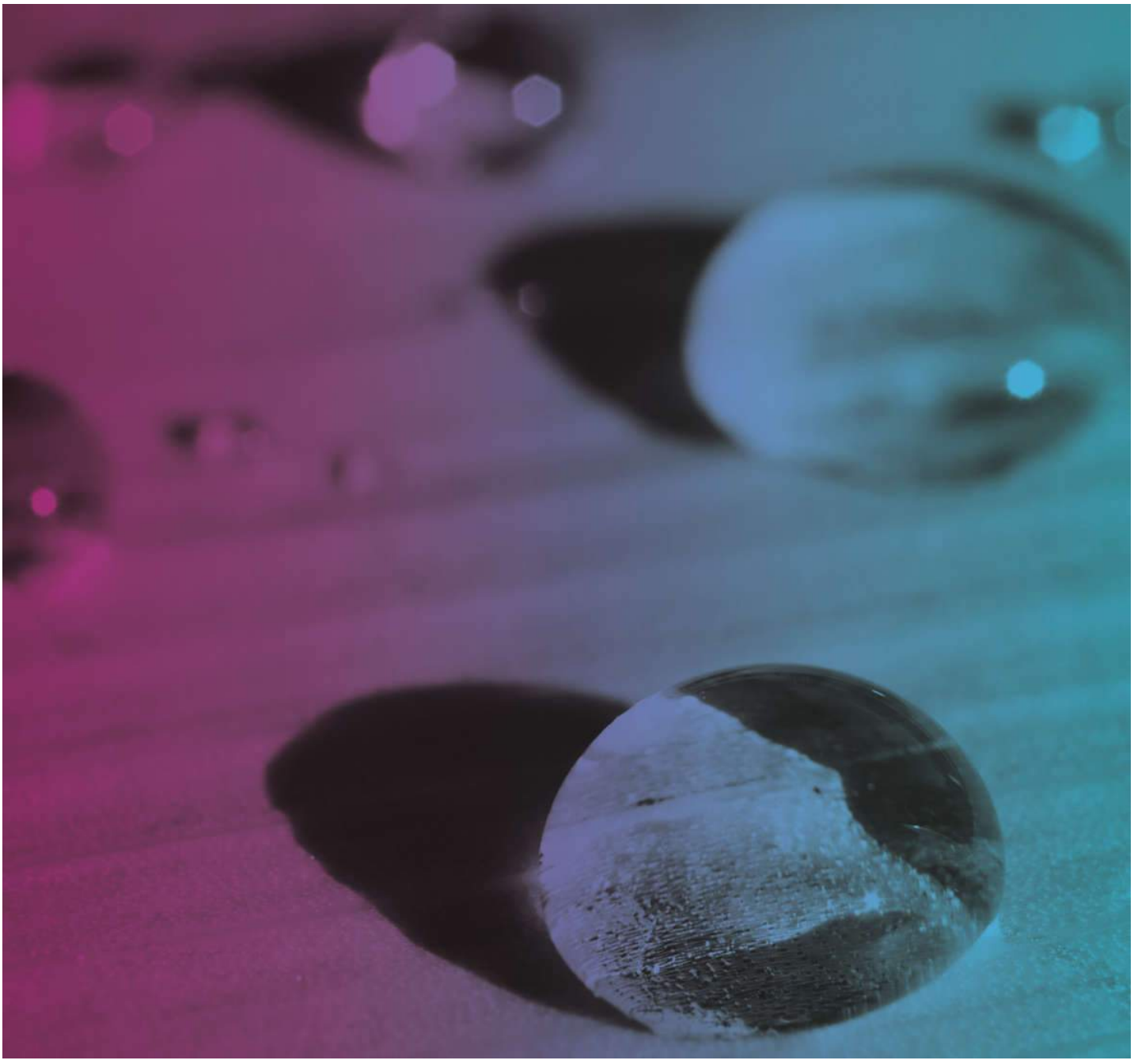
The above reflects the level of control inherent in the Plan. Where additional conditions are considered necessary, these should be discussed and agreed between the parties prior to the grant of consent.

AECOM Imagine it. Delivered.

2 Brookside Road, Rolleston
Z Energy Limited
21-Jun-2018

2 Brookside Road, Ellesmere-Rolleston 7614

Limited Environmental Site Assessment



\\NZCHC1FP001.AU.AECOMNET.COM\Projects\605X\60542718\6. Draft Docs\6.1 Reports\Z Rolleston 180619 LESA_F.docx
Revision 1 – 21-Jun-2018
Prepared for – Z Energy Limited – Co No.: 12046

2 Brookside Road, Ellesmere-Rolleston 7614

Limited Environmental Site Assessment

Client: Z Energy Limited

Co No.: 12046

Prepared by

AECOM New Zealand Limited
Level 2, 2 Hazeldean Road, Addington, Christchurch 8024, P O Box 710, Christchurch MC, Christchurch 8140, New Zealand
T +64 3 966 6000 F +64 3 966 6001 www.aecom.com

21-Jun-2018

Job No.: 60542718/1.1

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 AS/NZS4801 and OHSAS18001.

© AECOM New Zealand Limited (AECOM). All rights reserved.

AECOM has prepared this document for the sole use of the Client and for a specific purpose, each as expressly stated in the document. No other party should rely on this document without the prior written consent of AECOM. AECOM undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the Client's description of its requirements and AECOM's experience, having regard to assumptions that AECOM can reasonably be expected to make in accordance with sound professional principles. AECOM may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

Quality Information

Document 2 Brookside Road, Ellesmere-Rolleston 7614

Ref 60542718/1.1

Date 21-Jun-2018

Prepared by Josh Girvin

Reviewed by Sarah Knowles

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
1	21-Jun-2018	Final	Sarah Knowles Technical Director	

Table of Contents

1.0 Introduction 1
1.1 Background 1
1.2 Purpose 1
1.3 Scope of Work 1
2.0 Background Information 2
2.1 Site Identification 2
2.2 Site Description 2
2.3 Site Setting 2
2.4 Site Topography and Drainage 3
2.4.1 Surface Water 3
2.4.2 Stormwater 3
2.4.3 Waste Water 3
2.5 Geology and Hydrogeology 3
2.5.1 Aquifer Sensitivity 3
2.6 Site History and Previous Environmental Investigations 4
2.6.1 Historical Certificates of Title 4
2.6.2 Historical Aerial Photographs 6
2.6.3 Land Information Memorandum 9
2.6.4 Environment Canterbury LLUR 10
2.6.5 Property File Review 10
2.6.6 Available Environmental Reports 10
3.0 Investigation Methodology 11
3.1 Field Work Methodology 11
3.2 Laboratory Analysis 11
4.0 Applicable Guidelines for Comparison 12
5.0 Results 13
5.1 Soil Results 13
5.1.1 Field Observations 13
5.1.2 Soil Analytical Results 13
6.0 Summary 14
7.0 Limitations 14

Appendix A
Figures A

Appendix B
Tabulated Data B

Appendix C
Laboratory Reports and Chain of Custody Information B

Appendix D
Local Bore Search Information C

Appendix E
Certificates of Title D

Appendix F
Local and Regional Council Information E

Appendix G
Photographic Log E

Appendix H
Test Pit Logs H

1.0 Introduction

This letter has been prepared by AECOM New Zealand Limited (AECOM) for Z Energy Limited (Z) to document an environmental investigation into the condition of soil at 2 Brookside Road, Ellesmere-Rolleston (the site) which comprises Lot 1 of Deposited Plan 75460. A proposed development of the site includes a change to the eastern boundary of the Lot, as such this area was included as part of the investigation.

The location of the site is presented in **Figure 1** (**Appendix A**). The proposed site boundary and area of investigation is shown in **Figure 2 (Appendix A)**.

1.1 Background

AECOM was engaged to conduct a preliminary site investigation (PSI) and limited detailed site investigation at the site in conjunction with a geotechnical investigation, being carried out to assess subsurface conditions for potential redevelopment at the site.

AECOM understands the site is under consideration for redevelopment as a service station, which would include underground tanks and the construction of a retail shop building, forecourt and canopy. The maximum depth of excavation associated with these redevelopment works would be 4 metres below ground level (m bgl) to 4.5 m bgl.

1.2 Purpose

The purpose of the environmental investigation was to obtain information about the current soil conditions at the site, to allow for an assessment of potential environmental soil and groundwater issues and to provide a benchmark of soil quality at the time of the investigation.

1.3 Scope of Work

The following works were completed:

- Review of historical certificates of title and aerial photos.
- Review of the Land Information Memorandum (LIM) provided by Selwyn District Council (SDC).
- Review of information provided by Environment Canterbury from their Listed Land Use Register (LLUR).
- Environmental soil sampling works from test pits completed for a concurrent geotechnical investigation undertaken by Babbage Consultants Limited.
- Soil samples were collected at varying depths to a maximum excavation extent of 1.5 m bgl from 10 geotechnical test pits (TP01-TP10); refer **Figure 2**, **Appendix A** for approximate locations.
- An additional soil sample was collected from the near-surface (between approximately 0.2 and 0.4 m bgl within the grassed area to the west of the site.
- Field screening of soil samples for headspace volatile organic compounds was undertaken using a photoionisation detector (PID) at each sampling location.
- Selected soil samples were analysed for a range of constituents including total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs) and a suite of metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc).
- The surface soil sample included screening level analysis for organochlorine (OCPs) and nitro- & phosphorus pesticides (ONPs and OPPs).
- Chemical analysis of the selected samples was completed by R J Hill Laboratories Limited (Hills).

Results from the chemical analysis are summarised in Table B1 (**Appendix B**).

Copies of the laboratory certificates and chain of custody information is provided in **Appendix C**.

2.0 Background Information

2.1 Site Identification

The site identification details are summarised in Table 1.

Table 1 Summary of Site Identification Details

Item	Detail
Address	2 Brookside Road, Rolleston, Selwyn District, Canterbury 7614
Legal Description	Lot 1 DP 75460; and Part of: Lot 2 DP 75460; and Part of: Lot 17 DP307
Area	3,729.16 m^2 (based on "Proposed Site Plan Scheme 3), drawing ref: Z-PS-A0003 Rev. C provided by Z Energy)
Zoning	The site (all three Lots) are zoned as "Living 1" within the Selwyn District Plan[1]
Owner(s)	Lot 1 DP 75460: Helen Shirley Lilley Lot 2 DP 75460: Sarah Kim Ellis Lot 17 DP307: Russell Lilly Builders Limited

2.2 Site Description

At the time of the site visit (2 May 2017) the site was operating as a public house (The Rolly Inn), restaurant (Rolly Thai), bottle shop and included car-parking areas to the west and southwest.

The proposed site boundary provided by Z Energy included part of two neighbouring Lots to the west of the main part of the site.

At the time of the site visit, the Lot to the northeast was being used for access/storage of materials for the construction of a motel on the western part of the Lot.

Access was not available to the residential Lot to the southwest of the site.

A figure showing the layout of the site is presented as **Figure 2** in **Appendix A**.

2.3 Site Setting

The site is located in a mixed commercial/industrial and residential area adjacent to State Highway 1. Land use neighbouring the site is summarised in Table 2 below.

Table 2 Surrounding Land Use

Direction	Land Use
North	Main South Road (part of State Highway 1) Street, followed by railway lines, beyond which are commercial properties.
East	Brookside Road, followed by commercial properties including veterinary services, residential properties. Beyond this and to the east of Tennyson Street is a BP service station and fast food restaurant and additional commercial and residential properties.
South	Brookside road, followed by residential properties.
West	A construction site undergoing redevelopment as a motel. To the southwest, a mix of commercial and residential properties were located along Brookside Road.

[1] Selwyn District Plan, accessed via: www.eplan.selwyn.govz.nz on 25/05/2017

2.4 Site Topography and Drainage

The site is generally flat and level; the approximate difference in height between the highest and lowest sections of the site is estimated to be less than 1 m.

2.4.1 Surface Water

The site is free draining to the kerb and channel. No permanent surface water features were identified within a 100 m radius of the site.

In the wider region, the site is situated between the Selwyn River (Waikirikiri) approximately 10 km to the southwest and the Waimakariri River approximately 20 km to the north.

2.4.2 Stormwater

Collected storm water from the building roof is piped and discharged to soak holes, the locations of these soak holes were confirmed, although the most likely location is along Brookside Road to the south and/or adjacent to Main South Road (State Highway 1) to the north.

2.4.3 Waste Water

Historically the site had a septic tank located to the south of the public house building, and to the east of the canopy of the bottle shop area. In 2000 the site was connected to the reticulated system present along Brookside Road to the south. The hotel has a grease gully trap located in the southwestern corner of the public house building.

2.5 Geology and Hydrogeology

The 1:250 000 scale geological map[2] of the area indicates that the site is underlain by Holocene river deposits, comprised predominantly of gravels.

The lithology observed beneath the site was predominantly grey medium sandy gravel with some cobbles and minor silt component.

The maximum extent of excavation was 1.5 m bgl and groundwater was not encountered.

The piezometric contours dataset provided by Canterbury Maps[3] indicates that the site lies between the 40 m above mean sea level (amsl) and 45 m amsl contours. Local topographic contours indicated that the site is approximately 55 m above sea level. Based on this information, the expected depth to groundwater beneath the site would be approximately 10 m bgl.

Local bore records indicate that boreholes approximately 25 m deep are in the area although the available logs did not indicate a static depth to water. The geotechnical investigation, completed by Babbage Consultants, included the completion of soak-away tests which is likely to provide an indication of potential soil infiltration rates

2.5.1 Aquifer Sensitivity

Section 5.2.3 of the Ministry for the Environment (MfE) 1999 Guidelines[4] describes a sensitive aquifer as one that "might be contaminated by a leak or spill of petroleum hydrocarbons" and is defined as:

a. Not artesian;

Yes

Based on regional hydrogeological information, the site is unlikely to be under artesian conditions, though groundwater was not directly assessed as part of this investigation.

b. Less than 10 m below the source or suspected source of contamination (or greater depth below ground surface where geology suggests contamination may readily migrate to greater depth, e.g. clean sands or gravels, fractured basalts);

[2] New Zealand Geology Web Mao, accessed 15/05/2017 via: http://data.gns.cri.nz/geology/
[3] Cantebury Maps, available via: https://canterburymaps-ecan.opendata.arcgis.com/datasets/piezometric-contours/geoservice
[4] Ministry for the Environment 1999. Guidelines for Assessing and Managing petroleum Hydrocarbon Contaminated site in New Zealand.

Unlikely

Unlikely, local bore records suggest that the depth to groundwater is greater than 10 m bgl.

c. Is of a quality appropriate for use, can yield water at a useful rate and is in an area where extraction and use of groundwater may be reasonably foreseen; or

Yes

A search of registered groundwater bores was completed and search results are provided in **Appendix D**.

A search of the Canterbury Regional Council (CRC / Environment Canterbury) records identified a total of 62 bore records within a 500 m radius of the site, of which 37 were listed as active. These included bores registered for domestic, stock and public drinking water extraction.

Of these, three well records were identified within a 250 m radius of the site, only one of which (M36/0009) was registered as active, with the listed owner as BP Oil New Zealand Limited. The bore is listed as 'active' for 'domestic supply' with a total depth of 25 m bgl and installation date of 1931, however a comment dated 15 March 2013 for this bore record states that: "BP states that this bore is not at this location. Original owner = Hotel".

While groundwater is extracted for use in the wider area, the site and surrounding area are serviced by a reticulated water supply. Town water supply is from six bores with depths between 56 m and 200 m bgl[5]. While the nature of the bore identified above (M36/0009) is unclear, shallow groundwater use within the immediate vicinity is considered unlikely.

d. Where the source of contamination is less than 100 m from a sensitive surface water body.

No

No surface water bodies were identified within 100 m of the site.

The shallow aquifer is therefore considered to be **not sensitive**.

2.6 Site History and Previous Environmental Investigations

2.6.1 Historical Certificates of Title

The proposed site comprises the entirety of Lot 1 DP 75460, part of Lot 2 DP 75460 and part of Lot 17 DP 307. Lots 1 and 2 DP 751460 were created in 1997 from subdivision of Lots 1 to 11 DP 542 and Lot 18 DP 307.

Copies of historical certificates of title are provided in **Appendix E**. Table 3, below, provides a summary of key land transfer events.

Table 3 Summary of Historical Certificates of Title

Lot 1, DP 75460 (CT 43B/1300)	
Year	**Owner**
February 1998	Transfer to Russell W. C. Lilley and Helen S. Lilly
December 1997	Leased to Rolly Inn Limited for a term of 20 years
July 1997	Title issued to Kenneth G. Auld, Hotelkeeper

Lot 2, DP 75460 (CT 43C/150)	
Year	**Owner**
July 1997	Title issued to Kenneth G. Auld, Hotelkeeper

[5] Selwyn District Council, 2005. 5Waters Activity Management Plan,

Lots 1 to 11, DP 542 (CT 17B/865)	
Year	**Owner**
February 1995	Transfer to Kenneth G. Auld, Hotelkeeper
March 1992	Leased to Kenneth G. Auld for term of 19 years
May 1990	Transfer to Fayden Properties Limited
May 1990	Leased to Lion Nathan Limited for a term of 21 years
January 1990	Change of name of the proprietor to Lion Nathan Limited
April 1988	Change of name of proprietor to Lion Corporation Limited
June 1977	Transferred to New Zealand Breweries Limited
March 1977	Title issued to Ruth C. Breach, Widow and the Perpetual Trustees Estate and Agency Company of New Zealand Limited
Lots 1 to 11, DP 542 (CT 466/79)	
Year	**Owner**
July 1953	Transfer of lease to Rolleston Hotel Limited
August 1950	Lease of Lots 2 - 11 to Thomas E. Robinson, Hotel keeper for term of 5 years, then extended to 1958
June 1949	Transfer to Ruth C. Breach, Widow and the Perpetual Trustees Estate and Agency Company of New Zealand Limited
February 1949	Transfer to [name illegible], Magistrate, [name illegible] Accountant and Ruth Breach
April 1945	Lease of Lots 2 - 11 to Thomas E. Robinson for term of 3 years
April 1943	Extension of lease to 1945
May 1940	Lease of Lots 2 - 11 to Denis U. Crosbie for term of 3 years
May 1940	Title issued to Thomas Glen, Agent
Lots 1 to 11, DP 542 (CT 64/181)	
Year	**Owner**
June 1933	Transfer to Thomas Glen, hotel keeper
January 1914	Transfer of lease to Thomas Glen
February 1913	Lease to Martin B. Gregan for 1 year
February 1912	Lease to Peter J. Keller for 3 years
March 1904	Lease to James H. Spence for 5 years
July 1897	Transfer to the Brown Brewery Company Limited
April 1887	Transfer to New Zealand Trust and Lean Company Limited
March 1881	Title issued to William Wilson, Merchant

Lot 18, DP 307 (CT 582/50)	
Year	**Owner**
February 1995	Transfer to Kenneth G. Auld, hotelkeeper
May 1990	Transfer to Fayden Properties Limited
January 1990	Change of name of proprietor Lion Nathan Limited
June 1987	Change of name of proprietors to Lion Corporation Limited

December 1978	Transfer to Lion Breweries Limited
June 1953	Title issued to Rose-Marie Fitzgibbon, Clerk
Lot 18, DP 307 (CT 572/34)	
Year	**Owner**
June 1953	Transfer to Rose-Marie Fitzgibbon, Clerk
February 1953	Title issued to The Public Trustee
Lot 18, DP 307 (CT 46/122)	
Year	**Owner**
Undated	Vested in the Punic Trustee
November 1883	Transfer to William Biskerton and James W. Reily, Merchants
October 1879	Title issued to Joseph T. Strange and Thomas F. Fountaine

Lot 17, DP 307 (CT 5D/402)	
Year	**Owner**
March 1966	Title issued to James F. Stewart, carrier and Denise M. Stewart
Lot 17, DP 307 (CT 5A/157)	
Year	**Owner**
August 1965	Title issued to The Rolleston Sales Yards Company Limited
Lot 17, DP 307 (CT 210/157)	
Year	**Owner**
October 1903	Title issued to William H Gundry, accountant

In summary, the part of the site formally identified at Lots 1 to 11, DP 542 appears to have been associated with hotel use since the 1950s. The part formally identified as Lot 18 appears to have been associated with hotel use since 1978. Current Lot 17 DP 307 has been in private ownership except for a short period in 1965/1966 when it was owned by Rolleston Sales Yard Company.

2.6.2 Historical Aerial Photographs

Table 4 provides a summary of the historical aerial photographs sourced from Environment Canterbury (Canterbury Maps). The approximate outline of the site is indicated by an orange line.

Table 4 Summary of Historical Aerial Photographs

Photograph	Summary
1972	
 Source: Canterbury Maps	• Site appears to contain one residential/commercial building. • Western part of the site appears to be vacant and consistent with present • Surrounding land-use appears to be a combination of commercial and residential with vacant/farmland to the east and north of the site. Main South Road (SH1), Brookside Road and the railway lines are present along the site boundaries and broadly consistent with their present-day configuration.
1976	
 Source: Canterbury Maps	• Land to the south of the site has been developed as residential properties; however vacant land is still evident to the west of the site.

Photograph	Summary
1984	
 Source: Canterbury Maps	• On-site building broadly unchanged since 1976 and site consistent with continued use as a commercial premises.
2009	
 Source: Canterbury Maps	• An extension of the existing building has appeared on the eastern side of the site. LIM records show consent for hotel extension was granted in 2000. • A commercial building has appeared on the eastern side of Tennyson Road.

Photograph	Summary
2013	
 Source: Canterbury Maps	• Site is unchanged since 2009. • A commercial/industrial building has appeared on the northern side of the site beyond Main South Road (SH1) and railway lines. • A small structure is present in the paddock west of the site.
2016	
 Source: Canterbury Maps	• Site appears unchanged since 2013. • Additional commercial buildings have been constructed to the north of the site beyond Main South Road (SH1) and the railway lines. • The small structure in the paddock to the west has been removed.

Historical photographs indicate that no significant earthworks or redevelopment occurred at the site since 1972. The surrounding area has been developed as a combination of residential and commercial properties since 1972.

2.6.3 Land Information Memorandum

The LIM issued by SDC on 22 May 2017 (refer **Appendix F**) was reviewed and the following was noted:

- Building permit to erect a bar extension was granted in August 1967.
- Building permit for plumbing/drainage relating to a bottle store and septic tank was granted in October 1977.
- Building permit for alterations to existing tavern was granted in October 1977.
- Building permit for plumbing/drainage relating to kitchen and upstairs was granted in January 1978.
- Building permit to erect a garage was granted in May 1979.
- Building consent for a solid fuel heater was granted in July 1992.
- Building consent for commercial alterations was granted in June 1993.
- Resource consent for boundary adjustment was approved in March 1997.
- Building consent for hotel addition was granted in May 2000.

- Resource consent for extension of tavern by 5 m north into carpark to provide for a gaming/entertaining room was approved in June 2000.
- Building consent for sewer connection was granted in November 2000.
- Building consent for commercial tavern alteration was granted in April 2003.
- Building consent for covered terrace was granted in December 2004.
- Resource consent to erect a liquor bottle shop was granted in August 2005.
- Building consents to demolish garage and construct liquor store was granted in December 2005.
- Resource consent to establish and operated a takeaway/restaurant with the Living 1 zone was requested for more information in September 2008.
- Building consent to install two solid fuel heaters was granted in August 2009.
- Resource consent was amended and approved to undertake a subdivision to create 2 residential lots was granted in December 2016.

2.6.4 Environment Canterbury LLUR

CRC maintains a database of properties that have had land uses that have the potential to contaminate land, as outlined in the MfE's Hazardous Activities and Industries List (HAIL).

A search of the CRC's LLUR completed on 12 April 2017 indicated that no information was held in relation to contaminated or potentially contaminated land (refer **Appendix F**).

2.6.5 Property File Review

A review of available records held by SDC was conducted their offices on 27 April 2017.

The findings were consistent with that provided by the LIM which is summarised in Section 2.6.3 above.

2.6.6 Available Environmental Reports

The following report was obtained through CRC:

- Engineering Design Consultants, April 2015. Preliminary Site Investigation (PSI) for 6 Brookside Road, Rolleston.

This document is summarised below:

The report identified the 6 Brookside Road as residentially-zoned grass field. Based on a review of historical information the report concluded that it was "more likely than not that a HAIL activity has not occurred" and that "no environmental contamination is anticipated on site".

A detailed site investigation involving the collection and analysis of soil or groundwater samples was not conducted.

3.0 Investigation Methodology

All field work was completed under the supervision of a Babbage geotechnical engineer and observed by an experienced AECOM environmental scientist in accordance with AECOM and Z permit to work procedures. A site-specific health, safety and environmental management plan was prepared and the applicable permits obtained.

Ten test pit locations (TP01-TP10) were selected as part of a geotechnical investigation designed by Babbage Consultants Limited. Environmental samples were collected from these excavations on an opportunistic basis. The locations were selected to cover areas that are proposed for development with buildings and roadways; however they provide a significant coverage of the site which allowed for a reasonable coverage of samples for environmental purposes.

In addition to environmental samples collected from the test pits, a soil sample (SS01) was collected from the near surface (approximately 0.2 m bgl to 0.4 m bgl) from the western part of the proposed site, in an area currently used as a yard for a motel which was under construction at the time of the site visit.

The locations of the soil sampling locations are presented in Figure 2 (**Appendix A**).

3.1 Field Work Methodology

A summary of field methodologies is presented in Table 5.

Table 5 Summary of Field Methodologies

Date	Activity	Method
1 May 2017	Underground service clearance	• Babbage Consultants Limited completed desktop review of site plans provided by Z and obtained service plans through BeforeUdig. • Service identification and a service mark out in the vicinity of the proposed borehole locations using both ground penetrating radar (GPR) and cable avoidance tool (CAT) technology under the supervision by Babbage Consultants Limited.
2 May 2017	Test pits and soil sampling	• Excavation of each of ten test pits to a maximum depth of 1.5 m bgl completed by Babbage Consultants Limited and observed by AECOM. • Logging of soil lithology, collection of soil samples directly from excavator bucket, field screening of soil samples for volatile organic compounds (VOCs) using a photoionisation detector (PID) at each borehole. • Additional surface soil sample collected from 0.2 m bgl – 0.4 m bgl from neighbouring Lot to the northwest of the proposed site area. • Test pits were reinstated using the excavator on the same day.

The laboratory reports and Chain of Custody (CoC) documentation is presented in **Appendix C**.

3.2 Laboratory Analysis

Soil samples were collected into laboratory-supplied sample containers, placed on ice in a chilly bin and transport to Hill Laboratories under standard CoC documentation. Nine soil samples were selected and analysed for a range of constituents including TPH, BTEX, PAHs and a suite of metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc).

The surface soil sample (SS01) included screening level analysis for organochlorine (OCPs) and nitro- & phosphorus pesticides (ONPs and OPPs).

4.0 Applicable Guidelines for Comparison

In accordance with the hierarchy defined in the Contaminated Land Management Guidelines No.2[6] , soil analytical results have been compared to the following Tier 1 acceptance criteria:

- MfE 1999 Guidelines All pathways acceptance criteria for a commercial / industrial land use with a sandy silt / sand soil type and depth of contamination of < 1 m bgl and 1 – 4 m bgl.
- Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations, 2011 (NES) soil contaminant standards (SCS) for commercial/industrial outdoor worker (unpaved).

Also to provide additional context the laboratory results were compared against the following criteria:

- Background concentrations of trace elements of trace elements in Canterbury soils.
- Burwood landfill soil acceptance criteria.

[6] Ministry for the Environment, 2011a. Contaminated land management guidelines No. 2: Hierarchy and application in New Zealand of environmental guideline values (2003, revised 2011).

5.0 Results

5.1 Soil Results

5.1.1 Field Observations

Photographs from the site walkover and test pit sampling works are presented in **Appendix G**.

The following observations were noted during the investigation site visits:

- No odours were noted, and no stained soils were observed during sampling of the test pit excavations.
- Soil headspace screening using a PID did not indicate elevated (> 5 parts per million, ppm) readings.
- Minor amounts of anthropogenic materials, including metal, rubber, brick and wood fragments were encountered in the shallow fill material (< 0.5 m bgl), however it was not extensive and evidence of landfill activities was not encountered.
- Groundwater was not encountered during the excavations, to their maximum extent of approximately 1.5 m bgl. Based on piezometric contour information provided by Canterbury Maps, the expected depth to groundwater beneath the site is approximately 10 m bgl (refer Section 2.5).

Logs from the test pits are presented in **Appendix H**.

5.1.2 Soil Analytical Results

A summary of the laboratory results and acceptance criteria is presented in Table B1 (**Appendix B**).

TPH and BTEX were not detected above the laboratory limit of reporting (LOR). PAHs were detected in one of the three samples analysed. The PAH concentrations detected in shallow soil sample SS01 complied with the MfE acceptance criteria and NES SCS for commercial / industrial land-use.

A trace concentration of DDE was detected in shallow soil sample SS01. No other OCPs, ONPs or OPPs were detected above the laboratory LOR. The total DDT (sum of DDT isomers of which only DDE was detected) complied with the NES SCS.

Metals were detected in the three soil samples analysed. The metal concentrations detected in shallow sample SS01 were elevated above typical background concentrations[7]; however all concentrations complied with the NES SCS.

All analytical results complied with the Burwood Landfill Acceptance Criteria.

[7] 'Background concentrations of selected trace elements in Canterbury soils" Environment Canterbury (2007), available at: http://www.crc.govt.nz/publications/Reports/BackgroundTraceElementsFULL.pdf

6.0 Summary

The site appears to have been used as a hotel since at least 1967 based on information from the Certificates of Title. No HAIL activities were identified as having been undertaken at the site.

The analytical results indicate that soil concentrations of potential contaminants of concern comply with the applicable standards (NES regulation 7) for commercial / industrial land-use. Trace DDE, PAHs and elevated metals were detected in a single soil sample collected from the near-surface on the south western portion of the site.

Based on review of site history, we consider that it is more likely than not that an activity or industry described in the HAIL has not been undertaken at the site (NES regulation 5(7)), and the results of the soil investigation support this conclusion. As such, the NES would not apply to future development.

The site is considered suitable for ongoing commercial/industrial land use and based on the site history and limited soil sampling undertaken it is considered highly unlikely that there will be a risk to human health if the land use is changed to a service station.

Based on the soil samples collected as part of this investigation, it is likely that soil excavated as part of a future development works at the site would meet the conditions for clean fill, subject to obtaining the appropriate approvals with the exception of shallow soil in the vicinity of sample SS01. Soil in the in vicinity of SS01 may require delineation if soil in this area was to be disturbed and removed off-site to determine appropriate disposal.

Groundwater was not directly assessed as part of this investigation. Based on piezometric contour information provided by Canterbury Maps, the expected depth to groundwater beneath the site is approximately 10 m bgl (refer Section 2.5).

7.0 Limitations

This document was prepared for the sole use of Z Energy Ltd, the only intended beneficiaries of our work. Any advice, opinions or recommendations contained in this document should be read and relied upon only in the context of the document as a whole and are considered current to the date of this document. Any other party should satisfy themselves that the scope of work conducted and reported herein meets their specific needs. AECOM cannot be held liable for third party reliance on this document, as AECOM is not aware of the specific needs of the third party.

This document was prepared for the purpose described in our proposal dated 15 September 2015 and as agreed to by Z Energy Ltd. From a technical perspective, the subsurface environment at any site may present substantial uncertainty. It is a heterogeneous, complex environment, in which small subsurface features or changes in geologic conditions can have substantial impacts on water and chemical movement. Uncertainties may also affect source characterisation assessment of chemical fate and transport in the environment, assessment of exposure risks and health effects, and remedial action performance.

AECOM's professional opinions are based upon its professional judgement, experience, and training. These opinions are also based upon data derived from previous reports and the testing and analysis described in this document. It is possible that additional testing and analysis might produce different results and/or different opinions. AECOM has limited its investigation to the scope agreed upon with its client. AECOM believes that its opinions are reasonably supported by the testing and analysis that have been done, and that those opinions have been developed according to the professional standard of care for the environmental consulting profession in this area at this time. That standard of care may change and new methods and practices of exploration, testing, analysis and remediation may develop in the future, which might produce different results.

AECOM's professional opinions contained in this document are subject to modification if additional information is obtained, through further investigation, observations, or validation testing and analysis during remedial activities.

Appendix A

Figures



17/05/2017 10:50:19 a.m.

\\nzchc1fp001.au.aecomnet.com\Projects\605X\60542718\4. Tech work Area\4.99 GIS\02_Maps\Site_Location.mxd

Approved	JG	Date	17/05/2017
Designed	SS	Drawn	SS
Checked	JG		

Project: **2 BROOKSIDE ROAD, ELLESMERE-ROLLESTON, SELWYN - ENVIRONMENTAL SITE ASSESSMENT**

Title: **SITE LOCATION PLAN**

Scale: Scale: 1:35,000 (A4 size) 0.25 0.125 0 0.25 0.5 0.75 1 km

Status: DRAFT | Rev.: A | Map No.: **FIGURE 1** | Job No.: 60542718

© Copyright AECOM, 2015. This map is confidential and shall only be used for the purposes of this project.

Rev.	By	App.	Description	Date

Client: **Z ENERGY LIMITED**

© Copyright AECOM New Zealand Limited 2015.
This map is confidential and shall only be used for the purpose of this project. The information contained or referred to in this drawing-report was developed for use in the project. AECOM New Zealand Limited does not accept any responsibility for the use of the information by any other parties and state expressly that they do not warrant the accuracy of the information. Any use of the information by other parties is at their own risk.
The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM Quality Assurance system certified to AS/NZS ISO 9001:2000.
No part of this drawing/report may be copied or used without the prior written consent of AECOM New Zealand Limited.

Map features depicted in terms of NZTM projection.

Data Sources:
NZ Topographical Features - LINZ NZ National Topo Dataset 2014
Cadastral Boundaries - LINZ NZ Cadastral Dataset 2014

AECOM



ISO A3 297mm x 420mm

Last saved by: SERGEYSOKOLOV (2017-05-17) Last Plotted: 2017-05-17
Filename: \\nzchc1fp001.au.aecomnet.com\Projects\605X\60542718\4. Tech work Area\4.99 GIS\02_Maps\Sample_Locations.mxd

AECOM

PROJECT

Z ENERGY LIMITED

CLIENT

2 BROOKSIDE ROAD, ELLESMERE-ROLLESTON, SELWYN - ENVIRONMENTAL SITE ASSESSMENT

CONSULTANT

AECOM New Zealand Limited
www.aecom.com

SPATIAL REFERENCE

Scale: 1:500 (A3 size)

10 5 0 10 Meters

Map features depicted in terms of NZTM 2000 projection.

Data Sources:
Cadastral Boundaries – LINZ NZ Cadastral Dataset 2016

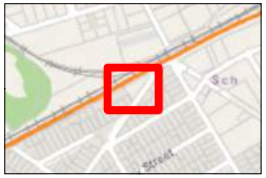
PROJECT MANAGEMENT

Approved	JG	Date	17/05/2017
Checked	JG	Date	17/05/2017
Designed	SS	Date	17/05/2017
Drawn	SS	Date	17/05/2017

ISSUE/REVISION

Rev	Date	Description
A	17/05/2017	DRAFT

KEY PLAN



PROJECT NUMBER

60542718

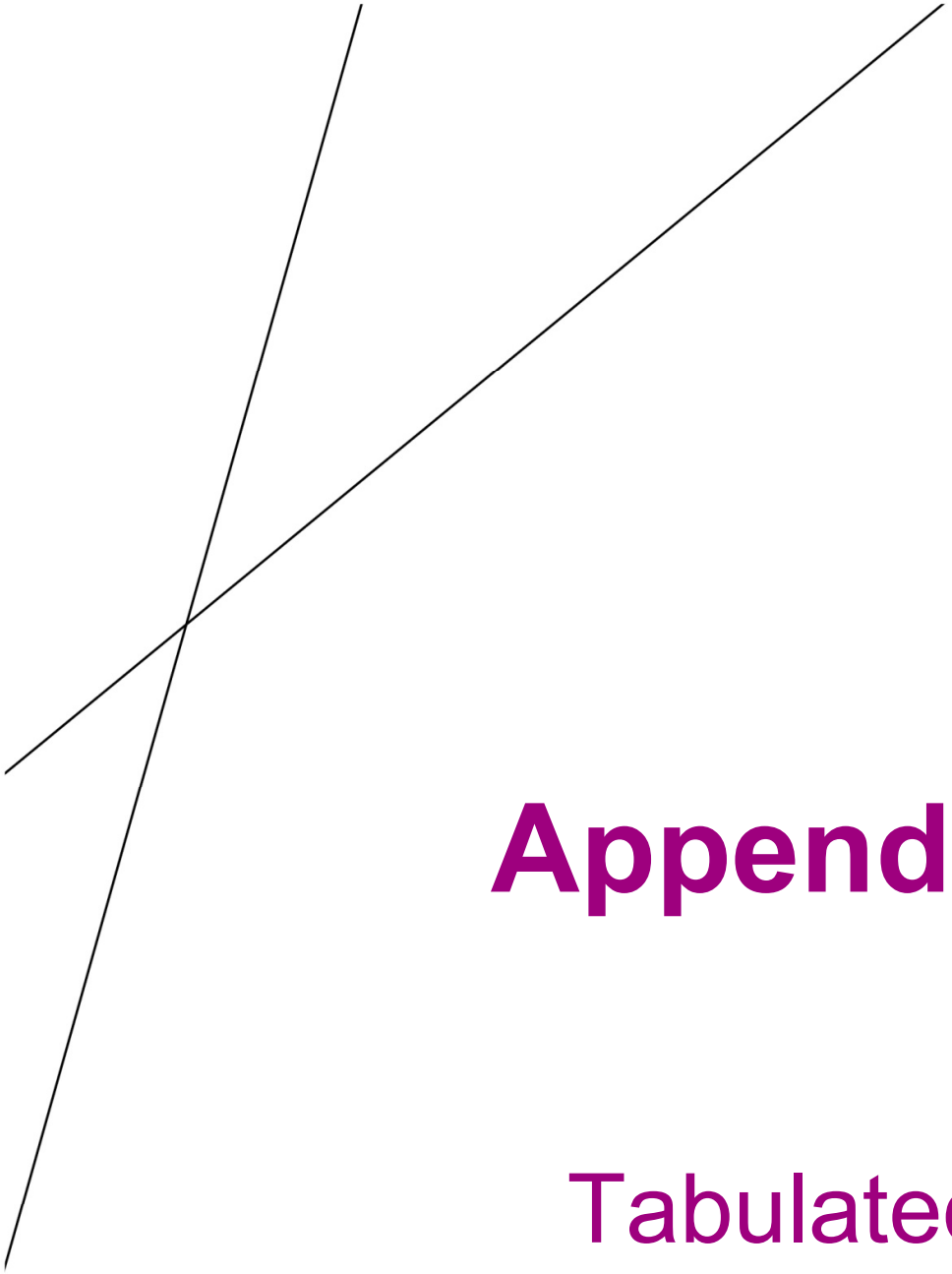
SHEET TITLE

SAMPLE LOCATION PLAN

MAP NUMBER

FIGURE 2

© Copyright AECOM New Zealand Limited, 2015. This map is confidential and shall only be used for the purposes of this project. The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM Quality Assurance system certified to AS/NZS ISO 9001:2008.



Appendix B

Tabulated Data

AECOM

Client Name: Z Energy Limited
Project Name: 2 Brookside Road, Rolleston
Project No: 60542718/1.1

Table B1 **2017 Analytical Data Results: Soil**

Sample	AECOM Sample Reference	Lab. Sample Reference	Sample Type	Date	PID Reading	TPH				BTEX						PAHs		
						TPH C_7 - C_9	TPH C_{10} - C_{14}	TPH C_{15} - C_{36}	Total petroleum hydrocarbons (C_7 - C_{36})	Benzene	Toluene	Ethylbenzene	m&p-Xylene	o-Xylene	Xylene Total	Naphthalene	Non-car. (pyrene)	BaP Equivalent
Oil Industry Guidelines[1]	Commercial/Industrial Land Use - ALL PATHWAYS - SAND Soil Type with depth of contamination at <1m				-	120 [(m)]	(470) [(7,x)]	NA [(2)]	-	(3.0) [(m)]	(94) [(4,m)]	(180) [(4,v)]	-	-	(150) [(4,m)]	(190)[(v)]	NA[2]	NA[9]
	Commercial/Industrial Land Use - ALL PATHWAYS - SAND Soil Type with depth of contamination at 1 - 4m				-	120 [(m)]	(560) [(7,x)]	NA [(2)]	-	(3.0) [(m)]	(94) [(4,m)]	(300) [(4,7,v)]	-	-	(150) [(4,m)]	(230)[(v)]	NA[2]	NA[9]
NES $SCS_{(health)}$ for inorganic substances - Commercial/industrial outdoor worker (unpaved)[7]					-	-	-	-	-	-	-	-	-	-	-	-	-	-
NES $SCS_{(health)}$ for organic substances - Commercial/industrial outdoor worker (unpaved)[7]					-	-	-	-	-	-	-	-	-	-	-	-	-	35.0
Background concentrations of Trace Elements in Canterbury Soils[8]					-	-	-	-	-	-	-	-	-	-	-	-	-	-
Burwood Landfill Soil Acceptance Criteria [5]					-	120	6500	10000	-	3	94	670	-	-	150	-	-	40
Units					ppm	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt
TP02	TP02_1.2-1.3	1769213.3	Primary	02-May-17	0.4	< 8	<20	< 40	< 70	-	-	-	-	-	-	-	-	-
TP03	TP03_0.5-0.6	1769213.4	Primary	02-May-17	1.1	< 8	<20	< 40	< 70	-	-	-	-	-	-	-	-	-
TP04	TP04_0.3-0.4	1769213.5	Primary	02-May-17	1.6	< 8	<20	< 40	< 70	-	-	-	-	-	-	-	-	-
TP05	TP05_1.4-1.5	1769213.6	Primary	02-May-17	0.7	< 8	<20	< 40	< 70	-	-	-	-	-	-	<0.12	<0.03	<0.27
TP07	TP07_1.7-1.8	1769213.8	Primary	02-May-17	1.3	< 8	<20	< 40	< 70	-	-	-	-	-	-	-	-	-
TP08	TP08_0.9-1.0	1769213.10	Primary	02-May-17	0.3	< 8	<20	< 40	< 70	-	-	-	-	-	-	-	-	-
TP10	TP10_0.3-0.4	1769213.12	Primary	02-May-17	-	< 8	<20	< 40	< 70	<0.05	<0.05	<0.05	<0.10	<0.05	<0.15	-	-	<0.27
TP10	TP10_1.5-1.6	1769213.13	Primary	02-May-17	-	< 8	<20	< 40	< 70	-	-	-	-	-	-			-
SS01	SS01_0.2-0.4	1769213.9	Primary	02-May-17	-	-	-	-	-	-	-	-	-	-	-	0.15	0.15	0.56

Notes
1. Ministry for the Environment, 1999. *Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand* (MfE 1999 Guidelines).
BOLD BLACK indicates an exceedance of Commercial/Industrial Land Use - ALL PATHWAYS - SANDY Soil Type
Grey indicates an exceedance of NES SCS(health) for inorganic substances - commercial/industrial outdoor worker (unpaved)
Green indicates an exceedance of NES SCS(health) for inorganic substances - commercial/industrial outdoor worker (unpaved)
Orange indicates an exceedance of Background concentrations of trace elements in Canterbury soils
(2) NA indicates contaminant not limiting as estimated heath-based criterion is significantly higher than that likely to be encountered
(3) Brackets denotes values exceed threshold likely to correspond to formation of residual separate phase hydrocarbons. For further explanation refer to appendix 4M of MfE 1999 Guidelines.
(4) Due to the nature of boundary conditions in volatilisation model, calculated criteria for sandy soils are higher than that for silt soil type. Therefore, the criteria for sand are set equal to the criteria for silt, Refer appendix 4D of MfE 1999 Guidelines for details.
The following notes indicate the limiting pathway for each criterion: v - volatilisation, s - Soil ingestion, d - Dermal, p - Produce, m - Maintenance/excavation.
(5) Burwood Landfill Soil Acceptance Criteria
Underline indicates an exceedance of Burwood Landfill Soil Acceptance Criteria
(6) Pesticides in Soil
- no criteria or not sampled
(7) National Environmental Standards (NES) for Assessing and managing Contaminants in Soil to Protect Human Health -Soil contaminant standards for health (SCS(health)) for Inorganic and organic substances- Table B2 and Table B3
(8) background Concentrations of Trace Elements in the Major Soil groups of the Canterbury region - Table 1 - Proposed Background Concentrations - Level 1 (maximum measured values - results in mg/kg)
(9) NA^9 indicates NES Bap values supersede the MfE Bap values.

AECOM

Client Name: Z Energy Limited
Project Name: 2 Brookside Road, Rolleston
Project No: 60542718/1.1

Table B1 **2017 Analytical Data Results: Soil**

Sample	AECOM Sample Reference	Lab. Sample Reference	Sample Type	Date	Heavy Metals								OCPs	
					Total Recoverable Arsenic	Total Recoverable Cadmium	Total Recoverable Chromium	Total Recoverable Copper	Total Recoverable Lead	Total Recoverable Mercury	Total Recoverable Nickel	Total Recoverable Zinc	Total DDT Isomers	Dieldrin
Oil Industry Guidelines[1]	Commercial/Industrial Land Use - ALL PATHWAYS - SAND Soil Type with depth of contamination at <1m				-	-	-	-	-	-	-	-	-	-
	Commercial/Industrial Land Use - ALL PATHWAYS - SAND Soil Type with depth of contamination at 1 - 4m				-	-	-	-	-	-	-	-	-	-
NES $SCS_{(health)}$ for inorganic substances - Commercial/industrial outdoor worker (unpaved)[7]					70	1300	6,300	>10,000	3,300	4,200	-	-	-	-
NES $SCS_{(health)}$ for organic substances - Commercial/industrial outdoor worker (unpaved)[7]					-	-	-	-	-	-	-	-	1000.00	160.00
Background concentrations of Trace Elements in Canterbury Soils[8]					5.8	0.1	18.3	10.2	18.7	0.1	12.8	64.0	-	-
Burwood Landfill Soil Acceptance Criteria [5]					80	400	2700	>10,000	880	1800	600	14000	400	70
				Units	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt
TP02	TP02_1.2-1.3	1769213.3	Primary	02-May-17	-	-	-	-	-	-	-	-	-	-
TP03	TP03_0.5-0.6	1769213.4	Primary	02-May-17	-	-	-	-	-	-	-	-	-	-
TP04	TP04_0.3-0.4	1769213.5	Primary	02-May-17	-	-	-	-	-	-	-	-	-	-
TP05	TP05_1.4-1.5	1769213.6	Primary	02-May-17	-	-	-	-	-	-	-	-	-	-
TP07	TP07_1.7-1.8	1769213.8	Primary	02-May-17	-	-	-	-	-	-	-	-	-	-
TP08	TP08_0.9-1.0	1769213.10	Primary	02-May-17	3	< 0.10	14	6	270	< 0.10	11	47	-	-
TP10	TP10_0.3-0.4	1769213.12	Primary	02-May-17	-	-	-	-	-	-	-	-	-	-
TP10	TP10_1.5-1.6	1769213.13	Primary	02-May-17	4	< 0.10	12	9	107	< 0.10	10	58	-	-
SS01	SS01_0.2-0.4	1769213.9	Primary	02-May-17	10	0.48	16	30	410	< 0.10	12	450	< 0.06	< 0.010

Notes
1. Ministry for the Environment, 1999. *Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand* (MfE 1999 Guidelines).
BOLD BLACK indicates an exceedance of Commercial/Industrial Land Use - ALL PATHWAYS - SANDY Soil Type
Grey indicates an exceedance of NES SCS(health) for inorganic substances - commercial/industrial outdoor worker (unpaved)
Green indicates an exceedance of NES SCS(health) for inorganic substances - commercial/industrial outdoor worker (unpaved)
Orange indicates an exceedance of Background concentrations of trace elements in Canterbury soils
(2) NA indicates contaminant not limiting as estimated heath-based criterion is significantly higher than that likely to be encountered
(3) Brackets denotes values exceed threshold likely to correspond to formation of residual separate phase hydrocarbons. For further explanation refer to appendix 4M of MfE 1999 Guidelines.
(4) Due to the nature of boundary conditions in volatilisation model, calculated criteria for sandy soils are higher than that for silt soil type. Therefore, the criteria for sand are set equal to the criteria for silt, Refer appendix 4D of MfE 1999 Guidelines for details.
The following notes indicate the limiting pathway for each criterion: v - volatilisation, s - Soil ingestion, d - Dermal, p - Produce, m - Maintenance/excavation.
(5) Burwood Landfill Soil Acceptance Criteria
Underline indicates an exceedance of Burwood Landfill Soil Acceptance Criteria
(6) Pesticides in Soil
- no criteria or not sampled
(7) National Environmental Standards (NES) for Assessing and managing Contaminants in Soil to Protect Human Health -Soil contaminant standards
(8) background Concentrations of Trace Elements in the Major Soil groups of the Canterbury region - Table 1 - Proposed Background Concentrations
(9) NA^9 indicates NES Bap values supersede the MfE Bap values.

Appendix C

Laboratory Reports and Chain of Custody Information

Hill Laboratories
TRIED, TESTED AND TRUSTED

R J Hill Laboratories Limited
1 Clyde Street Hamilton 3216
Private Bag 3205
Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

ANALYSIS REPORT

Client:	AECOM New Zealand Limited	**Lab No:**	1769213 SPv1
Contact:	Josh Girvin	**Date Received:**	04-May-2017
	C/- AECOM New Zealand Limited	**Date Reported:**	16-May-2017
	PO Box 710	**Quote No:**	81048
	Christchurch 8140	**Order No:**	60542718/1.1
		Client Reference:	Rolleston (2 Brookside Rd)
		Submitted By:	Josh Girvin

Sample Type: Soil

Sample Name:		TP02_1.2-1.3 02-May-2017	TP03_0.5-0.6 02-May-2017	TP04_0.3-0.4 02-May-2017	TP05_1.4-1.5 02-May-2017	TP07_1.7-1.8 02-May-2017
Lab Number:		1769213.3	1769213.4	1769213.5	1769213.6	1769213.8
Individual Tests						
Dry Matter	g/100g as rcvd	97	93	83	94	96
Polycyclic Aromatic Hydrocarbons Screening in Soil						
Acenaphthene	mg/kg dry wt	-	-	-	< 0.03	-
Acenaphthylene	mg/kg dry wt	-	-	-	< 0.03	-
Anthracene	mg/kg dry wt	-	-	-	< 0.03	-
Benzo[a]anthracene	mg/kg dry wt	-	-	-	< 0.03	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	-	-	-	< 0.03	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	-	-	-	< 0.03	-
Benzo[g,h,i]perylene	mg/kg dry wt	-	-	-	< 0.03	-
Benzo[k]fluoranthene	mg/kg dry wt	-	-	-	< 0.03	-
Chrysene	mg/kg dry wt	-	-	-	< 0.03	-
Dibenzo[a,h]anthracene	mg/kg dry wt	-	-	-	< 0.03	-
Fluoranthene	mg/kg dry wt	-	-	-	< 0.03	-
Fluorene	mg/kg dry wt	-	-	-	< 0.03	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	-	-	-	< 0.03	-
Naphthalene	mg/kg dry wt	-	-	-	< 0.12	-
Phenanthrene	mg/kg dry wt	-	-	-	< 0.03	-
Pyrene	mg/kg dry wt	-	-	-	< 0.03	-
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	< 8	< 8	< 8	< 8	< 8
C10 - C14	mg/kg dry wt	< 20	< 20	< 20	< 20	< 20
C15 - C36	mg/kg dry wt	< 40	< 40	< 40	< 40	< 40
Total hydrocarbons (C7 - C36)	mg/kg dry wt	< 70	< 70	< 70	< 70	< 70

Sample Name:		SS01_0.2-0.4 02-May-2017	TP08_0.9-1.0 02-May-2017	TP10_0.3-0.4 02-May-2017	TP10_1.5-1.6 02-May-2017	
Lab Number:		1769213.9	1769213.10	1769213.12	1769213.13	
Individual Tests						
Dry Matter	g/100g as rcvd	77	94	88	91	-
Heavy Metals with Mercury, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	10	3	-	4	-
Total Recoverable Cadmium	mg/kg dry wt	0.48	< 0.10	-	< 0.10	-
Total Recoverable Chromium	mg/kg dry wt	16	14	-	12	-
Total Recoverable Copper	mg/kg dry wt	30	6	-	9	-
Total Recoverable Lead	mg/kg dry wt	410	270	-	107	-
Total Recoverable Mercury	mg/kg dry wt	< 0.10	< 0.10	-	< 0.10	-
Total Recoverable Nickel	mg/kg dry wt	12	11	-	10	-
Total Recoverable Zinc	mg/kg dry wt	450	47	-	58	-

ilac-MRA IANZ ACCREDITED LABORATORY

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked *, which are not accredited.

Sample Type: Soil						
Sample Name:		SS01_0.2-0.4 02-May-2017	TP08_0.9-1.0 02-May-2017	TP10_0.3-0.4 02-May-2017	TP10_1.5-1.6 02-May-2017	
Lab Number:		1769213.9	1769213.10	1769213.12	1769213.13	
BTEX in Soil by Headspace GC-MS						
Benzene	mg/kg dry wt	-	-	< 0.05	-	-
Toluene	mg/kg dry wt	-	-	< 0.05	-	-
Ethylbenzene	mg/kg dry wt	-	-	< 0.05	-	-
m&p-Xylene	mg/kg dry wt	-	-	< 0.10	-	-
o-Xylene	mg/kg dry wt	-	-	< 0.05	-	-
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.010	-	-	-	-
alpha-BHC	mg/kg dry wt	< 0.010	-	-	-	-
beta-BHC	mg/kg dry wt	< 0.010	-	-	-	-
delta-BHC	mg/kg dry wt	< 0.010	-	-	-	-
gamma-BHC (Lindane)	mg/kg dry wt	< 0.010	-	-	-	-
cis-Chlordane	mg/kg dry wt	< 0.010	-	-	-	-
trans-Chlordane	mg/kg dry wt	< 0.010	-	-	-	-
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	-	-	-	-
2,4'-DDD	mg/kg dry wt	< 0.010	-	-	-	-
4,4'-DDD	mg/kg dry wt	< 0.010	-	-	-	-
2,4'-DDE	mg/kg dry wt	< 0.010	-	-	-	-
4,4'-DDE	mg/kg dry wt	0.025	-	-	-	-
2,4'-DDT	mg/kg dry wt	< 0.010	-	-	-	-
4,4'-DDT	mg/kg dry wt	< 0.010	-	-	-	-
Total DDT Isomers	mg/kg dry wt	< 0.06	-	-	-	-
Dieldrin	mg/kg dry wt	< 0.010	-	-	-	-
Endosulfan I	mg/kg dry wt	< 0.010	-	-	-	-
Endosulfan II	mg/kg dry wt	< 0.010	-	-	-	-
Endosulfan sulphate	mg/kg dry wt	< 0.010	-	-	-	-
Endrin	mg/kg dry wt	< 0.010	-	-	-	-
Endrin aldehyde	mg/kg dry wt	< 0.010	-	-	-	-
Endrin ketone	mg/kg dry wt	< 0.010	-	-	-	-
Heptachlor	mg/kg dry wt	< 0.010	-	-	-	-
Heptachlor epoxide	mg/kg dry wt	< 0.010	-	-	-	-
Hexachlorobenzene	mg/kg dry wt	< 0.010	-	-	-	-
Methoxychlor	mg/kg dry wt	< 0.010	-	-	-	-
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg	< 0.06	-	-	-	-
Alachlor	mg/kg	< 0.05	-	-	-	-
Atrazine	mg/kg	< 0.06	-	-	-	-
Atrazine-desethyl	mg/kg	< 0.06	-	-	-	-
Atrazine-desisopropyl	mg/kg	< 0.12	-	-	-	-
Azaconazole	mg/kg	< 0.03	-	-	-	-
Azinphos-methyl	mg/kg	< 0.12	-	-	-	-
Benalaxyl	mg/kg	< 0.03	-	-	-	-
Bitertanol	mg/kg	< 0.12	-	-	-	-
Bromacil	mg/kg	< 0.06	-	-	-	-
Bromopropylate	mg/kg	< 0.06	-	-	-	-
Butachlor	mg/kg	< 0.06	-	-	-	-
Captan	mg/kg	< 0.12	-	-	-	-
Carbaryl	mg/kg	< 0.06	-	-	-	-
Carbofuran	mg/kg	< 0.06	-	-	-	-
Chlorfluazuron	mg/kg	< 0.06	-	-	-	-
Chlorothalonil	mg/kg	< 0.06	-	-	-	-
Chlorpyrifos	mg/kg	< 0.06	-	-	-	-
Chlorpyrifos-methyl	mg/kg	< 0.06	-	-	-	-
Chlortoluron	mg/kg	< 0.12	-	-	-	-
Cyanazine	mg/kg	< 0.06	-	-	-	-

Sample Type: Soil						
Sample Name:		SS01_0.2-0.4 02-May-2017	TP08_0.9-1.0 02-May-2017	TP10_0.3-0.4 02-May-2017	TP10_1.5-1.6 02-May-2017	
Lab Number:		1769213.9	1769213.10	1769213.12	1769213.13	
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Cyfluthrin	mg/kg	< 0.08	-	-	-	-
Cyhalothrin	mg/kg	< 0.06	-	-	-	-
Cypermethrin	mg/kg	< 0.15	-	-	-	-
Deltamethrin (including Tralomethrin)	mg/kg	< 0.06	-	-	-	-
Diazinon	mg/kg	< 0.03	-	-	-	-
Dichlofluanid	mg/kg	< 0.06	-	-	-	-
Dichloran	mg/kg	< 0.2	-	-	-	-
Dichlorvos	mg/kg	< 0.09	-	-	-	-
Difenoconazole	mg/kg	< 0.09	-	-	-	-
Dimethoate	mg/kg	< 0.12	-	-	-	-
Diphenylamine	mg/kg	< 0.12	-	-	-	-
Diuron	mg/kg	< 0.06	-	-	-	-
Fenpropimorph	mg/kg	< 0.06	-	-	-	-
Fluazifop-butyl	mg/kg	< 0.06	-	-	-	-
Fluometuron	mg/kg	< 0.06	-	-	-	-
Flusilazole	mg/kg	< 0.06	-	-	-	-
Fluvalinate	mg/kg	< 0.05	-	-	-	-
Furalaxyl	mg/kg	< 0.03	-	-	-	-
Haloxyfop-methyl	mg/kg	< 0.06	-	-	-	-
Hexaconazole	mg/kg	< 0.06	-	-	-	-
Hexazinone	mg/kg	< 0.03	-	-	-	-
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.3	-	-	-	-
Kresoxim-methyl	mg/kg	< 0.03	-	-	-	-
Linuron	mg/kg	< 0.06	-	-	-	-
Malathion	mg/kg	< 0.06	-	-	-	-
Metalaxyl (Mefenoxam)	mg/kg	< 0.06	-	-	-	-
Methamidophos	mg/kg	< 0.3	-	-	-	-
Metolachlor	mg/kg	< 0.05	-	-	-	-
Metribuzin	mg/kg	< 0.06	-	-	-	-
Molinate	mg/kg	< 0.12	-	-	-	-
Myclobutanil	mg/kg	< 0.06	-	-	-	-
Naled	mg/kg	< 0.3	-	-	-	-
Norflurazon	mg/kg	< 0.12	-	-	-	-
Oxadiazon	mg/kg	< 0.06	-	-	-	-
Oxyfluorfen	mg/kg	< 0.03	-	-	-	-
Paclobutrazol	mg/kg	< 0.06	-	-	-	-
Parathion-ethyl	mg/kg	< 0.06	-	-	-	-
Parathion-methyl	mg/kg	< 0.06	-	-	-	-
Pendimethalin	mg/kg	< 0.06	-	-	-	-
Permethrin	mg/kg	< 0.03	-	-	-	-
Pirimicarb	mg/kg	< 0.06	-	-	-	-
Pirimiphos-methyl	mg/kg	< 0.06	-	-	-	-
Prochloraz	mg/kg	< 0.3	-	-	-	-
Procymidone	mg/kg	< 0.06	-	-	-	-
Prometryn	mg/kg	< 0.03	-	-	-	-
Propachlor	mg/kg	< 0.06	-	-	-	-
Propanil	mg/kg	< 0.2	-	-	-	-
Propazine	mg/kg	< 0.03	-	-	-	-
Propiconazole	mg/kg	< 0.05	-	-	-	-
Pyriproxyfen	mg/kg	< 0.06	-	-	-	-
Quizalofop-ethyl	mg/kg	< 0.06	-	-	-	-
Simazine	mg/kg	< 0.06	-	-	-	-
Simetryn	mg/kg	< 0.06	-	-	-	-
Sulfentrazone	mg/kg	< 0.3	-	-	-	-

Sample Type: Soil						
Sample Name:		SS01_0.2-0.4 02-May-2017	TP08_0.9-1.0 02-May-2017	TP10_0.3-0.4 02-May-2017	TP10_1.5-1.6 02-May-2017	
Lab Number:		1769213.9	1769213.10	1769213.12	1769213.13	
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	mg/kg dry wt	< 0.12	-	-	-	-
Tebuconazole	mg/kg	< 0.06	-	-	-	-
Terbacil	mg/kg	< 0.06	-	-	-	-
Terbufos	mg/kg	< 0.06	-	-	-	-
Terbumeton	mg/kg	< 0.06	-	-	-	-
Terbuthylazine	mg/kg	< 0.03	-	-	-	-
Terbuthylazine-desethyl	mg/kg	< 0.06	-	-	-	-
Terbutryn	mg/kg	< 0.06	-	-	-	-
Thiabendazole	mg/kg	< 0.3	-	-	-	-
Thiobencarb	mg/kg	< 0.06	-	-	-	-
Tolylfluanid	mg/kg	< 0.03	-	-	-	-
Triazophos	mg/kg	< 0.06	-	-	-	-
Trifluralin	mg/kg	< 0.06	-	-	-	-
Vinclozolin	mg/kg	< 0.06	-	-	-	-
Polycyclic Aromatic Hydrocarbons Screening in Soil						
Acenaphthene	mg/kg dry wt	< 0.03	-	< 0.03	-	-
Acenaphthylene	mg/kg dry wt	< 0.03	-	< 0.03	-	-
Anthracene	mg/kg dry wt	0.03	-	< 0.03	-	-
Benzo[a]anthracene	mg/kg dry wt	0.06	-	< 0.03	-	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.08	-	< 0.03	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.09	-	< 0.03	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	0.05	-	< 0.03	-	-
Benzo[k]fluoranthene	mg/kg dry wt	0.03	-	< 0.03	-	-
Chrysene	mg/kg dry wt	0.09	-	< 0.03	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.03	-	< 0.03	-	-
Fluoranthene	mg/kg dry wt	0.13	-	< 0.03	-	-
Fluorene	mg/kg dry wt	< 0.03	-	< 0.03	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.05	-	< 0.03	-	-
Naphthalene	mg/kg dry wt	0.15	-	< 0.12	-	-
Phenanthrene	mg/kg dry wt	0.16	-	< 0.03	-	-
Pyrene	mg/kg dry wt	0.15	-	< 0.03	-	-
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	-	< 8	< 8	< 8	-
C10 - C14	mg/kg dry wt	-	< 20	< 20	< 20	-
C15 - C36	mg/kg dry wt	-	< 40	< 40	< 40	-
Total hydrocarbons (C7 - C36)	mg/kg dry wt	-	< 70	< 70	< 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**
TPH Oil Industry Profile + PAHscreen	Sonication in DCM extraction, SPE cleanup, GC-FID & GC-MS analysis. Tested on as received sample. US EPA 8015B/MfE Petroleum Industry Guidelines [KBIs:5786,2805,10734;2695]	0.010 - 60 mg/kg dry wt	6
Heavy Metals with Mercury, 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	9-10, 13
BTEX in Soil by Headspace GC-MS	Solvent extraction, Headspace GC-MS analysis US EPA 8260B. Tested on as received sample [KBIs:5782,26687,3629]	0.05 - 0.10 mg/kg dry wt	12

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS	Sonication extraction, Dilution cleanup, GC-MS analysis. Tested on as received sample	-	9
Polycyclic Aromatic Hydrocarbons Screening in Soil	Sonication extraction, Dilution or SPE cleanup (if required), GC-MS SIM analysis (modified US EPA 8270). Tested on as received sample. [KBIs:5786,2805,2695]	0.010 - 0.05 mg/kg dry wt	9, 12
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	3-5, 8, 10, 12-13
TPH + PAH + BTEX profile	Sonication extraction, SPE cleanup, GC & GC-MS analysis	0.010 - 60 mg/kg dry wt	12
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis). US EPA 3550.	0.10 g/100g as rcvd	3-6, 8-10, 12-13

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.

This report must not be reproduced, except in full, without the written consent of the signatory.



Peter Robinson MSc (Hons), PhD, FNZIC
Client Services Manager - Environmental

Hill Laboratories
TRIED, TESTED AND TRUSTED

R J Hill Laboratories Limited
1 Clyde Street Hamilton 3216
Private Bag 3205
Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Job Information Summary

Client:	AECOM New Zealand Limited	**Lab No:**	1769213
Contact:	Josh Girvin	**Date Registered:**	04-May-2017 3:17 pm
	C/- AECOM New Zealand Limited	**Priority:**	High
	PO Box 710	**Quote No:**	81048
	Christchurch 8140	**Order No:**	60542718/1.1
		Client Reference:	Rolleston (2 Brookside Rd)
		Add. Client Ref:	
		Submitted By:	Josh Girvin
		Charge To:	AECOM New Zealand Limited
		Target Date:	08-May-2017 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	TP01_0.2-0.302-May-2017	Soil	GSoil300	
2	TP01_1.4-1.502-May-2017	Soil	GSoil300	
3	TP02_1.2-1.302-May-2017	Soil	GSoil300	TPH [redacted]
4	TP03_0.5-0.602-May-2017	Soil	GSoil300	TPH
5	TP04_0.3-0.402-May-2017	Soil	GSoil300	TPH
6	TP05_1.4-1.502-May-2017	Soil	GSoil300	TPH + PAHs (screen)
7	TP06_0.9-1.102-May-2017	Soil	GSoil300	
8	TP07_1.7-1.802-May-2017	Soil	GSoil300	TPH
9	SS01_0.2-0.402-May-2017	Soil	GSoil300	8 metals (screen), Pesticides (OCNP) screen + PAHs (screen)
10	TP08_0.9-1.002-May-2017	Soil	GSoil300	TPH, 8 metals
11	TP09_0.8-0.902-May-2017	Soil	GSoil300	
12	TP10_0.3-0.402-May-2017	Soil	GSoil300	TPH [redacted] + PAHs (screen). + BTEX
13	TP10_1.5-1.602-May-2017	Soil	GSoil300	TPH [redacted] + 8 metals

Appendix D

Local Bore Search Information

canterbury maps

Registered Groundwater Bore Search (250 m radius)

N



- Groundwater Wells [Search Results]
- Land Parcels (Public Version) [Search Results]
- Regional Boundaries
- Territorial Authority Boundaries

Land Parcels

- Land Parcel
- State highways outside Canterbury

Disclaimer:

Information in this map has been derived from various sources including the Kaikoura District, Hurunui District, Waimakariri District, Christchurch District, Environment Canterbury Regional Council, Selwyn District, Ashburton District, Waimate District, Mackenzie District, Timaru District and Waitaki District's databases.

Boundary information is derived under licence from LINZ Digital Cadastral Database (Crown Copyright Reserved). The aforementioned Councils do not give and expressly disclaim any warranty as to the accuracy or completeness of the information or its fitness for any purpose.

Information on this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it.

0 0.06 0.12 0.18 0.24 Kilometres

Scale: 1:4,000 @A3

Copyright Canterbury Maps
Environment Canterbury Land Information New Zealand
Landcare Research

Map Created by Canterbury Maps on 5:01:45 p.m.

Well No	Well Type	Well Type Description	Well Status	Well Status Description	Well Owner	Depth	Diamater	Date Drilled	Locality	Road or Street	Use Code 1	Use Code 1 Description	Reference RL	Ground RL	Initial SWL	Calc Min	NZMGX	NZMGY	NZMS260	NZTMX	NZTMY	NZ Topo 50	Link	OBJECTID
M36/0009	BO	Bore or Well	AE	Active (exist, present)	BP OIL NEW ZEALAND LTD	25	76	1/26/1931	ROLLESTON		DO	Domestic Supply	54.06999969	0		-15.69999981	2459900	5735000	M36:59900-35000	1549908	5173390	BX23:4990-7338	http://ecan.govt.nz/data/well-search/welldetails/?WellNo=M36/0009	382179
M36/0013	BO	Bore or Well	NO	Not Used	CANTERBURY TRACTOR CO	31.10000038	102		ROLLESTON	Main South Road			53.74000168	0		-15.69999981	2460000	5735000	M36:60000-35000	1550008	5173390	BX23:5000-7338	http://ecan.govt.nz/data/well-search/welldetails/?WellNo=M36/0013	356196
M36/0948	BO	Bore or Well	NO	Not Used	ELLESMERE C.C.	54	250	7/01/1981	ROLLESTON	P.O. BOX 2 LEESTON			54.58000183	0	-14.64999962	-20.29999924	2459600	5734800	M36:59600-34800	1549608	5173190	BX23:4960-7318	http://ecan.govt.nz/data/well-search/welldetails/?WellNo=M36/0948	380549

Bore or Well No	M36/0009
Well Name	
Owner	BP OIL NEW ZEALAND LTD

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Well Number	M36/0009	**File Number**	
Owner	BP OIL NEW ZEALAND LTD	**Well Status**	Active (exist, present)
Street/Road		**NZTM Grid Reference**	BX23:49907-73389
Locality	ROLLESTON	**NZTM X and Y**	1549907 - 5173389
Location Description		**Location Accuracy**	50 - 300m
CWMS Zone	Selwyn - Waihora	**Use**	Domestic Supply,
Groundwater Allocation Zone	Selwyn-Waimakariri	**Water Level Monitoring**	--
Depth	25.00m	**Water Level Count**	0
Diameter	76mm	**Initial Water Level**	
Measuring Point Description		**Highest Water Level**	
Measuring Point Elevation	54.07m above MSL (Lyttelton 1937)	**Lowest Water Level**	
Elevation Accuracy	< 5 m	**First reading**	
Ground Level	0.00m above MP	**Last reading**	
Strata Layers	0	**Calc Min 95%**	15.70m below MP
Aquifer Name		**Aquifer Tests**	0
Aquifer Type	Unknown	**Yield Drawdown Tests**	0
Drill Date	26 Jan 1931	**Max Tested Yield**	0 l/s
Driller	Job Osborne (& Co/Ltd)	**Drawdown at Max Tested Yield**	0 m
Drilling Method	Unknown	**Specific Capacity**	
Casing Material	STEEL	**Last Updated**	15 Mar 2013
Pump Type	Reciprocating (deep well)	**Last Field Check**	
Water Use Data	No		

No screen data for this well

No step tests for this well

Comments

Comment Date	Comment
	NCCB 936/S83A321
15 Mar 2013	BP states that this bore is not at this location.
15 Mar 2013	Original owner = Hotel

Appendix E

Certificates of Title

Reference: Prior C/T. 210/157

Transfer No.
N/C. Order No.
Application 13693

Land and Deeds 69

REGISTER

No. 5A/157

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 4th day of August one thousand nine hundred and sixty five under the seal of the District Land Registrar of the Land Registration District of Canterbury

WITNESSETH that THE ROLLESTON SALEYARDS COMPANY LIMITED a duly incorporated company having its registered office at Christchurch

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 2 roods 25 perches or thereabouts situated in Block III of the Leeston Survey District being Lots 12, 13 and 17 Block I on Deposited Plan No. 307 part of Rural Section 4603

DISTRICT LAND REGISTRAR CANTERBURY

Assistant Land Registrar

Transfer 678231 of Lot 17 D.P.307 herein to James Francis Stewart and Denise Margaret Stewart - 31/3/1966 at 2.50 p.m.
5D/402

A.L.R.

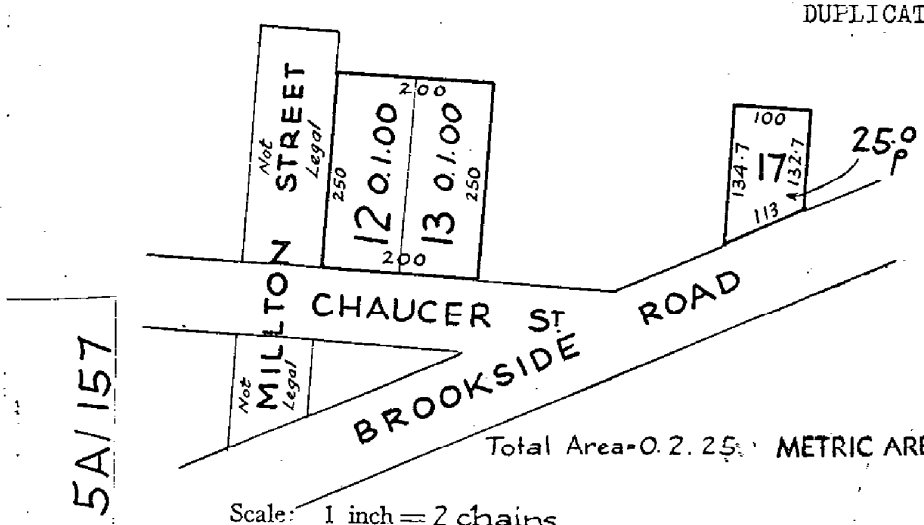
Transfer 686404 of Lot 12 DP 307 herein to William Martin Scott - 6.7.1966 at 2.55 p.m.
6B/492

A.L.R.

Transfer 702314 of balance Lot 13 D.P.307 to Brian Maurice Stedman - 24/1/1967 at 11.15a.m.
6D/479

A.L.R.

CANCELLED
DUPLICATE DESTROYED



No. 5A/157

Register copy for L. & D. 69, 71, 72
15,000/3/63—50198 W

References 582/51
Prior C/T. 5A/157

Transfer No. 678231
N/C. Order No.

REGISTER Land and Deeds 69

No. 5D/402

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 31st day of March one thousand nine hundred and sixty six under the seal of the District Land Registrar of the Land Registration District of Canterbury

WITNESSETH that JAMES FRANCIS STEWART of Rolleston Carrier and DENISE MARGARET STEWART his wife are ———

~~is~~ seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 1 rood 19 perches or thereabouts situated in Block III of the Leeston Survey District being Lots 16 and 17 Block I on Deposited Plan No. 307 part of Rural Section 4603 ———

DISTRICT LAND REGISTRAR CANTERBURY N.Z.

Assistant Land Registrar

Subject as to Lot 16 to Mortgage 571401 to The State Advances Corporation of New Zealand - 21/2/[illegible] at 11.10 a.m.

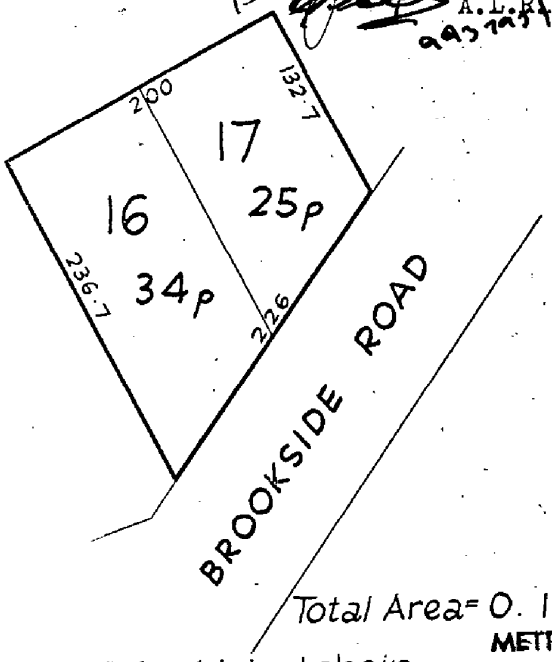
DISCHARGED 151 5 [illegible]

A.L.R.

Mortgage 678232 to The State Advances Corporation of New Zealand - 31/3/1966 at 2.51 p.m.

DISCHARGED 151 5 [illegible]

A.L.R.



Total Area = 0. 1. 19
METRIC AREA = 1492 m²

Scale: 1 inch = 1 chain.

No. 5D/402

References
Prior C/T 466/79
Decl of Loss 115618/1
Transfer No.
N/C. Order No.

Land and Deeds 69

CANCELLED **REGISTER**

CANCELLED

No. 17B / 865

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 11th day of March one thousand nine hundred and seventy-seven under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that RUTH CHRISTINA BREACH of Christchurch, Widow and THE PERPETUAL TRUSTEES ESTATE AND AGENCY COMPANY OF NEW ZEALAND LIMITED are —

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 6010 square metres or thereabouts situated in Block III of the Leeston Survey District being Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 on Deposited Plan 542 —

DISTRICT LAND REGISTRAR
CANTERBURY N.Z.

for Assistant Land Registrar

Subject to:

Mortgage 507794 to Canterbury Wine & Spirit Company Limited - 31.7.1959 at 2.56 pm (as varied once subsequently).

Mortgage 724686 to Canterbury Wine & Spirit Company Limited - 21.6.1967 at 11.50 am.

DISCHARGED 7 JULY 1977

Caveat 94243/1 by New Zealand Breweries Limited - 19.8.1976 at 10.35 am (affects Lots 1 to 5 DP 542).

WITHDRAWN 21/6/77

Caveat 94244/1 by New Zealand Breweries Limited - 19.8.1976 at 10.50 am (affects Lots 2 to 5 DP 542).

WITHDRAWN 21/6/77

Transfer 134897/2 to New Zealand Breweries Limited at Wellington - 21.6.1977 at 9.08 am.

L.R.

Cazette Notice 110032/1 declaring no 1 State Highway (Awanui-Bluff) adjoining the within land to be a limited access road - 15.12.1976 at 9.25 am.

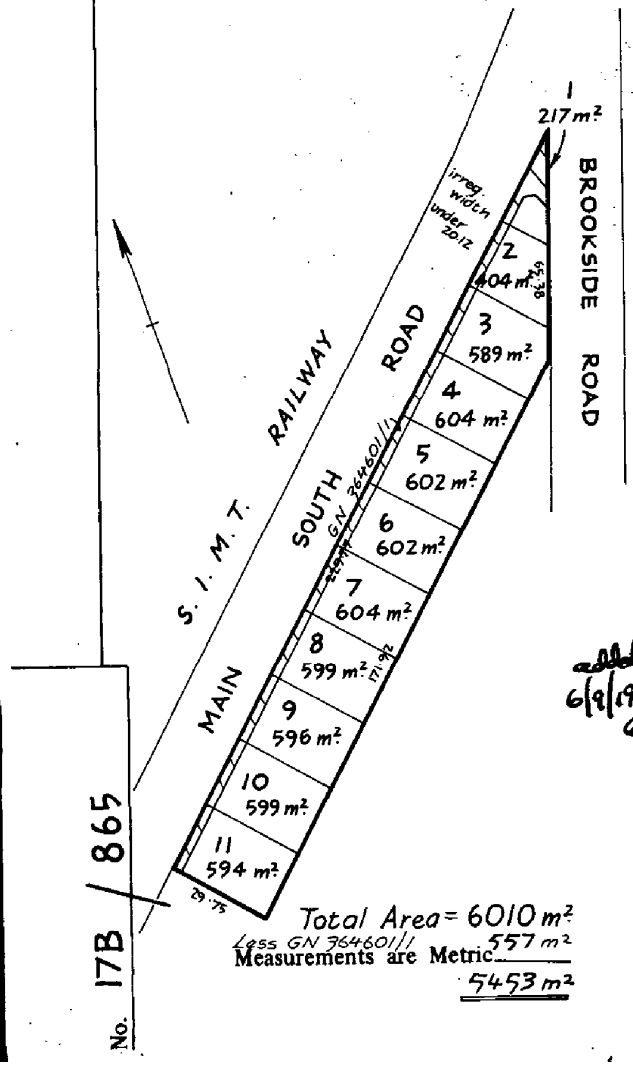
A.L.R.

No.267226/1 Compensation Certificate pursuant to Section 17 of the Public Works Amendment Act 1948 - 21.3.1980 at 9.04 a.m.

DISCHARGED 12/3/80

for A.L.R.

OVER...



No. 17B / 865

6/9/1977

CERTIFICATE OF TITLE No. 17B / 865

No. 364601/1 Gazette Notice declaring parts of the within land (557m2) to be taken for a Limited Access Road from and after 14.1.1982 - 26.1.1982 at 9,35 a.m.

A.L.R.

No. 410953/1 Compensation Certificate pursuant to Section 19 of the Public Works Amendment Act 1981 - 23.11.1982 at 9.32 a.m.

for A.L.R.

No. 735467/2 Change of Name of the registered proprietor to Lion Corporation Limited - 11.4.1988 at 11.14am

for A.L.R.

No.852986/1 Change of Name of the abovenamed registered proprietor to Lion Nathan Limited - 29.1.1990 at 10.08am

for A.L.R.

Transfer 877922/1 to Fayden Properties Limited at Christchurch - 25.5.1990 at 9.19am

for A.L.R.

Lease 877922/2 Term 21 years from 30.3.1990 to Lion Nathan Limited - 25.5.1990 at 9.19am

for A.L.R.

Lease 877922/3 of Lease 877922/2 Term 21 years less 3 days from 30.3.1990 to Fayden Properties Limited - 25.5.1990 at 9.19am

for A.L.R.

Mortgage 877922/4 of Lease 877922/3 to The National Bank of New Zealand Limited - 25.5.1990 at 9.19am

for A.L.R.

Lease 984795/1 of Lease 877922/3 Term 19 years 116 days from 1.12.1991 to Kenneth Govan Auld - 28.3.1992 at 11.30am

A.L.R.

Mortgage 984795/2 of Lease 984795/1 to Rita Sydney Auld - 25.3.1992 at 11.30am

A.L.R.

Transfer A159054/5 to Kenneth Govan Auld of Christchurch, Hotelkeeper - 16.2.1995 at 11.57am

for A.L.R.

Mortgage A159054/6 to The National Bank of New Zealand Limited - 16.2.1995 at 11.57am

for A.L.R.

Mortgage A159054/7 to Rita Sydney Auld - 16.2.1995 at 11.57am

for A.L.R.

NOTICE OF CLAIM A235013/1 UNDER SECTION 42 OF THE MATRIMONIAL PROPERTY ACT 1976 BY RITA SYDNEY AULD - 3.5.1996 at 12.35pm

for A.L.R.

Mortgage A283426/4 to Westpac Banking Corporation - 20.2.1997 at 10.27am

for A.L.R.

PLAN No. 75460 LODGED 27-4-97
AND DEPOSITED 1.7.97

No. A305375/1 Certificate pursuant to Section 224(c) Resource Management Act 1991 - 1.7.1997 at 12.11pm

OCT A305375/2,3 - 1.7.1997 Cancelled and CsT 43B/1300 and 43C/150 issued for Lots 1 and 2 DP 75460 respectively

A.L.R.

CANCELLED DUPLICATE DESTROYED

41697E—20,000/2/74 W K

PART-CANCELLED
NOT
TO BE CONVERTED

NEW ZEALAND.

CERTIFICATE OF TITLE.

3 Sheets

36 184

(C)
Appn 3644

Register Book,
Vol. XXXVI Folio. 184

Part Cancelled.

Tenant in Common

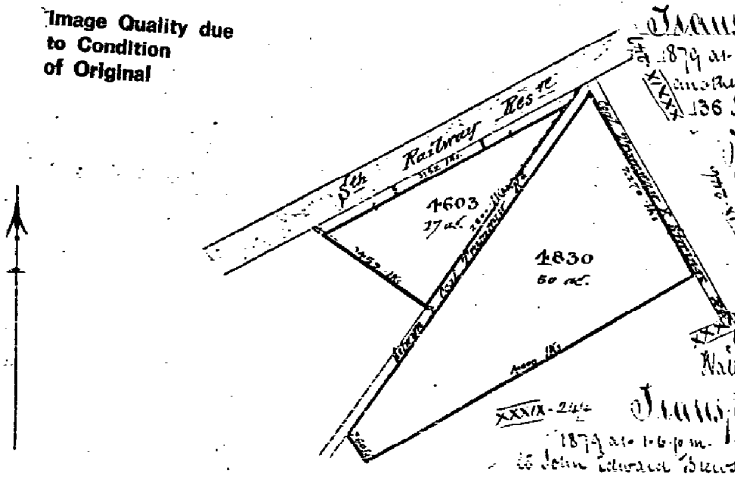
Thomas Henry Ranger of Rolleston Farmer is now seized as a Tenant in Common of an Estate in fee Simple subject nevertheless to such encumbrances liens and interests as are notified by Memorial under written or indorsed hereon of One undivided moiety of and in Those pieces of Land situated in the District of Lincoln containing together Sixty Nine acres more or less as delineated in the figure hereon and therein coloured green which said pieces of land are the whole Section marked 4830 and the Whole Section marked 4603 (except a strip of land at the Northwest boundary of the last named Section divided from the said Section by a line drawn parallel to the said North west boundary and one chain distant therefrom) delineated in the Public Map of the said District deposited in the office of the Chief Surveyor at Christchurch originally granted as to Section 4830 the second day of February 1864 and as to Section 4603 the ninth day of October 1863 under the hand of Sir George Grey Governor of New Zealand as to Section 4603 4830 to James Potts and as to Section 4603 to Henry Selfe Selfe.

In Witness whereof I have hereunto signed my name and affixed my Seal this fifth day of November one thousand eight hundred and seventy eight.

Signed in the presence of
the 5th day of November 1878

District Land Registrar
of the District of Canterbury

Image Quality due to Condition of Original



Transfer No 9921 produced 10th March 1879 at 1 p.m. Thomas Henry Ranger and another to David Morris of Lots 35 and 136 Block II Plan 307

Transfer No 9922 produced 10th March 1879 at 1-2 p.m. Thomas Henry Ranger and another to William Lee Cranbury of Lot 1 Block II Plan 307

Transfer No 9923 produced 10th March 1879 at 1-4 p.m. Thomas Henry Ranger and another to Henry Wales of Lot 32 Block II Plan 307

XXXIX-24 Transfer No 9924 produced 10th March 1879 at 1-6 p.m. Thomas Henry Ranger and another to John Edward Buscke of Lots 56-57-58 and 59 Block II Plan 307

XXXIX-24 Transfer No 9925 produced 10th March 1879 at 1-8 p.m. Thomas Henry Ranger and another to Edward Blanch Hill of Lots 45-46 Block I and 49-50-51 Block II Plan 307

Cancelled as to Land in above Transfer

36 184

36/184

Transfer No 9936 produced 11th March 1879 at 10 a.m. Thomas Henry Ranger and another to Patrick Hanney Lots 21 Block I Plan 307

Transfer No 9937 produced 11th March 1879 at 2-2 p.m. Thomas Henry Ranger and another to William Hobbs of Lots 131. 134. and 135 Block II Plan 307

Transfer No 10345 produced 21st January 1879 at 2-40 p.m. Thomas Henry Ranger and another to Alexander Rose of Lots 17. 18. 19. and 20 Block II Plan 307

Transfer No 10346 produced 21st January 1879 at 2-40 p.m. Thomas Henry Ranger and another to William George Thomas Goodwin of Lots 43 Block I Plan 307

Transfer No 11396 produced 2nd September 1879 at 10 a.m. Thomas Henry Ranger and another to Henry Joseph Anderson of Lots 38. 40. 41. Block I. Plan 307

Transfer No 11395 produced 2nd September 1879 at 10 a.m. Thomas Henry Ranger and another to Joseph Thomas Ranger and Thomas Frederick Grantham of Lots 16 and 18 Block I and Lots and Block II Plan 307

Transfer No 11780 produced 22nd December 1879 at 11 a.m. Thomas Henry Ranger and another to William Kane of 112 Block I Plan 307

Transfer No 11815 produced 24th December 1879 at 10 a.m. Thomas Henry Ranger and another to Joseph Turner of Lot 2 Block II Plan 307

Transfer No 12010 produced 25th February 1881 at 10 a.m. Thomas Henry Ranger and another to William Watkins of Lots 55 Block I and Lots Block II Plan 307

Transfer No 12421 produced 25th March 1881 at 10 a.m. Thomas Henry Ranger and another to Wm Watkins of Lots 55. 81. and 82 Block I Plan 307

Transfer No 12424 produced 25th April 1881 at 10 a.m. Thomas Henry Ranger and another to Henry Joseph Anderson of Lots 38. 40. 41. Block I Plan 307

Transfer No 12666 produced 21st April 1882 at 10 a.m. Thomas Henry Ranger and another to William James Kyne of Lots 158 and 159 Block II Plan 307

Transfer No 13023 produced 25th June 1883 at 2-15 p.m. Thomas Henry Ranger and another to Henry Williamson of Lot 92 Block II Plan 307

Transfer No 13030 produced 5th July 1883 at 10 a.m. Thomas Henry Ranger and another to Charles Hutchins of Lots 44 Block I Plan 307

Transfer No 13313 produced 25th September 1883 at 10 a.m. Thomas Henry Ranger and another to Henry Gibbons of Lots 45 and 46 Block II Plan 307

Transfer No 13423 produced 25th October 1883 at 10 a.m. Thomas Henry Ranger and another to Charles Edward Wells of Lots 43 to 49 inclusive Block II Plan 307

Transfer No 13525 produced 25th November 1883 at 10 a.m. Thomas Henry Ranger and another to William Henry Lots 5 & 6 Plan 542

Transfer No 13561 produced 25th November 1883 at 10 a.m. Thomas Henry Ranger, William Harris Gundry of Lots 19 to 23 and Lot 57 Plan 542 Lots 31-32-38 50-51-53-58 to 66 inclusive Block I and Lots 47 54-84-86-3 97 inclusive 100-102 to 113 inclusive 118 119-120 and 137 to 157 Block II Plan 307

Cancelled as to Lots 24 to 30 inclusive Plan 542 and Lots 8 to 16 inclusive 22-28-24-25-33-36 to 44 inclusive 58-60-to 64 inclusive 69-73-74 to 83 inclusive 131 to 138 inclusive Block II Plan 307 and new Certificate issued for same

Transfer No 16871 produced 25th October 1887 at 2-39 p.m. Thomas Henry Ranger to Lewis Henry Nelson of Lot 111 Block I Plan 307

Transfer No 17110 produced 30th September 1888 at 10 a.m. Thomas Henry Ranger and another to Neville Lloyd Hamilt Lot 4 Block 1 Plan 307

Transfer No 17111 produced 30th September 1888 at 10 a.m. Thomas Henry Ranger and another to Thomas Henry Hamilt Lots 5 to 30. 36. 48. 49. 62. and 64 Block 1 Plan 307

Transfer No 17307 produced 21st January 1889 at 10 a.m. Thomas Henry Ranger and another to Edwin William Lewis Lot Block 64

Transfer 26718 produced 20 August 1896 at 12.45 pm Thomas Henry Ranger and another to James Calcuder Lots 98. 99. 114. 115. 116. 117 Block II Plan 307

Transfer 44724 produced 4 June 1897 at 12.45 pm Thomas Henry Ranger and another to Robert Farrell of Lots 65 and 66 Block II Plan 307

Continued Next Folio

36 184

NEW ZEALAND

(C)

CERTIFICATE OF TITLE.

Register Book.

Vol. *Folio.*

36/184

continuation of

Transmission 4809 to Frederick Byam Ranger of Christchurch Clerk of Lalance. Entered 21 October 1903 at 11.20 a.m.

J.L.R.

21/115 Transfer 6148 produced 21 October 1903 at 11.20 a.m. Frederick Byam Ranger to William Nickby Grundy of Lots 12, 13, 17, 37 Block I and Lots 41 and Church Reserve and 73 Block II plan 307.

J.L.R.

Cancelled as to Lot 6 Block I and Lots 7, 52, 53, 70 and Church Reserve Block II plan 307 and New Certificate issued Vol 210/15

211/285 Transfer 6225 produced 18 January 1904 at 2.25 p.m. Frederick Byam Ranger to James Lemmon Woodford of Lot 4 Block II plan 307

J.L.R.

39/326 Order in Council resuming the lands of the above described land containing 3 roods and 1 acre 24 perches being taken for a road - Entered 27 January 1950 at 1.47 p.m.

J.L.R.

39/326 Proclamation taking part of the above described land containing 3 roods and 1 acre 24 perches - for a road - Entered 27 January 1950 at 1.47 p.m.

J.L.R.

Scale. chains to an inch.

Surveyed by

Chief Surveyor

Draughtsman

Proclamation 525631 taking part of the above described land for road Entered 30/3/1960 at 1.35 p.

J.L.R.

Proclamation 592490 taking part of the within land (1 acre 1 rood 27 perches) for a road and part (2 roods 3 3/10 perches) for the use convenience or enjoyment of a road and vesting same in the Chairman Councillors and Inhabitants of the County of Waipa - Entered 16/12/1963 at 9.27 a.m.

J.L.R.

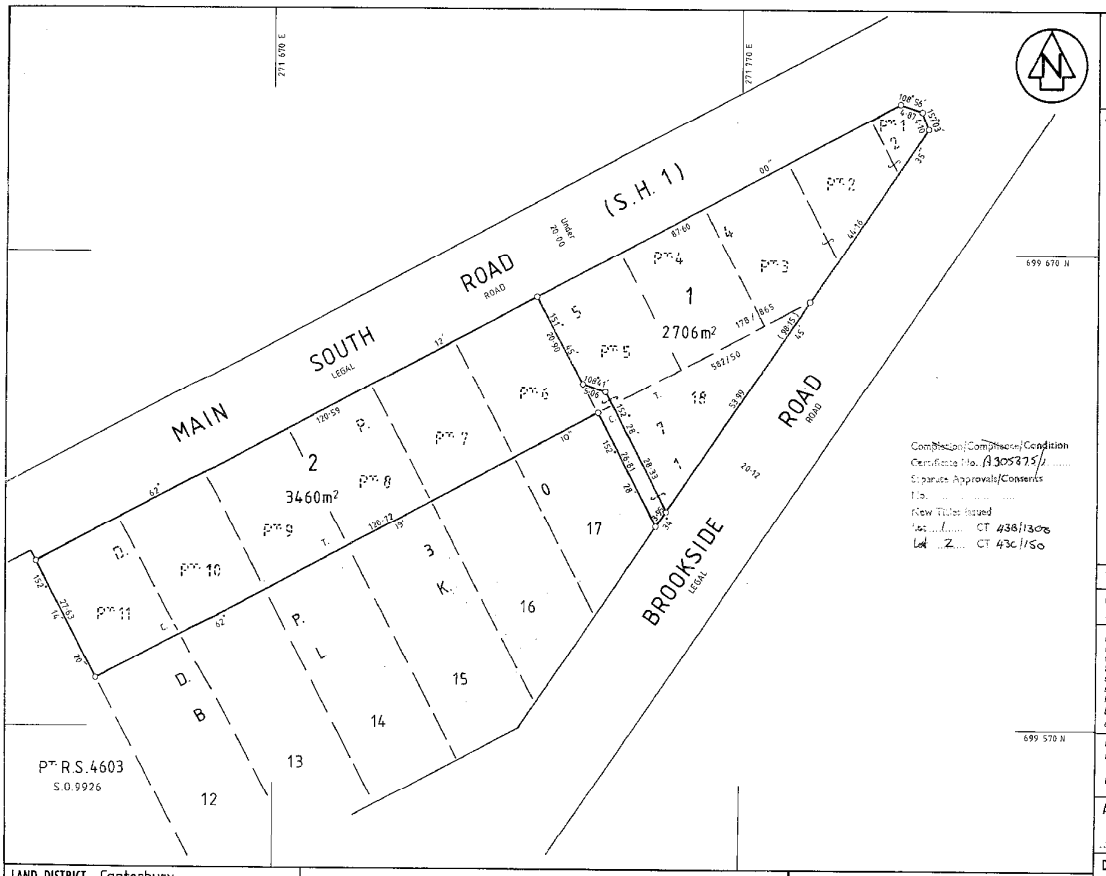
Gazette Notice 110032/1 declaring No. 1 State Highway (Tuakau-Bluff) fronting the within land to be a limited access road produced 16/12/1970 at 9.25 a.m. (Officers R.S. 46035)

A.L.R.

THIS REPRODUCTION (ON A REDUCED SCALE) CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL REGISTER FOR THE PURPOSES OF SECTION 215A LAND TRANSFER ACT 1952.

L.L.R.

36 184



Approvals

Registered Proprietor(s)

Approved pursuant to Section 223 of the Resource Management Act 1991 on the 23RD day of JANUARY 1997. The Common Seal of the Selwyn District Council is affixed hereto in the presence of:

Mayor

General Manager

Total Area 6166m²

Comprised in C.T.s 17B/865 & 582/50

I, John Hargreaves Belcher

Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof.

Dated at Christchurch this 20th day of May 1997

Signature

Field Book p. Traverse Book p.

Reference Plans D.P.s 307, 542, 37873, L.T. 72278

S.O.s 15557, 9926

Examined Correct

Approved as to Survey

13/5/1997

Deputy Chief Surveyor

Deposited this 1st day of June 1997

District Land Registrar

File Received 29.4.97

Instructions

DP 75460

T

LAND DISTRICT Canterbury

SURVEY BLK. & DIST. III Leeston

NZMS 261 SHT RECORD MAP No

LOTS 1 & 2 BEING SUBDIVISION OF
Pt LOTS 1-11 D.P.542 & LOT 18 BLK. I D.P.307.

TERRITORIAL AUTHORITY Selwyn District

Surveyed by J. H. Belcher

Scale 1:500 Date March 1997

W.A. ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

Ref. 1257

DOSLI FORM D15 APPROVED M 9/93

AARQUE

LT 69

No. 43B/1300

References:
Prior C/T 582/50, 17B/865
Document No. A305375.2

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 1st day of July one thousand nine hundred and ninety-seven under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that KENNETH GOVAN AULD of Christchurch, Hotelkeeper ---

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 2706 square metres or thereabouts being Lot 1 Deposited Plan 75460 ---

DISTRICT LAND REGISTRAR

ASSISTANT LAND REGISTRAR

Subject to:

No. 110032.1 Gazette Notice declaring No. 1 State Highway (Awanui-Bluff) adjoining the within land to be a limited access road (affects part formerly 17B/865)

No. 410953.1 Compensation Certificate pursuant to Section 19 of the Public Works Amendment Act 1981 - 23.11.1982 at 9.32am (affects part formerly 17B/865)

A.L.R.

A283426/4 Mortgage to Westpac Banking Corporation 20.2.1997 at 10.27 DISCHARGED 11/2/ A.L.R.

A.L.R.

A338414.2 Lease to Rolly Inn Limited for a term of 20 years from 8.12.1997

A338414.3 Transfer to Russell Walter Charles Lilley and Helen Shirley Lilley

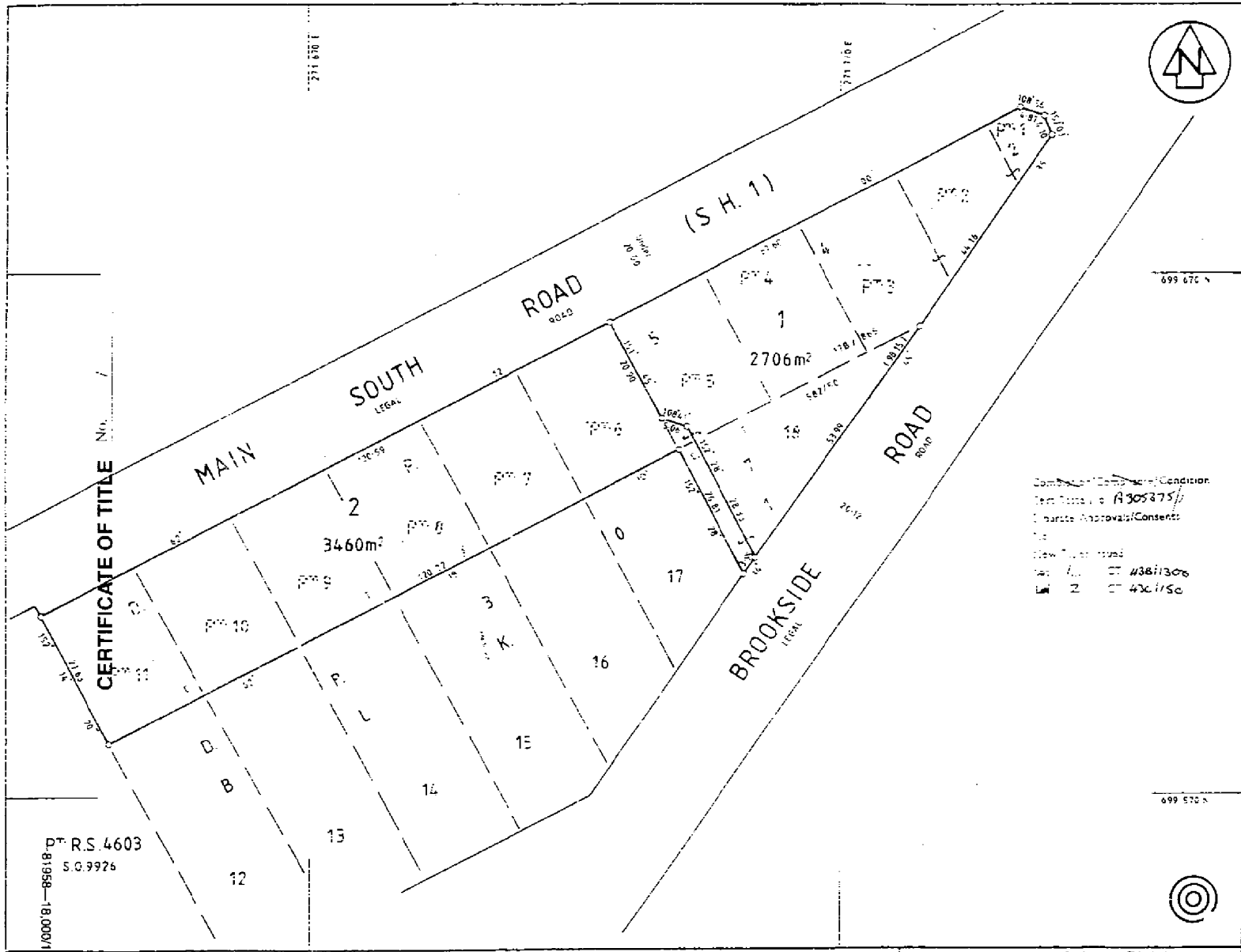
A338414.4 Mortgage to The National Bank of New Zealand Limited

all 11.2.1998 at 3.08

for DLR

No. 43B/1300

TH



Approvals

Registered Proprietor(s)

Approved pursuant to Section 223 of the Resource Management Act 1991 on the 13th day of May 1997. The Common Seal of the Selwyn District Council is affixed hereto in the presence of:

Mayor

General Manager

CERTIFICATE OF TITLE No.

Total Area 6166m²

Comprised in C.T.s 79/865 & 582/50

I, John Hargreaves Beicher

Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof

Dated at Christchurch this 29th day of May 1997

Signature

Field Book Traverse Book

Reference Plans D.P.s 307, 542, 37873

S.O.s 15557, 9926

Examined Correct

Approved as to Survey

13.5.1997

Deputy Chief Surveyor

Deposited this 16th day of June 1997

for District Land Registrar

Fee Received 294.93 Instructions

DP 75460

LAND DISTRICT Canterbury

SURVEY BLK. & DIST. III Leeston

NZMS 261 SHT RECORD MAP No

LOTS 1 & 2 BEING SUBDIVISION OF

Pt LOTS 1-11 D.P.542 & LOT 18 BLK. I D.P.307

TERRITORIAL AUTHORITY Selwyn District

Surveyed by J. H. Beicher

Scale 1:500 Date March 1997

W. A. ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

Ref: 1257

AARGJE

LT 69

References:
Prior C/T 17B/865, 582/50
Document No. A305375.3

REGISTER

No. 43C/150

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 1st day of July one thousand nine hundred and ninety-seven under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that KENNETH GOVAN AULD of Christchurch, Hotelkeeper ---

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 3460 square metres or thereabouts being Lot 2 Deposited Plan 75460 ---

DISTRICT LAND REGISTRAR

ASSISTANT LAND REGISTRAR
CANTERBURY

Subject to:

No. 110032.1 Gazette Notice declaring No. 1 State Highway (Awanui-Bluff) adjoining the within land to be a limited access road (affects part formerly 17B/865)

No. 410953.1 Compensation Certificate pursuant to Section 19 of the Public Works Amendment Act 1981 - 23.11.1982 at 9.32am (affects part formerly 17B/865)

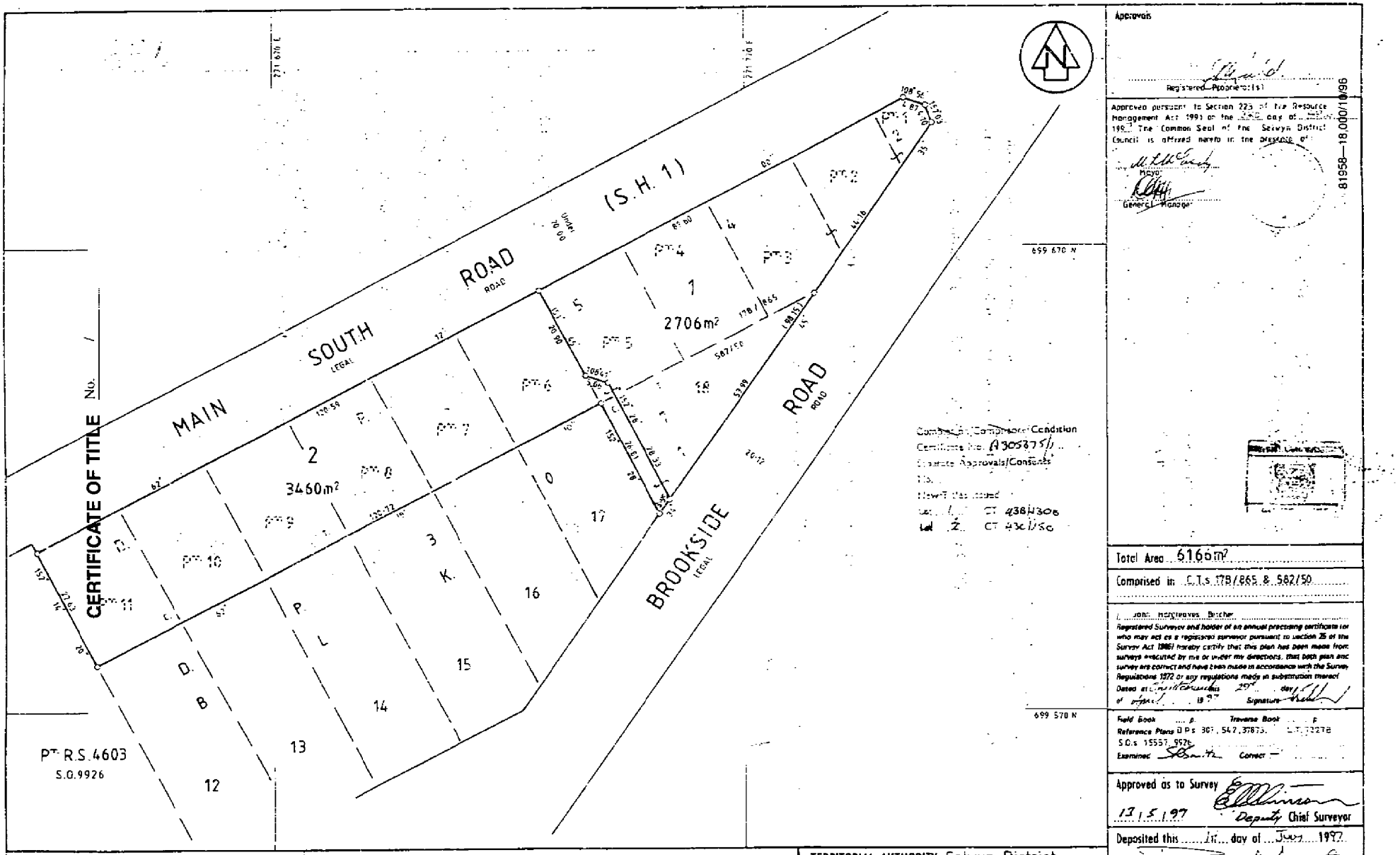
A.L.R.

A283426/4 Mortgage to Westpac Banking Corporation 20.2.1997 at 10.27

DISCHARGED 11/2/1998 A.L.R.

A.L.R.

No. 43C/150



Approvals

Registered Proprietor(s)

Approved pursuant to Section 226 of the Resource Management Act 1991 on the ... day of ... 199... The Common Seal of the Selwyn District Council is affixed hereto in the presence of

Mayor

General Manager

81958—18,000/10/96

Total Area 6166m²

Comprised in C.T.s 17B/865 & 582/50

I, John Hargreaves Belcher

Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 35 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substitution thereof

Dated at Christchurch 29th day of April 1997 Signature

Field Book ... p. Traverse Book ... p.

Reference Plans D.P.s 307, 542, 37873. L.T. 72278

S.O.s 15557, 9926

Examined Correct

Approved as to Survey

13/5/97 Deputy Chief Surveyor

Deposited this 1st day of June 1997

District Land Registrar

For Received 29.4.97 Instructions

DP 75460

LAND DISTRICT Canterbury

SURVEY BLK. & DIST. III Leeston

NZMS 261 SHT ... RECORD MAP No ...

LOTS 1 & 2 BEING SUBDIVISION OF

Pt LOTS 1-11 D.P.542 & LOT 18 BLK. I D.P.307.

TERRITORIAL AUTHORITY Selwyn District

Surveyed by J.H. Belcher

Scale 1:500 Date March 1997

W.A. ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND

Ref. 1257

T.

© AARQUE

NEW ZEALAND.

CANCELLED

(C)

XXVII 184.185

[CERTIFICATE OF TITLE.

Register Book,

Vol. XLVI *Folio* 122

46 122

cancelled

Pursuant to Memorandum of Transfer No 1093 from Thomas Henry Ranger and William Hickley Spurdy to Joseph Thomas Stronge and Thomas Frederick Fountaine of Christchurch Drapers are now seized of an Estate in fee simple subject nevertheless to such encumbrances liens and interests as are notified by memorial endorsed hereon in those pieces of land situated in the District of Lincoln containing altogether three roods and twenty one perches more or less abuts as appears in the plan hereon and thereon coloured green being the Lots marked 16 and 18 Block I and Lots 3 and 5 Block II on the plan deposited in the Lands Registry office as No 307 Lots 16 and 18 forming part of the under mentioned section 4603 and Lots 3 and 5 forming part of the under mentioned section 4830 which said pieces of land are part of the Rural Sections marked 4603 and 4830 delineated in the Public Map of the said District deposited in the office of the Chief Surveyor which said section 4603 was originally granted the ninth day of October 1863 under the Seal of the Colony and bearing Sir George Grey the then Governor of New Zealand to Henry Selfe Selfe and said section 4830 was originally granted the second day of February 1864 under the said Seal and bearing aforesaid to James Betts

In Witness whereof I have hereunto signed my name and affixed my seal this sixth day of October one thousand eight hundred and seventy nine

Signed in the presence of

J. A. Ambrose

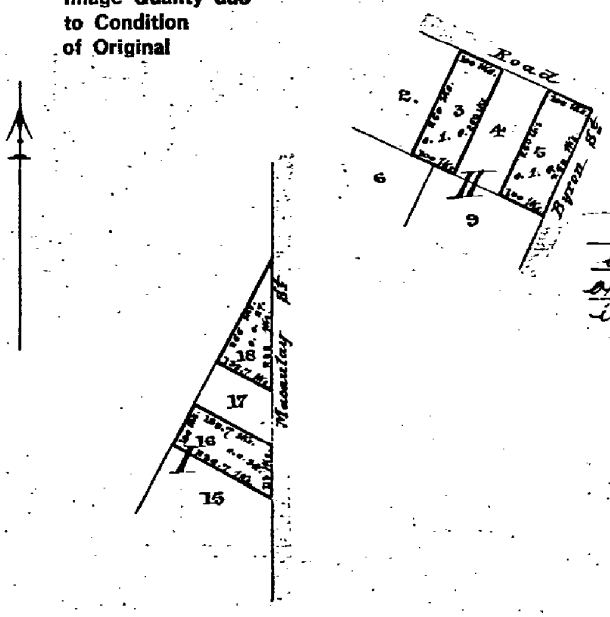
the 6th day of October 1879

Wm Ors

District Land Registrar

of the District of Canterbury

Image Quality due to Condition of Original



Transfer No 21782 produced 12th November 1883 at 4 p.m. Joseph Thomas Stronge and Thomas Frederick Fountaine & William Pickerton and James William Reilly of Christchurch Merchants

Produced [illegible]

372862 Note that the above described land is vested in the Public Trustee pursuant to Section 70 of the Public Trust Office Act 1908 and CT Vol 572 Folio 34 issued.

cancelled

16 122

430

46 122

CANCELLED

Image Quality due to Condition of Original

NEW ZEALAND.

(C) XXXVI. 18a. 15

CERTIFICATE OF TITLE CANCELLED

Register Book 4

Vol. ~~LXIII~~ Folio. 181.

Cancelled.

Pursuant to Memorandum of Transfer No 15028 from Thomas Hobson Rangers and William Rickley Gundry. — William Wilson of Christchurch Said Merchant is now seized of an Estate in fee simple subject nevertheless to such encumbrances liens and interests as are notified by Memorial underwritten or endorsed hereon in that piece of land situated in the District of Lincoln containing One acre one rood and thirty eight perches or thereabouts bounded as appears on Plan hereon and therein colored green being the Lots marked 1.2.3.4.5.6.7.8.9.10 and 11 on the plan deposited in the Land Registry office as No 542 Which said piece of land is part of the Rural Section marked 4603 delineated in the Public Map of the said District deposited in the office of the Chief Surveyor originally granted the ninth day of October 1863 under the Seal of the Colony and Hand of Sir George Grey then Governor of New Zealand to Henry Selfe Selfe.

IN WITNESS whereof I have hereunto signed my name and affixed my Seal this twenty eighth day of March One thousand eight hundred and eighty one.

Signed in the presence of

the 26th day of August 1881

District Land Registrar of the District of Canterbury

Declaration lodged as to the loss of the original of this certificate and advertised 23rd November 1882, Provisional certificate of title issued 13th December 1882

Mortgage No 15148 produced 16th November 1882 at 2.40 pm William Wilson to New Zealand Trust and Loan Company Limited

Memorials Continued

Lease 10851 produced 9 May 1940 at 11.27 am Thomas Glen to Denis Urban Crosbie of lots 2.3.4.5.6.7.8.9.10 and 11 plan 542 for 3 years from 14 April 1940

Cancelled and New C.T. issued

Volume 466 Folio 79

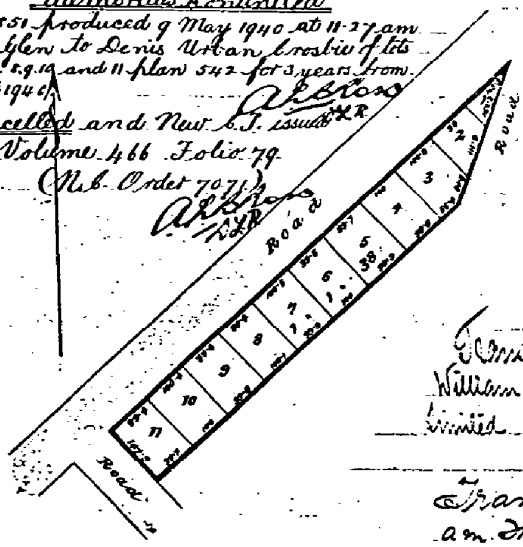
M.L. Order 7071

Transfer No 17,858 registered 15th February 1884 at 2.30 pm William Wilson New Zealand Trust and Loan Company Limited to

Transfer No 17,859 registered 15th January 1884 at 2.30 pm William Wilson New Zealand Trust and Loan Company Limited

Transfer No 25,564 produced 15th April 1887 at 2.20 pm William Wilson New Zealand Trust and Loan Company Limited

Transfer 39626 produced 21 July 1894 at 10.45 am The New Zealand Trust and Loan Company Limited to The Crown Property Company Limited



64/181

Lease 4099 produced 6 March 1904 at 2.15 pm The Crown Brewery Company Limited to James Henry Spence for 5 years from 1 March 1904.

Mortgage 53716 of Lease 4099 produced 11 March 1904 at 10.45 a.m. James Henry Spence to George Humphreys and William Thomas Charlewood.

Lease 5476 produced 19 February 1913 at 11.30 am The Crown Brewery Company Limited to Peter Joseph Keller for 3 years from 1 March 1912

Mortgage 84442 of Lease 5476 produced 19 February 1913 at 11.30 am Peter Joseph Keller to George Humphreys and William Thomas Charlewood

Lease 5647 produced 19 February 1913 at 11.30 am The Crown Brewery Company Limited to Martin Bernard Gregan for 1 year from 1 March 1913.

Transfer 97107 of Leases 5476 produced 19 February 1913 at 11.30 am Peter Joseph Keller to Martin Bernard Gregan.

Mortgage 85473 of Leases 5476 and 5647 produced 19 February 1913 at 11.30 am Martin Bernard Gregan to George Humphreys and William Thomas Charlewood

Transfer 101354 of Leases 5476 and 5647 produced 9 January 1914 at 11.30 am Martin Bernard Gregan to Thomas Glen

Transfer 152558 produced 10 June 1923 at 10.50 am The Crown Brewery Company Limited to Thomas Glen of Rotorua Hotelkeeper

Mortgage 132271 produced 10 June 1923 Thomas Glen to The Crown Brewery Company Limited

DISCHARGED 7/3/1928

Mortgage 132272 produced 10 June 1923 at 10.55 am Thomas Glen to Frederick [illegible] and Arnold Limited

DISCHARGED 7/3/1928

Lease 7693 produced 26th July 1924 at 11.50 am Thomas Glen to Alfred Curtis of Okoroire Hotelkeeper for 6 years from 7 April 1924

Mortgage 138714 produced 26th July 1924 at 11.50 am Alfred Curtis to Frederick Cross & John Lucas Charles Maunsell Saunders

DISCHARGED 29/1/1925

Mortgage 161581 produced 8 March 1928 at 3 pm Thomas Glen to The National Bank of New Zealand Limited

29-3-1928

Transfer 182323 of Lease 7693 produced 29 March 1928 at 12.37 pm Alfred Curtis to Walter Henry Newey

Lease 8565 produced 2 May 1928 at 3 pm Thomas Glen to Percy Curtis for 5 years from 1 April

Transfer 183514 of Lease 8565 produced 15 June 1928 at 11.30 am Percy Curtis to Walter Henry Newey

Transfer 185812 of Leases 7693 and 8565 produced 26 October 1928 at 11.20 am Walter Henry Newey to Robert Henry Davis

Mortgage 165443 of Leases 7693 and 8565 produced 26 October 1928 at 11.30 am Robert Henry Davis to Bush Motor Limited

Mortgage 175049 produced 29 May 1930 at 11.45 am Thomas Glen to Frances Alice Osborn, Frederick Albert Richards and Thomas [illegible]

DISCHARGED 29/3/1934

Mortgage 180041 produced 5 June 1931 at 2.55 pm Thomas Glen to Joseph [illegible]

DISCHARGED 29/3/1934

Transfer 199407 of Mortgage 180041 produced 24 August 1931 at 12.25 pm Joseph Taylor to Dominion Builders Suppliers (Auckland) Limited

DISCHARGED

Evidence of the marriage 29111 (Yelverton) of Mortgage 175049 Frances Alice Osborn with Randolph Henry entered 12 April 1932 at 10.00 am

Lease 7818 produced 9 August 1934 at 3 pm Thomas Glen to Frederick Thomas Buchanan of Lots 2. 3. 4. 5. 6. 7. 8. 9. 10. and 11 plan 542 for 3 years from 7 April 1934

Mortgage 186954 produced 29 August 1934 at 12.22 pm Thomas Glen to The Southland Building and Investment Society and Bank of Deposit

DISCHARGED 4-2-1937

Mortgage 198732 produced 10 May 1935 at 2.35 pm Thomas Glen to [illegible]

DISCHARGED 4-2-1937

Mortgage 193844 produced 4th February 1937 at 3 pm Thomas Glen to [illegible] Brewery Limited

CANCELLED

Memorials continued on front.

64/181

T64/45

1/3

(Form B.

NEW ZEALAND.

Register-book, Vol. 210, folio 157

Reference: Vol. 36, folio 184
Transfer No. 61488
35/185 Substituted

210/157

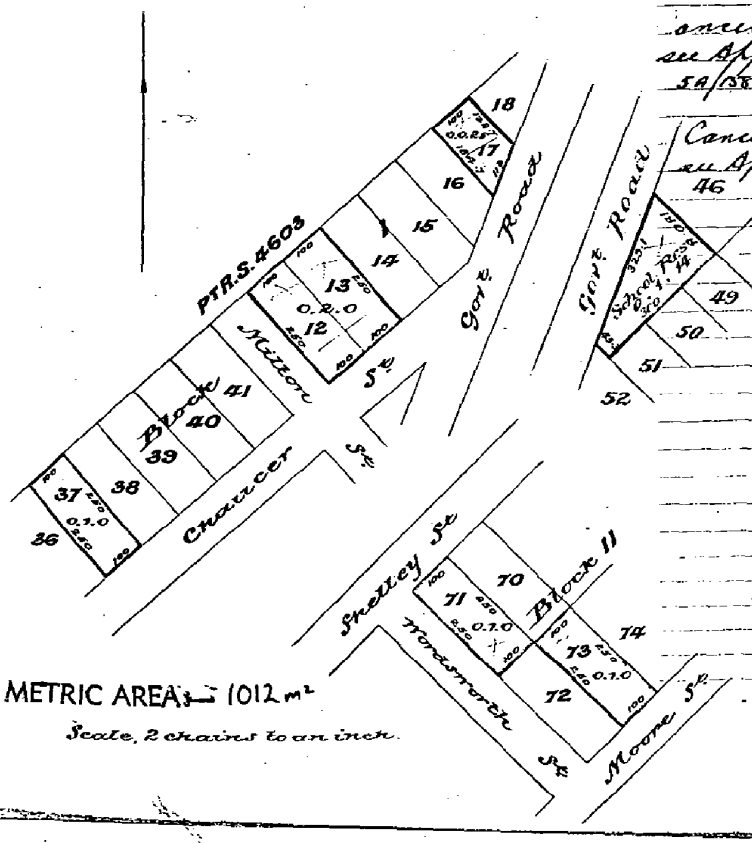
CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

This Certificate, dated the Twenty first day of October, one thousand nine hundred and three, under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury, Witnesseth that

William Hickley Grundy of Christchurch Accountant

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or indorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon, bordered green, be the several admeasurements a little more or less, that is to say: All ~~that~~ those parcels of land containing together one acre two roods and thirty three perches or thereabouts situated in Block III of the Leeston Survey District comprising Lots 12 13 17 and 37 Block I and 71 and 73 and School Reserve Block II on plan deposited in the Lands Registry office No 307 (Cert. Res. on D.P. 307)

Image Quality due to Condition of Original



METRIC AREAS 1012 m²

Scale, 2 chains to an inch.

W Thomas
District Land Registrar

Cancelled as to Lots 12, 13, and 17 on Application No 13693 - 3-8-1965
5A/157 W Thomas ALR

Cancelled as to Lots 71 and 73 on Application No 13694 - 3-8-1965
5A/158 and 159 W Thomas ALR

Cancelled as to "School Reserve" on Application No 13692 - 3-8-1965
46 5A/156 W Thomas ALR

THIS REPRODUCTION (ON A REDUCED SCALE) CERTIFIED TO BE A TRUE COPY OF THE ~~ORIGINAL REGISTER FOR THE PURPOSES~~ OF SECTION 215A LAND TRANSFER ACT 1952.
A Simson A.L.R.

210/157

[Land and Deeds—L.

NEW ZEALAND.

Form B.

Reference: Vol. 64, Folio 181 / Transfer No. / Application No. / Order for N/C No. 7071

Register-book, Vol. 466, folio 79

CANCELLED

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

This Certificate, dated the Twentieth day of May one thousand nine hundred and Forty under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury *Witnesseth* that

THOMAS GLEN of Christchurch Agent

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing ONE ACRE ONE ROOD AND THIRTY-EIGHT PERCHES or thereabouts situated in Block III of the Lecaton Survey District being Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 on plan deposited in the Land Registry Office at Christchurch as No. 542 part of Rural Section 4603.

A. R. Bass.
District Land Registrar.

Mortgage 193[illegible] produced 27 February 1937 at 3 p.m. Thomas Glen to New Zealand [illegible] Limited.
DISCHARGED. 31-1-1947 A. R. Bass. D.L.R.

Lease 10851 produced 9 May 1940 at 11.27 a.m. Thomas Glen to Denis Urban Crosbie of Lots 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 Plan 542 for 3 years from 14 April 1940
A. R. Bass. D.L.R.
by 14th April 1945

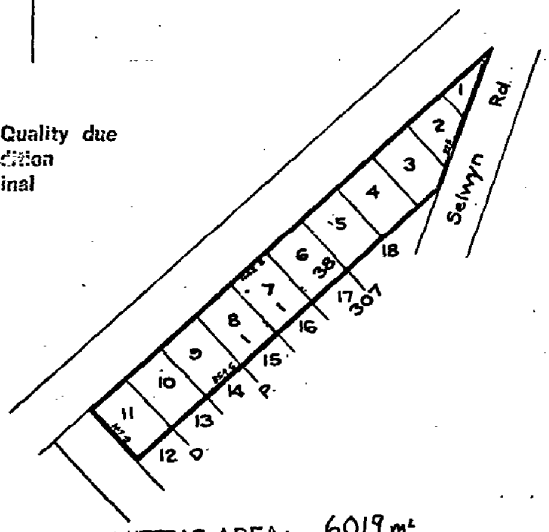
Extension of the term of lease 10851 produced 13 April 1945 at 2.10 p.m. Rowlinson

Mortgage 122627 produced 9 October 1945 at 2.25 p.m. [illegible] Plan Co. of New Zealand Limited
PRODUCED 3/10/45 [illegible]

Lease 11512 produced 10 October 1945 at 11.26 a.m. Thomas Glen to Thomas Ebenezer Robinson for 3 years less one day from 14 April 1945 of Lots 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 Plan 542.

301599 Transmission to Ernest Albert [illegible] of Timaru Stipendiary Magistrate, Thomas Keeling Cruickshank of Christchurch Accountant and Ruth Christina Breach of Christchurch married woman as executors entered 14th February 1949 at 2.30 p.m.

301740 Lease to the registered Executors to Ruth Christina Breach of Christchurch married woman and the Perpetual Trustee Estate and Agency Company of New Zealand Limited produced 13 June 1949 at 10.56 a.m.



Scale: 2 chains to an inch

Image Quality due to Condition of Original

466/79
326323 Lease the above premises to Moses Ebenezer Robinson of Christchurch Hotelkeeper of Lots 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 for five years from 14th day of April 1948 — Produced 18th day of August 1950 at 10.24 a.m. Rowlinson Seath

Extension of the Term of Lease 326323 to 14 April 1958 and variation of term produced 13 April 1953 at 2.19 p.m.

ALR

328945 Transmission of Lease 326323 to Gordon Allison Grey Counsel as executor entered 28th July 1958 at 12.25 p.m.

ALR

328946 Transfer of Lease 326323 Gordon Allison Grey Counsel to Rolleston Hotel Limited having its registered office at Rolleston produced 28th July 1958 at 12.26 p.m.

Variation of the terms of Mortgage 222527 the 12 day of July 1957 at 1.30 p.m.

Rowlinson Seath

Extension of the Term of Lease 326323 to 14/4/1963 and variation of the terms produced 14/4/1958 at 2.9 p.m.

ALR

Mortgage 507794 Ruth Alistair Brassel and The Perpetual Trustees Estate and Agency Company of New Zealand Limited & Canterbury Wine & Spirit Company Limited produced 3/5/1959 at 2.56 p.m.

JLP

Lease 605610 of Lots 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 DP 542 Term 5 years from 14 April 1963 to Rolleston Hotel Limited - 30/7/1963 at 11.40 a.m.

Variation of the terms of Mortgage 507794 produced the 30th day of April 1963 at 10.25 a.m.

ALR

Mortgage 724686 to Canterbury Wine & Spirit Company Limited - 13.11.1967 at 11.50 a.m.

ALR.

Extension of term of Lease 605610 to 14 April 1971 - 7/4/1968 at 12 noon.

ALR.

THIS REPRODUCTION (ON A REDUCED SCALE) CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL REGISTER FOR THE PURPOSES OF SECTION 213A LAND TRANSFER ACT 1952.

A.L.R.

Lease 878936 of Lots 2,3,4,5,6,7,8,9,10 and 1 D.P. 542 Term 3 years from 1/7/1971 to Rolleston Hotel Limited - 2578/1972 at 1.54 p.m.

A.L.R.

Caveat 94243/1 by New Zealand Breweries Limited - 19.8.1976 at 10.47 a.m. (effects part)

A.L.R.

Caveat 94244/1 by New Zealand Breweries Limited - 19.8.1976 at 10.50 a.m. (part) (Affects Lots 2,3,4 and 5 DP 542)

A.L.R.

General Notice 110037 declaring No. 1 State Highway (Awarua Hill Road) the within land to be a limited access road produced 16/12/1976 at 9.25 am

A.L.R.

D/Loss 115618/1 - 9/2/77

115618/1 the outstanding duplicate thereof having been declared lost this Certificate of Title is cancelled and New Certificate of Title 178/865 issued therefor produced 9.2.1977 and entered 11.3.1977 at 9.00 am.

L.R.

CANCELLED

572/034

[Land and Deeds—4
FORM B.

Register-book,
Vol. 572 *, folio* 34

Reference: *Vol.* 46 *, Folio* 122
Transfer No.
Order for N/C No. 372862

NEW ZEALAND

CANCELLED.

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

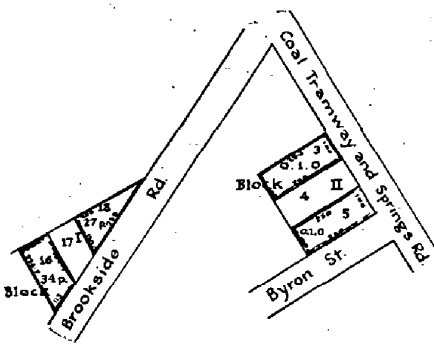
This Certificate, dated the Eleventh day of February, one thousand nine hundred and fifty-three under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury **Witnesseth** that THE PUBLIC TRUSTEE of the Dominion of New Zealand is seised of an estate in fee simple under the provisions of Part II of the Public Trust Office Act 1908

~~is seised of an estate in fee simple~~ (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon, subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All ~~that~~ those parcel of land containing Together THREE ROODS AND TWENTY-ONE PERCHES or thereabouts situated in Block III of the Leeston Survey District being Lots 16 and 18 Block I and Lots 3 and 5 Block II on Deposited Plan No. 307 part of Rural Sections 4603 and 4830

CANCELLED
AS TO PART COLOURED RED.

DISTRICT LAND REGISTRAR CANTERBURY NEW ZEALAND

Assistant ~~District Land~~ Registrar.



Total Area: 0 . 3 . 21

Scale: 3 chains to an inch

379846 Transfer of Lots 3 and 5 Block II Plan 307 The Public Trustee to James Francis Stewart and Annie Margaret Stewart married 23 June 1953 at 12.1 pm
C/T 582/49 issued. D.L.R.

379847 Transfer of Lot 18 Blk I Plan 307 The Public Trustee to Rose Mamie Fitzgibbon married 23 June 1953 at 12.2 pm
CT 582/50 issued. D.L.R.

379848 Transfer of Lot 16 Block I Plan 307 The Public Trustee to Thomas James Fitzgibbon married 23 June 1953 at 12.3 pm
CT 582/51 issued. D.L.R.

CANCELLED.

572/034

CANCELLED

CANCELLED

[Land and Deeds—4
FORM B.

Register-book,
Vol. 582 *, folio* 50

Reference: *Vol.*572 *, Folio* 34
Transfer No. 379847
Order for N/C No.

NEW ZEALAND

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate, dated the Twenty-third day of June, one thousand nine hundred and fifty-three under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury *Witnesseth* that

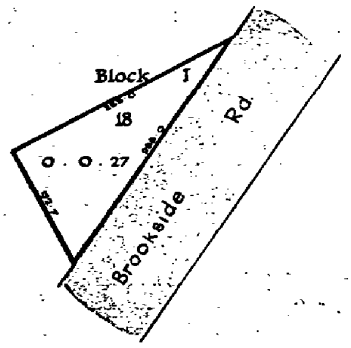
ROSE-MARIE FITZGIBBON of Rolleston Clerk

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon, subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing TWENTY-SEVEN PERCHES or thereabouts situated in Block III of the Leeston Survey District being Lot 18 Block I on Deposited Plan No.307 part of Rural Section 4603

MAP

CANTERBURY DISTRICT LAND REGISTRY NEW ZEALAND

Assistant
~~District~~ *Land Registrar.*



METRIC AREA:— 683m²

Scale: 1 chain to an inch

No. 652548 Evidence of the Marriage of the above named Rose Marie Fitzgibbon with Brian Francis O'Connell of West Melton Labourer entered 14/5/1965 at 2.35 pm.

THIS REPRODUCTION (ON A REDUCED SCALE) CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL REGISTER FOR THE PURPOSES OF SECTION 215A LAND TRANSFER ACT 1952.
A.L.R.

Transfer 208294/2 to Lion Breweries Limited, at Wellington - 20-12-1978 at 10.39a.m.
A.L.R.

No.686371/1 Change of Name of the abovenamed registered proprietor to Lion Corporation Limited - 15.6.1987 at 11.59a.m.
for A.L.R.

No.852986/1 Change of Name of the abovenamed registered proprietor to Lion Nathan Limited - 29.1.1990 at 10.08am
for A.L.R.

OVER

Transfer 877922/1 to Fayden Properties Limited at Christchurch - 25.5.1990 at 9.19am

for A.L.R.

Lease 877922/2 Term 21 years from 30.3.1990 to Lion Nathan Limited - 25.5.1990 at 9.19am

for A.L.R.

Lease 877922/3 of Lease 877922/2 Term 21 years less 3 days from 30.3.1990 to Fayden Properties Limited - 25.5.1990 at 9.19am

Fee Simple and for A.L.R.

Mortgage 877922/4 of Lease 877922/3 to The National Bank of New Zealand Limited - 25.5.1990 at 9.19am

for A.L.R.

Lease 984795/1 of Lease 877922/3 Term 19 years 116 days from 1.12.1991 to Kenneth Govan Auld - 25.3.1992 at 11.30am

A.L.R.

Mortgage 984795/2 of Lease 984795/1 to Rita Sydney Auld - 25.3.1992 at 11.30am

A.L.R.

Transfer A159054/5 to Kenneth Govan Auld of Christchurch, Hotelkeeper - 16.2.1995 at 11.57am

for A.L.R.

Mortgage A159054/6 to The National Bank of New Zealand Limited - 16.2.1995 at 11.57am

for A.L.R.

Mortgage A159054/7 to Rita Sydney Auld - 16.2.1995 at 11.57am

for A.L.R.

Mortgage A283426/4 to Westpac Banking Corporation - 20.2.1997 at 10.27am

for A.L.R.

PLAN No. 75460 LODGED 29/4/97
AND DEPOSITED 1.7.97

No. A305375/1 Certificate pursuant to Section 224(c) Resource Management Act 1991 - 1.7.1997 at 12.11pm

OCT A305375/2,3 - 1.7.1997 Cancelled and CsT 43B/1300 and 43C/150 issued for Lots 1 and 2 DP 75460 respectively

A.L.R.

CANCELLED DUPLICATE DESTROYED

[Land and Deeds—4
FORM B.

Register-book,
Vol. 582 , folio 51

Reference: Vol. 572 , Folio 34
Transfer No. 379848
Order for N/C No.

NEW ZEALAND

Cancelled

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate, dated the Twenty-third day of June, one thousand nine hundred and fifty-three under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury **Witnesseth** that MADELINE TERESA FITZGIBBON of Rolleston Clerk —

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon, subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing THIRTY-FOUR PERCHES or thereabouts situated in Block III of the Leeston Survey District being Lot 16 Block I on Deposited Plan No.307 part of Rural Section 4603 —

CANTERBURY DISTRICT LAND REGISTRY NEW ZEALAND

Assistant
District Land Registrar.

~~Transfer 497786 Madeline Teresa Fitzgibbon to Fitzgibbon of~~ A.L.R.

Transfer 497780 Madeline Teresa Fitzgibbon to Mary Katherine Agnes Fitzgibbon of Rolleston Widow produced 18/2/1959 at 11.30am
Countersigned A.L.R.

Transfer 566353 Mary Katherine Agnes Fitzgibbon to James Francis Stewart of Rolleston carrier and Denise Margaret Stewart his wife produced 29/11/1961 at 2.40pm
Countersigned

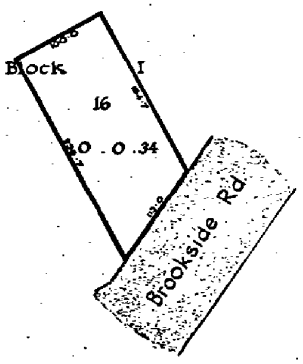
Mortgage 571401 James Francis Stewart and Denise Margaret Stewart to The State Advances Corporation of New Zealand produced 21.2.1962 at 11.10am
Countersigned
A.L.R.

No. 584374 Lien under Part III of the Wages Protection Act 1939 Entered 29.8.1962 at 11.15 a.m.
Countersigned
A.L.R.

Transfer 678231 Cancelled as the request 31/3/1966 endorsed C.T. 5D/403 issued

Cancelled

Duplicate Destroyed



Scale: 1 chain to an inch

Appendix F

Local and Regional Council Information

Selwyn DISTRICT COUNCIL

Land Information Memorandum L170783

Application

60542718/1.1/Josh Girvin	No.	L170783
AECOM new Zealand Limited	Application date	15/05/17
Level 2	Issue date	18/05/17
2 Hazeldean road	Phone	021 128 0289
Addington	Fax	-

Property

Valuation No.	2405116700
Location	2 Brookside Road, Rolleston
Legal Description	Lot 1 DP 75460 Block III Leeston Survey District
Owner	Lilley Russell Walter Charles
	Lilley Helen Shirley
Area (hectares)	0.2706

No certificate of title was submitted with this application, a copy can be obtained from Land Information New Zealand 112 Tuam Street, such as to check for covenants, easements, etc.

Rates

Rateable Value

The date of Selwyn's last General Revaluation was 1/07/15. For further information please contact Council's Rates Department.

Revaluation Year	2015
Land	$395,000
Capital Value	$900,000
Improvements	$505,000

Current Rates Year 2016 to 2017	
Annual Rates	$3,352.70
Current Instalment	$ 838.15
Current Year - Outstanding Rates	$ 553.52
Arrears for Previous Years	$ 0.00
Next Instalment Due	19/05/17

Next Revaluation Due 2018.

The rates listed for this property are correct as at the date of this report being issued.

If this property is vacant land, and the applicant intends building a house or making other improvements, additional rates and charges will be added. Such rates and charges are for the operation of the District libraries, local community centre and recreation reserves, sewerage and water systems and refuse collections and recycling.

If a ratepayer in the district purchases additional properties, that ratepayer maybe eligible for certain rating exemptions due to multiple ownership. The exemptions would only apply to uniform library charges on bare land blocks and an exemption from the uniform annual general charge if contiguous or same use land is purchased.
Please contact the Councils rates section if you require clarification (03) 347 2800.

Note: Rates are charged in four equal instalments for the period commencing 1 July and ending 30 June each year.

Outstanding Requisitions

No outstanding requisitions located.

Planning/Resource Management

Operative District Plan Zoning: Rolleston Living 1

16/11/16	Resource Consent 165622 Variation To Rc165553 (To Undertake A Subdivision To Create 2 Residential Lots) Section 223 Approval 28/11/16 Granted By Local Authority Officer 13/12/16
6/10/16	Resource Consent 165553 To Undertake A Subdivision To Create 2 Residential Lots. See 165622 Section 224 Issued 31/01/17 Granted By Local Authority Officer 4/11/16
27/08/08	Resource Consent 085304 To Establish And Operate A Takeaway/Restaurant With The Living 1 Zone Further Information Required 3/09/08
19/01/05	Resource Consent R307252 To Erect A Liquor Bottle Shop Decision Notified 9/08/05 Granted By Local Authority Officer 9/08/05
22/05/00	Resource Consent R304455 Extention Of Tavern By 5 Metres North Into Carpark To Provide For A Gaming/Entertaining Room Decision Notified 16/06/00 Consent Approved 16/06/00
30/01/97	Resource Consent R302505 Boundary Adjustment Completion Certificate 20/05/97 Consent Approved 3/03/97

Building

12/08/09	Building Consent 090777 2x Solid Fuel Heaters Code Compliance Certificate Issued 28/08/09
7/12/05	Building Consent 051900 Demolition Of Garage Lapsed 13/12/06
	Building Consent 051902 Commercial Building - Liquor Store Withdrawn 18/12/06
16/12/04	Building Consent 041615 Commercial Building Addition - Covered Terrace Lapsed 26/01/06
30/04/03	Building Consent 030513 Commercial Tavern Alteration Code Compliance Certificate Issued 13/05/05
3/11/00	Building Consent 001801 Sewer Connection Code Compliance Certificate Issued 23/05/01
18/05/00	Building Consent 001388 Hotel Addition Code Compliance Certificate Issued 14/04/05
10/06/93	Building Consent R410641 Commercial Alterations Code Compliance Certificate Issued 17/01/94
30/07/92	Building Consent R410097 Solid Fuel Heater
14/05/79	Building Permit H98611 Erect Garage
31/01/78	Building Permit 1942/1943 Plumbing/Drainage-Kitchen & Upstairs

25/10/77	Building Permit H98024 Alterations To Existing Tavern
4/10/77	Building Permit 1855/1856 Plumbing/Drainage- Bottle Store & Septic Tank
28/08/67	Building Permit A012069 Erect Bar Extension

No Code Compliance Certificate is required for a Building Permit. For those Building Consents with numbers that follow on from R410707 a Code Compliance Certificate is required. Consent R410707 is the first Building Consent issued by this Council which was not necessarily for this property.

Please see attached a Compliance Schedule R770043

Buildings erected prior to 1965 may not have a building permit record or had inspections carried out.

All building products and materials have a designed life, and must be maintained in accordance with the manufacturer's specifications.

In the case of building permits and building consents no further inspections have been carried out by the council since these structures were completed.

Any concerns of this nature should be referred to an organization that carries out property checks or the product manufacturers.

Services

Water	This property is connected to the Rolleston Water Supply. Water is metered.

The Selwyn District Council Water Bylaw 2008 is applicable to the Rolleston water supply. A copy can be found at http://www.selwyn.govt.nz/council-info/key-documents/bylaws/current-bylaws

Please note this property has a water meter and water meter charges are a rate and are payable by the property owner. Therefore please ensure a meter reading is requested on settlement so you are not liable for previous owners water charges. Solicitors must ensure that when settling rates with Council on the sale of a property that water meter charges are also included in the settlement calculation.

Sewer	This property is connected to the Rolleston Sewer Scheme

Stormwater To Soak Holes

This property may be located within an area covered by Environment Canterbury stormwater consent. It is the responsibility of the property owner to contact Environment Canterbury customer services to ensure that any activity undertaken on site complies with the relevant consent conditions.

Note – the above describes the current roof water disposal type and does not reflect the future situation, which should be determined as part of the subdivision (if applicable). For more information please contact Council.

Kerbside Waste Collections

Council refuse, organic and recycling collection available Friday

The Council provides refuse and recycling collection services for most residential and rural residential properties where these properties occur alongside maintained public roads. Private roads and Right of Ways (as maybe referenced in the Transportation Notes pertaining to this LIM) will not be directly serviced as these accessways are not usually of a sufficient standard to be used safely and efficiently by the collection vehicles. This could also apply to other public roads or streets that are narrow and/or have a lack of vehicle turning facilities. Rural and high country areas and settlements are not covered by regular collection services however localised refuse drop off facilities maybe available for use in specific areas. For further details and advice on refuse collection and recycling services as they may pertain to the property please phone the Council's Asset department on phone 3472 800.

Land and Building Classifications

Archaeological Sites: None known

Historical Places: None known

Historical Trees: None known

Land Notes: The flight paths for the Christchurch International Airport takes air traffic over this general area.

Land Notes: This property is within the area encompassed by the 2007 Christchurch, Rolleston and Environs Transportation Study (CRETS). The published Strategy outlines a range of strategic transportation initiatives to cater for long term growth in this area of the District. This includes the upgrading of existing roads and the provision of new roads which may affect private property. Further information on this Study can be viewed on the Councils website www.selwyn.govt.nz under "Transportation and Roading".

Land Notes: This property is located within the area encompassed by the Greater Christchurch Urban Development Strategy (UDS). The UDS is a joint initiative to plan and manage the growth of the Greater Christchurch Region over the next 35 years and is a partnership between the Christchurch City Council, Environment Canterbury, the Waimakariri District Council, Selwyn District Council, and the New Zealand Transport Agency.
The Selwyn District Council is developing a number of strategic documents that seek to implement the UDS that may have an impact on this property in the future. Further information on Council projects can be found on the Council's website www.selwyn.govt.nz or by contacting the planning department on (03) 347 2868.

Compliance with Swimming Pool Bylaw

No pool registered to this property.

Land Transport Requirements

Brookside Road is a formed and sealed local road maintained by Selwyn District Council. Main South Road is a State Highway (SH1) maintained by New Zealand Transport Agency.

Local Roads: Roads and streets servicing residential and rural development whose primary function is property access.

Strategic Roads: Roads which are of strategic regional importance e.g. State Highways (under jurisdiction of NZ Transport Agency) and Springs Road.

Special Land Features

	NZS3604:2011	**AS/NZS1170:2002**
Wind Region	A	A7
Snow Zone	N4	N4 sub-alpine
Earthquake	Zone: 2	*Z* Factor: 0.3
Approximate Altitude (Amsl)	60 m	60 m
Exposure Zone	B	

Exposure Zone Descriptions

Zone B: Low

Inland areas with little risk from wind blown sea-spray salt deposits

Zone C: Medium

Inland coastal areas with medium risk from wind blown sea-spray salt deposits. This zone covers mainly coastal areas relatively low salinity. The extent of the affected area varies significantly with factors such as winds, topography and vegetation.

Zone D: High

Coastal areas with high risk wind blown sea-spray salt deposits. This is defined as within 500 m of the sea including harbours, or 100 m from tidal estuaries and sheltered inlets.

Microclimatic Considerations

In addition to exposure zones, evidence of local environmental effects (microclimates), and those produced by the erection of a structure or installation of equipment, shall be considered. Such on-site factors require additional consideration because a mildly corrosive atmosphere can be converted into an aggressive environment by microclimatic effects. Indications of such local conditions may be in the form of corrosion of metal items on adjacent structure. Significant acceleration of the corrosion rate of structural fasteners and fixings beyond what could be expected from geographical location can occur in the following circumstances:

(A). Industrial contamination and corrosive atmosphere;

(B). Contamination from agricultural chemicals or fertilizers; and

(C). Geothermal hot spots. Hot spots are defined as being within 50 m of a bore, mud pool, steam vent, or other source.

Microclimatic conditions (a) to (c) require Specific Engineering Design.

Flooding: None known

Alluvion: None known

Avulsion: None known

Erosion: None known

Land Fill: None known

Hazardous Contamination: None known

Slippage: None known

Ground Water Level: Less than 30 metres below ground

Soil Type: Templeton moderately deep silt loam

Liquefaction and Subsidence: Council does not hold site specific information on subsoil classifications or ground bearing capacities. Therefore the applicant will need to carry out site subsoil investigations to verify 'Good Ground' can be achieved on the site and to determine the subsoil classification in accordance with NZS1170. Verification of site investigation data will need to be submitted as part of the documentation for Building Consent.

The definition of 'Good Ground' can be found in the Definitions section of the NZ Building Code Handbook, and appropriate test methods are detailed in either NZS3604, or NZBC B1/VM4.

Licences/Environmental Health

30/06/14	Food Premises
	Tavern R740101
	Licence Issued 30/06/14
	Expires 30/06/15
	Outstanding Requisitions From Inspection Dated 5/07/06
19/05/14	On Licence
	Tavern R910015
	Application For Renewal 8/05/17
	Expires 19/05/17
19/05/14	Off Licence
	Tavern R920012
	Application For Renewal 5/08/17
	Expires 19/05/17
16/02/08	Managers Certificate
	Manager R960136
	Letter Sent 12/01/11
	Expires 16/02/11

Selwyn District Public Libraries

Residents and ratepayers of the Selwyn District may join any library in the District without charge. Please note: photo identification is required.

The following is a list of the libraries within Selwyn:

Darfield Library, South Terrace
Leeston Library, Messines Street
Lincoln Library, Gerald Street
Rolleston Library, Rolleston Drive
Glentunnel Library, Homebush Road
Tai Tapu Library, Old Tai Tapu Road

The Mobile Library visits many smaller communities in the District, most of which do not have a library nearby.

For a list of Library hours, stopping points for the Mobile Library or enquiries regarding Library services in Selwyn, please phone the Rolleston Library on (03) 347 7750 or visit the libraries website at http://libraries.selwyn.govt.nz/

Network Utility Operators

Information related to the availability of supply, authorisations etc (eg, electricity or gas) can be obtained from the relevant Network Utility Operator.

Other Information

1.The applicant is advised that the Environment Canterbury may have other information in relation to this property including, but not limited to:

a) Discharge consents.

b) Well permits.

c) Consents to take water.

d) The existence of contamination and/or hazardous sites.

e) Flooding.

f) Clean air discharge compliance.

Further information may be obtained from Environment Canterbury by requesting a Land Information Request (LIR). To find out more contact the Environment Canterbury on 0800 ECINFO (0800 324 636) or at http://www.ecan.govt.nz/

2. The following further information is supplied on the basis set out in note 2 below.

Notes

1. The information supplied in the sections of this report, other than 'Other Information', is made available to the applicant pursuant to Section 44A(2) of the Local Government and Official Information Act 1987 by reference to Council files and records. No property inspection, or title search, has been undertaken. To enable the Council to measure the accuracy of this LIM document based on our current records we would appreciate your response should you find any information contained herein which may be considered to be incorrect or omitted. Please telephone the Council on (03) 3472800.

2. The information or documents supplied to the applicant and referred to in the 'Other Information' section of this report has been supplied to the Council by property owners, their agents and other third parties. That information is made available pursuant to section 44A(3) of the Local Government and Official Information Act 1987 on the basis that:
   a) The information may be relevant to the purposes for which this report is obtained;
   b) The Council does not warrant or represent the accuracy or reliability of the information. If the subject matter of that information is important to the applicant it is recommended that relevant professional advice should be taken before reliance is placed upon that information.

3. The information included in the LIM is based on a search of Council records only and there may be other information relating to the land which is unknown to the Council. Council records may not show illegal or unauthorised building or works on the property. The applicant is solely responsible for ensuring that the land is suitable for a particular purpose.

4. Perspective purchasers should be aware that as a result of amendments to the Building Act 2004, Schedule 1) Building work exempt from the need to obtain building consents) that became effective in November 2013, council may not have records for the removal or demolition of buildings on this property. It is the perspective purchaser's responsibility to verify that any or all buildings listed that have been issued with a building consent/permit and erected on the property still exist.

5. The Council has used its best endeavors to ensure that all information provided in this LIM report is correct and complete in all material respects. In the event that a material error or omission can be proven the Council's liability, whether in contract or in tort shall be limited to the fee paid to Council to obtain this report.

6. This information reflects the Selwyn District Council's current understanding of the site, which is based only on the information thus far provided to it and held on record concerning the site. It is released only as a copy of those records and is not intended to provide a full, complete or totally accurate assessment of the site. As a result the Council is not in a position to warrant that the information is complete or without error and accepts no liability for any inaccuracy in, or omission from, this information.

7. The information contained in this Land Information Memorandum is current at the date the memorandum is issued. Further relevant information may come into the Council's possession subsequent to the date of issue.

Name:Chaya Stevens  Date: 18/05/17

Legend

- Selwyn Roads
- All Road Labels
- Railway
- Sub Division
- Ratepayer Information
- Parcels

Water_pt

- EQUIPMENT
- FACILITY
- FIRE_PLANT
- HYDRANT
- IRRIGATION
- NODE
- OBSOLETE
- SUPPLY_POINT
- TANK
- VALVE

Water_ln

- DIM LINE
- DUCT
- IRRIGATION
- NON SDC SERVICE
- OBSOLETE
- OUTLINE
- PIPE
- SITE_BOUNDARY
- Manhole Labels

Sewer_pt

- CHAMBER
- EQUIPMENT
- FACILITY
- MANHOLE
- NODE
- VALVE

Sewer_ln

- OUTLINE
- DIM LINE
- DUCT
- IRRIGATION
- NON SDC SERVICE
- OBSOLETE
- OUTLINE
- PIPE_GRAVITY
- PIPE_RISINGMAIN
- SITE_BOUNDARY

Storm_pt

- CHAMBER
- EQUIPMENT
- FACILITY
- INLET/OUTLET
- MANAGEMENT
- MANHOLE
- NODE
- SOAKHOLE
- SUMP
- VALVE

Storm_ln

- CHANNEL
- DIM LINE
- MANAGEMENT
- NON SDC SERICE
- OBSOLETE
- OUTLINE
- PIPE
- SITE_BOUNDARY
- Soakhole w/Hoz Soakage
- StopBank
- Stormwater Management Area
- Storm_ln_Labels

Liquefaction Susceptibility

- DBH TC Zoned Area
- Damaging liquefaction unlikely
- Liquefaction assessment needed
- West Melton Observatory Zone

Planning Zones

- High Country
- Port Hills
- Existing Devlopment Area
- Living 1
- Living 2
- Living 3
- Living X
- Living WM
- Living Z
- Deferred Living
- Business 1
- Business 2
- Business 3
- Inner Plains
- Outer Plains
- Malvern Hills
- Key Activity Centre

Property Map



Selwyn DISTRICT COUNCIL

17/05/2017

Cadastral Information dervided from Land Information New Zealand's Digital Cadastral Database (DCDB)

CROWN COPYRIGHT RESERVED
Approved for internal reproduction by Selwyn District Council
Digital Licence No.133562-01

Property Map



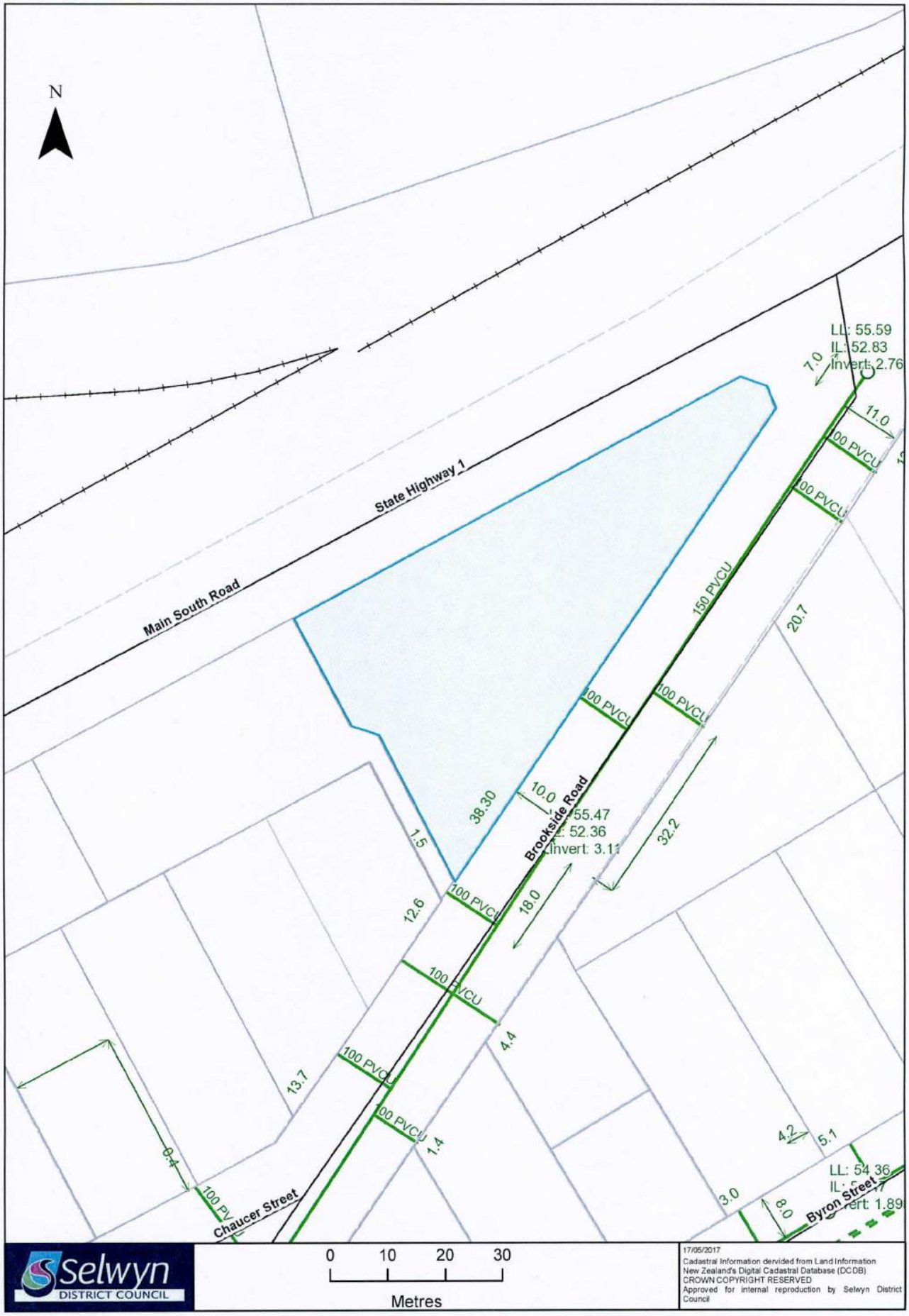
Water Supply



Selwyn DISTRICT COUNCIL

17/05/2017
Cadastral Information dervided from Land Information New Zealand's Digital Cadastral Database (DCDB)
CROWN COPYRIGHT RESERVED
Approved for internal reproduction by Selwyn District Council
Digital Licence No.133562-01

Sewer Scheme



Piped Stormwater



Selwyn DISTRICT COUNCIL

17/05/2017
Cadastral Information dervided from Land Information New Zealand's Digital Cadastral Database (DCDB)
CROWN COPYRIGHT RESERVED
Approved for internal reproduction by Selwyn District Council

Liquefaction Map



Selwyn DISTRICT COUNCIL

17/05/2017

Cadastral Information dervided from Land Information New Zealand's Digital Cadastral Database (DCDB)
CROWN COPYRIGHT RESERVED
Approved for internal reproduction by Selwyn District Council
Digital Licence No.133562-01

Operative District Plan



RESOURCE CONSENT INFORMATION

This document is one of three pages titled "Resource Consent Information" which should be read together.

- Because of the large number of resource consents only consents which fall within the red buffer as identified on the map have been included with this report.
- If further information is required please contact the Council's Planning Department – Phone Direct 03 3472 868.
- Every effort is made by the Council to identify resource consent in proximity to the property subject to this LIM application. However, it is suggested that a site inspection be undertaken by prospective purchasers to identify any land uses of interest. These may include uses which have existing use rights or other uses which are permitted under the Council's District Plan.

Resource Consent Status Codes:

GHP	Granted by Hearing
GEC	Granted by Environment Court
GDEL	Granted by Delegation
GCOM	Granted by Commissioner
DCOM	Declined by Commissioner
DHP	Declined by Hearing
WD	Withdrawn application
AP	Approved
DC	Declined
Blank	No decision issued



Cadastral Information derived from
Land Information New Zealand's Digital Cadastral Database (DCDB)
CROWN COPYRIGHT RESERVED
Approved for internal reproduction by Selwyn District Council
Digital Licence No. 133562-01

Resource Consent Map

100m Buffer

N

Selwyn DISTRICT COUNCIL

Assessment ID	Consent Number	Proposal	Status	Date
2354167315	155723	To establish and operate a workshop, showroom and warehouse facility, with non complying parking, signage, vehicle crossing, landscaping and not connected to reticulated sewage	GDEL	2016-03-11
2405115700	145421	To erect second dwelling on a residential lot. See also subdivision 145422.	GDEL	2014-10-30
2405115700	145422	To subdivide and create two lots each with existing dwellings. See also L/U 145421	GDEL	2014-10-30
2354167303	145503	To undertake two lot subdivision in B2 zone	GDEL	2015-02-12
2354167303	125144	To remove trees within the Railway Reserve obstructing sightline requirements of Kiwirail	GDEL	2012-06-22
2354167303	125126	To erect industrial building breaching the recession plane	GDEL	2012-05-17
2405116700	R302505	BOUNDARY ADJUSTMENT	AP	1997-03-03
2405116700	085304	TO ESTABLISH AND OPERATE A TAKEAWAY/RESTAURANT WITH THE LIVING 1 ZONE		
2405116700	R304455	EXTENTION OF TAVERN BY 5 METRES NORTH INTO CARPARK TO PROVIDE FOR A GAMING/ENTERTAINING ROOM	AP	2000-06-16
2405116700	R307252	TO ERECT A LIQUOR BOTTLE SHOP	GDEL	2005-08-09
2405120200	R303052	TO LOCATE A PORTACOM BLDG ON LOT FOR FIRE SERVICE STORAGE & TEMPORARY OFFICE FOR SELWYN POLICE RURAL UNIT	AP	1997-11-21
2405115900	R304227	TO RETAIN TWO DWELLINGS ON ONE RES LOT - SEE ALSO R307640	GDEL	2006-10-19
2405115900	R304022	TO ESTABLISH 7 OPERATE A SECRETARIAL/COPYING/OFFICE SERVICE IN RESIDENTIAL ZONE	AP	1999-10-11
2405115900	R307640	TO SUBDIVIDE TWO EXISTING DWELLINGS	GDEL	2006-10-19
2405116200	155441	Remediation of contaminated soils. NES.	GDEL	2015-08-26
2405116200	R305333	TO ESTABLISH & OPERATE A HIRE EQUIPMENT BUSINESS		
2405116200	R305213	TO ESTABLISH & OPERATE AN ART/CRAFT STUDIO & GALLERY ON EX SERVICE STATION SITE	GDEL	2001-11-15
2405116200	R307605	TO ESTABLISH RETAIL SHOP		
2405116300	R304826	TO ESTABLISH & OPERATE VETERINARY CENTRE INCL SIGNAGE	GDEL	2001-04-02
2405120100	R303341	EXTENSION TO RETAIL SHOP IN RES ZONE	AP	1998-06-09
2405113800	165017	Erect a garage with non-complying siting - 1.2m from boundary.	GDEL	2016-01-26
2405115000	135204	Erect a second dwelling with a non-complying siting along the south boundary.	GDEL	2013-06-25
2405115200	105353	SUBDIVIDE TO CREATE TWO LOTS EACH WITH 2 EXISTING DWELLINGS	GDEL	2011-01-14
2405115200	105354	TO RETAIN SHED IN NON-COMPLYING POSITION CREATED BY 105353	GDEL	2011-01-14
2405115200	105224	TO ERECT SECOND DWELLING ON RESIDENTIAL LOT	GDEL	2010-08-19
2405116100	135675	Lot 2. Establish and operate a real estate sales office with associated signage.	GDEL	2014-02-04
2405116100	R304996	TO OPERATE AN AFTER SCHOOL CARE PROGRAMME MON TO FRI 3PM TO 6PM	GDEL	2001-07-13
2405116800	095208	TO ERECT A NON-COMPLYING 6m X 3m FREESTANDING SIGN ON SH1		
2405116800	075245	TO ESTABLISH AND OPERATE A TAKEAWAY/RESTAURANT AND SIGNAGE WITHIN LIVING 1 ZONE - DECLINED. ALSO SEE 065394 WITHDRAWN	DHP	2007-12-04
2405116800	065394	TO ESTABLISH AND OPERATE A TAKEAWAY/RESTAURANT AND SIGNAGE also see 075245 declined		
2405116800	155177	To undertake expansion to Rolleston Highway Motel	GDEL	2015-09-10
2405116800	155740	Variation to RC155177 (To undertake expansion to Rolleston Highway Motel) Revised floor plan layouts and car park numbers.	GDEL	2016-02-18
2405116800	165476	To remove condition 3b of RC155740 RC155177	GDEL	2016-09-13
2405116800	165553	To undertake a subdivision to create 2 residential lots. See 165622	GDEL	2016-11-04

2405116800	165622	Variation to RC165553 (To undertake a subdivision to create 2 residential lots)	GDEL	2016-12-13

LIM Note: L170783

Compliance Schedule: R770043 – The Rolleston Tavern in the Publicans Office

This building has a compliance schedule issued to it. The compliance schedule lists compulsory inspection, maintenance and reporting procedures which the building owner is responsible for ensuring are completed as required by the Building Act 2004. The system is devised to ensure safety features and other necessary facilities are correctly working at all times.

An essential part of the reporting is the issue of an annual building warrant of fitness. This is issued by the owner on the anniversary date of the issue of the compliance schedule and it confirms that all the provisions of the compliance schedule have been correctly followed. One copy is to be displayed on site, one is to be forwarded to the territorial authority. (Selwyn District Council)

All documentation pertaining to this system is to be kept for a minimum of two years including any documents held by any previous owner.
Inspections, maintenance and reporting are required to begin immediately on possession.
Any owner that is unsure on the correct inspection, maintenance and reporting techniques should consult an Independent Qualified Person (list provided) for advice.
The Councils limited role is to issue compliance schedules, receive and check building warrants and complete audits of buildings to ensure compliance.

Status: Reminder letter sent 16/05/17
Intended Use: Community Service

Note: An evacuation scheme may be required for this building. Further details of this can be obtained from the New Zealand Fire Service. See:- www.fire.org.nz

Selwyn DISTRICT COUNCIL

CODE COMPLIANCE CERTIFICATE

Section 43(3), Building Act 1991

BLDG CONSENT No: R410641

PROJECT DESCRN: NEW CONSTRUCTION
BEING STAGE 1 OF AN INTENDED 1 STAGES
COMMERCIAL ALTERATIONS

INTENDED LIFE: INDEFINITE, BUT NOT LESS THAN 50 YEARS

INTENDED USES: TAVERN ALTERATIONS

PROJECT LOCATION: S HWY 1, ROLLESTON

VALUATION No: 2405116700

LEGAL DESCRIPTION: LOT 18 BLK II DP 307 PT LOTS 1-11 DP 542
ROLLESTON TSHIP -HOTEL

The Council's total charges payable for the issue of this Code Compliance Certificate are on the attached invoice.

This is a final code compliance certificate issued in respect of all the building work under the above building consent.

SIGNED FOR AND ON BEHALF OF THE COUNCIL:

NAME: [signature] POSITION: Senior Inspector DATE: 17-1-94

SERVICE CENTRES:

LINCOLN
GERALD STREET, LINCOLN
PH: (03) 325-3288

LEESTON
PRIVATE BAG 1
HIGH STREET, LEESTON
PH: (03) 324-3859

DARFIELD
SOUTH TERRACE, DARFIELD
PH: (0516) 88-416

Selwyn DISTRICT COUNCIL

HIGH STREET, LEESTON
PRIVATE BAG 1, LEESTON
PH: (03) 324-8080 FAX: (03) 324-3531

COPY

REF No.....

Code Compliance Certificate

Section 43(3), Building Act 1991

Application

ROLLY INN 2 BROOKSIDE RD ROLLESTON CANTERBURY	No. Issue date	001388 14/04/05

Project

Description	Hotels - Alterations & additions Being Stage 1 of an intended 1 Stages HOTEL ADDITION
Intended Life	Indefinite, but not less than 50 years
Intended Use	HOTEL ADDITION
Estimated Value	$30,000
Location	MAIN SOUTH ROAD, ROLLESTON
Legal Description	LOT 1 DP 75460 BLK III LEESTON SD
Valuation No.	2405116700

This is a final Code Compliance Certificate issued in respect of all the building work under the above building consent.

Signed for and on behalf of the Council:

Name: **Date:**

HIGH STREET, LEESTON
PRIVATE BAG 1, LEESTON
PH: (03) 324-8080 FAX: (03) 324-3531

REF No.....

Code Compliance Certificate 001801

Section 43(3), Building Act 1991

APPLICANT

LILLEY FAMILY TRUST
2 BROOKSIDE ROAD
ROLLESTON

Issue date 23/05/01

Project

Description	New Construction
	Being Stage 1 of an intended 1 Stages
	SEWER CONNECTION
Intended Life	Indefinite, but not less than 50 years
Intended Use	SEWER CONNECTION
Estimated Value	$2,000
Location	2 BROOKSIDE ROAD, ROLLESTON
Legal Description	LOT 1 DP 75460 BLK III LEESTON SD
Valuation No.	2405116700

This is a final Code Compliance Certificate issued in respect of all the building work under the above building consent.

Signed for and on behalf of the Council:

Name: **Date: May 23, 2001**

Selwyn DISTRICT COUNCIL

HIGH STREET, LEESTON
PRIVATE BAG 1, LEESTON
PH: (03) 324-8080 FAX: (03) 324-3531

REF No. .....

COPY

Code Compliance Certificate

Section 43(3), Building Act 1991

Application

R W & H S LILLEY C/- N LILLEY 2 BROOKSIDE ROAD ROLLESTON	No. Issue date	030513 13/05/05

Project

Description	Other Buildings - alterations & additions Being Stage 1 of an intended 1 Stages COMMERCIAL TAVERN ALTERATION
Intended Life	Indefinite, but not less than 50 years
Intended Use	Demolition of internal partition.
Estimated Value	$1,000
Location	MAIN SOUTH ROAD, ROLLESTON RAPID:NONE
Legal Description	LOT 1 DP 75460 BLK III LEESTON SD
Valuation No.	2405116700

This is a final Code Compliance Certificate issued in respect of all the building work under the above building consent.

Signed for and on behalf of the Council:

Name: _____ **Date:** _____

selwyn DISTRICT COUNCIL

www.selwyn.govt.nz

Code Compliance Certificate 090777

Section 95, Building Act 2004

The Owner

Name of Owner:	Lilley Russell Walter & Lilley Helen Shirley
Mailing address:	The Lilley Family Trust, 18 Tennyson St, Rolleston 7614
Street address/registered office:	
Phone number:	
Landline:	Daytime: 3478705
Mobile: 0274333854	After hours:
Facsimile number:	03 3478605
Email address:	russell.lilley@xtra.co.nz
Website:	

The Building Work

Street Address of Building:	MAIN SOUTH ROAD, ROLLESTON		
Legal Description of land where building is located:	LOT 1 DP 75460 BLK III LEESTON SD		
Valuation Number:	2405116700		
Current lawfully established use:	2X SOLID FUEL HEATERS		
Type of work:	Metro Solid Fuel Heater Installations: Replace existing SFH to Upstairs Living Room; New SFH in Public Bar Area		
Estimated Value:	$6,196		
Location of building within site/block number:			
Building Name:	ROLLY INN TAVERN	Year Construction Commenced:	2009

Code Compliance Certificate:

The Building Consent Authority named above is satisfied on reasonable grounds, that the Building work complies with the Building Consent

Selwyn District Council Building Consent Authority Signatory

Issue Date: 28/08/09

IMPORTANT INFORMATION TO ALL NEW HOME/LAND OWNERS

STREET TREES AND IRRIGATION

The Selwyn District Council would like to make all new home/land owners and their contractors aware of the process of gaining approval to relocate/remove street trees, or alter Council irrigations systems.

In some areas of the Selwyn District, various types of linked dripper irrigation systems are installed to water establishing street trees. In some cases, the system has not been installed very deep in the ground. It is particularly important that any contractors who are going to be excavating within road berms are aware of this and excavate carefully to locate irrigation lines or drippers, or seek assistance from Council as to their presence/location before excavating. Similarly, care should be taken when excavating near street trees to avoid damage to tree roots.

The developer has put a lot of effort into enhancing the streetscape and providing an attractive environment within your subdivision. It is accepted that in some cases when a new home is built, a planted street tree and associated irrigation system may need to be shifted or removed to facilitate vehicle access to the site. Upon formal request, Council will consider giving approval for such changes to the initial planting plan or irrigation system on a case by case basis, after exploring all alternative options available.

Where is has been qualified that trees can be removed or relocated and/or an irrigation system needs to be shifted, then these works are to be organised by Council and/or the Developer and carried out by one of their approved contractors. All costs associated with these works are to be borne by the requesting land owner.

Please be aware, that in some situations, street trees can be removed and landscaping in a subdivision might still be under the management of the developer. In such cases, Council should still be contacted in the first instance, who will forward the request onto the developer for a response.

The following procedure is to be followed by a land owner who is wanting to request removal or relocation of a street tree and/or associated irrigation systems, in order to facilitate vehicle accessto their property.

Requests for the removal or shifting of a tree must be made in writing to the Council Reserves Department stating:

- Street address of the property and the lot number;
- Name of the contact person;
- Contact details;
- Reason for the tree to be removed

On receipt of this formal request, Council staff will assess the following:

- Quality of the tree and whether or not the tree can successfully be moved;
- Whether an irrigation system is present and also needs shifting or decommissioning;
- Any conditions of sale by the developer;
- Any Resource Consent conditions;
- Streetscape theme and amenity value contribution of the tree.

If a tree is not able to be shifted and has to be removed, the landowner may also be required to pay for the cost to plant another tree of the same species and of similar size within the road berm as a replacement.

If an agent of the land owner makes the request to Council, then the agent is deemed to the person responsible for the payment of all expenses relating to this procedure.

CARE FOR ESTABLISHING STREET TREES

Although the Developer and/or Council endeavours to water in newly planted street trees during their initial establishment years, the public is encouraged to assist with watering trees on your road berm. Establishing a tree in an urban environment faces many challenges so give your tree the best chance of reaching its full potential and value.

Follow the simple directions below to help your tree survive.

When should I water?
During the dry summer periods of November – March and if your trees shows signs of drought stress like wilting and upward curling or rolling, browning of leaves, twig and branch dieback.
If you can, avoid watering during the hottest part of the day.

Any method below can be followed once a fortnight while during dry periods

- If you tree has been planted with a piped watering system. Lift the cap pour down 15-20 litres of water and replace the cap to allow the water to them slowly soak into the root zone of the tree.
- If you have in-ground irrigation on your berm lawn, let it run an extra 30 minutes in the zone where you have trees. This will allow the water to penetrate through the turf and thatch and allow more water to soak down to the roots of the tree.
- You can also use a garden hose turned on to a very slow trickle placed 40-90cm from the trunk. Turn the water on to deliver a very slow trickle and let the water soak into the ground for about 2 hours around the tree pit.

Council implements an annual programme of street tree inspections and maintenance throughout the district. Street tree maintenance is the responsibility of the Council, who employs a contractor to provide arboricultural services. It is critical that any other tree maintenance required is undertaken by our appointed contractor to ensure consistency in both quality and tree form.

Please contact us by lodging a Service request if you tree requires any tree maintenance.

Thank you for your assistance and co-operation

Reserves Maintenance Staff
Selwyn District Council

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636

PO Box 345
Christchurch 8140

P. 03 365 3828
F. 03 365 3194
E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

Dear Sir/Madam

Thank you for submitting your property enquiry in regards to our Listed Land Use Register (LLUR) which holds information about sites that have been used, or are currently used for activities which have the potential to have caused contamination.

The LLUR statement provided indicates the location of the land parcel(s) you enquired about and provides information regarding any LLUR sites within a radius specified in the statement of this land.

Please note that if a property is not currently entered on the LLUR, it does not mean that an activity with the potential to cause contamination has never occurred, or is not currently occurring there. The LLUR is not complete, and new sites are regularly being added as we receive information and conduct our own investigations into current and historic land uses.

The LLUR only contains information held by Environment Canterbury in relation to contaminated or potentially contaminated land; other information relevant to potential contamination may be held in other files (for example consent and enforcement files).

If your enquiry relates to a farm property, please note that many current and past activities undertaken on farms may not be listed on the LLUR. Activities such as the storage, formulation and disposal of pesticides, offal pits, foot rot troughs, animal dips and underground or above ground fuel tanks have the potential to cause contamination.

Please contact and Environment Canterbury Contaminated Sites Officer if you wish to discuss the contents of the LLUR statement, or if you require additional information.
For any other information regarding this land please contact Environment Canterbury Customer Services.

Yours sincerely

Contaminated Sites Team

Property Statement
from the Listed Land Use Register

Visit www.ecan.govt.nz/HAIL for more information about land uses.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

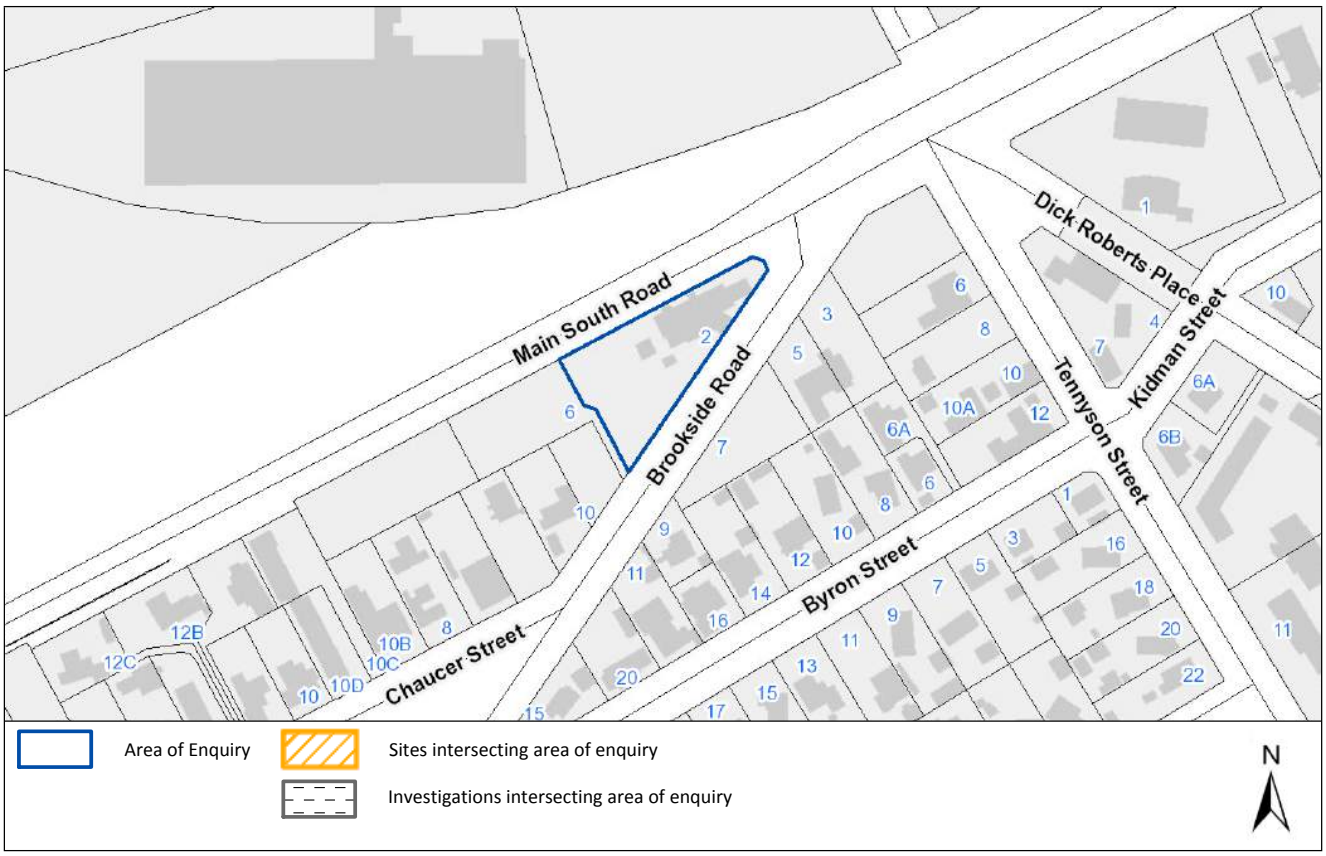
Customer Services
P. 03 353 9007 or 0800 324 636

PO Box 345
Christchurch 8140

P. 03 365 3828
F. 03 365 3194
E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

Date:	12 April 2017	
Land Parcels:	Lot 1 DP 75460	Valuation No(s): 2405116700



The information presented in this map is specific to the property you have selected. Information on nearby properties may not be shown on this map, even if the property is visible.

Summary of sites:

There are no sites associated with the area of enquiry.

Information held about the sites on the Listed Land Use Register

There are no sites associated with the area of enquiry.

Information held about other investigations on the Listed Land Use Register

For further information from Environment Canterbury, contact Customer Services and refer to enquiry number ENQ162652.

Disclaimer:

The enclosed information is derived from Environment Canterbury's Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987 and Environment Canterbury's Contaminated Land Information Management Strategy (ECan 2009).

The information contained in this report reflects the current records held by Environment Canterbury regarding the activities undertaken on the site, its possible contamination and based on that information, the categorisation of the site. Environment Canterbury has not verified the accuracy or completeness of this information. It is released only as a copy of Environment Canterbury's records and is not intended to provide a full, complete or totally accurate assessment of the site. It is provided on the basis that Environment Canterbury makes no warranty or representation regarding the reliability, accuracy or completeness of the information provided or the level of contamination (if any) at the relevant site or that the site is suitable or otherwise for any particular purpose. Environment Canterbury accepts no responsibility for any loss, cost, damage or expense any person may incur as a result of the use, reference to or reliance on the information contained in this report.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.

6 BROOKSIDE ROAD, ROLLESTON

PRELIMINARY SITE INVESTIGATION (PSI)

Prepared for Russell Lilley Construction Ltd

Project 45424 – 20/04/2015

Engineering Design Consultants Ltd
W: www.edc.co.nz
E: team@edc.co.nz
Christchurch: 1st Floor, 39 Carlyle St, Sydenham Ph (03) 355 5559 PO Box 7534, Sydenham, 8240
Auckland: 1st Floor, Unit 1, 100 Bush Rd, Albany Ph (09) 451 9044 PO Box 118, Albany Village, 0755

ACENZ
NET WWW.NET.CO.NZ
Civil | Structural | Geotechnical | Environmental | Fire

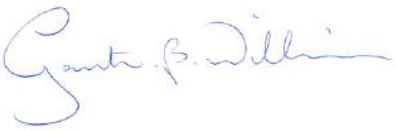
Revision	Date	Engineer	Description
A	Click on a date		
B	Click on a date		
C	Click on a date		

REPORT PREPARED BY:



Andrew Congalton
BE (Env) CPEng MIPENZ IntPE(NZ)
Environmental/Civil Team Leader - Canterbury

REPORT CHECKED BY:



Gareth B Williams
CP Eng IntPE(NZ) MIPENZ MAusIMM MIoD MEIANZ
Snr Geotechnical Engineer, Director

Limitations of Report

Except where required by law, the findings presented as part of this report are for the sole use of our client, as noted above. The findings are not intended for use by other parties, and may not contain sufficient information for the purposes of other parties or other uses.

Our professional services are performed using a degree of care and skill normally exercised, under similar circumstances, by reputable consultants practicing in this field at this time. No other warranty, expressed or implied, is made as to the professional advice presented in this report; in regard to its accuracy or completeness.

The recommendations and opinions contained in this report are based on our visual reconnaissance of the site, information from council and other external sources. The accuracy of this information cannot be guaranteed.

This report has been prepared for the particular project described to us and no responsibility is accepted for the use of any part of this report in any other context or for any other purposes. Our opinions and recommendations are based on our comprehension of the current regulatory standards and must not be considered legal opinions. For legal advice, please consult your solicitor. This opinion is not intended to be advice that is covered by the Financial Advisors Act 2010.

The attached appendices should be read in conjunction with the main part of the report and this report should not be considered complete without them.

EXECUTIVE SUMMARY

The site is to be developed for a change in land use from Residential to Commercial as a motel is to be built on site.

This investigation has been conducted to determine if the land is potentially, or actually, affected by contaminants because of its historical and/or current use and the types of activities previously undertaken on it.

The scope of work which has been undertaken includes a site walkover and a review of the following information sources:

- Historic Certificate of Title
- Council Property File
- Aerial Photos
- Anecdotal Records

Summarised conclusion and recommendations include:

- The existing site consists of a residentially zoned grassed field with SH1 to the north, a pub to the east, houses to the south and a grassed field to the west.
- Based on the site visit, and a review of available historical information, we consider that it is more likely than not that a HAIL activity has not occurred at the subject site.
- A Detailed Site Investigation (SIR) is not required as no HAIL activities have been identified on the site.

This report has been prepared by suitably qualified practitioners, in accordance with the current edition of Contaminated Land Management Guidelines (CLMG) No. 1 – 'Reporting on Contaminated Sites in New Zealand, Wellington, Ministry for the Environment'.

CONTENTS

1.0 Introduction 5
1.1 Proposed Development Works 5
1.2 Scope of Investigation 5
2.0 Site Identification 6
2.1 Location and Legal Description 6
3.0 Geology and Hydrogeology 7
3.1 Geology 7
3.2 Geotechnical 'Soil Investigation' Findings 7
3.3 Hydrogeology 7
3.4 Site History 7
3.5 Site Ownership 7
3.6 Council Property Files 8
3.7 Council Contamination Enquiry 8
3.8 Anecdotal Evidence 8
3.9 Aerial Photos 9
4.0 Site Condition and Surrounding Environment 10
5.0 Regulatory Implications 11
5.1 Regulatory Framework 11
5.2 NES 11
5.3 Selwyn District Plan 11
6.0 Conceptual Site Model 12
6.1 Potential Pathways 12
6.2 Potential Receptors 12
6.3 Pollutant linkages 13
7.0 Site Characterisation 14
7.1 Type of Environmental Contamination 14
7.2 Extent of Environmental Contamination 14
7.3 Exposure Routes and Risks to Exposed Populations 14
8.0 Conclusions and Recommendations 15

1.0 INTRODUCTION

1.1 Proposed Development Works

It is proposed that the property at 6 Brookside Road, Rolleston (henceforth referred to as the 'site') is to be developed into a motel.

1.2 Scope of Investigation

The following work has been undertaken as part of this investigation:

- The potential for historic activities to have resulted in ground contamination at the site has been assessed
- We have confirmed that the current development plan for site is for a motel, and associated soil disturbance activities are relevant for foundation construction only.
- We have defined the conceptual contamination model
- We have undertaken a document review of:
  - Historic Certificate of Title
  - Council Property Files
  - Aerial Photos
  - Anecdotal Records
- The site has been characterised and we have determined if a Detailed Site Investigation is required
- A preliminary assessment of the potential ground contamination-related cost implications has been made for the client based on the proposed development

This report has been prepared in general accordance with national guidance and standards for conducting ground contamination-related desk study investigations in New Zealand. This includes compliance with the general format described in the Ministry for the Environment (MfE) Contaminated Land Management Guideline No 1 *"Reporting on Contaminated Sites in New Zealand"*.

2.0 SITE IDENTIFICATION

2.1 Location and Legal Description

The legal description of the site is Lot 2, DP 75460 and the site area is 3460m².

The NZMG co-ordinates for the approximate centre of the site are 2459746E, 5734917N.

A recent aerial photo of the site is shown below (Figure 1).



Figure 1 – Site Aerial Photo (Courtesy Google Maps)

The District Plan has the site zoned as Residential, Planning Zone living 1.

3.0 GEOLOGY AND HYDROGEOLOGY

3.1 Geology

Published geology (P.J. Forsyth, 2008) suggests that the site is underlain by (Q1a) 'Grey river alluvium beneath plains or low level terraces.' The above geology description is of the Holocene age.

3.2 Geotechnical 'Soil Investigation' Findings

Borehole information from within approximately 250m of the site, sourced from ECan Canterbury Maps webpage (Well Details – Well No M36/0009), provided approximate information of the soil profile for the area. The corresponding borelog is attached in Appendix A.

Depth below ground level to top of layer	Thickness (m)	Description
0-25m	25m	Gravel and Boulders

The above information suggests that the geology of the site may consist of topsoil underlain by gravel and boulders.

3.3 Hydrogeology

The ECan piezometric contours suggest that ground water is at a depth of approximately 45m AMSL (Above Mean Sea Level). Land contours indicate that the approximate ground level is 55m AMSL and therefore the approximate average groundwater depth is between 10m below ground level.

3.4 Site History

Historical information relating to the site has been collected from a variety of sources including current and historical certificates of title, historic aerial photographs, and the Selwyn District Council property file and contamination enquiry. The history focuses on on-site activities, except for the aerial photograph review, where comments are also provided on readily observable surrounding land use, and the council contamination enquiry, where a search is undertaken for consents issued within a 200m radius of the site.

3.5 Site Ownership

EDC conducted a review of current and historic certificates of title and found no reference to any company or individual property owner's profession which would indicate HAIL activities on site from 1912 until the present.

The Certificates of title indicate that the site was owned by a succession of pubs, hotelkeepers, a clerk, an agent and a buildings supplies company. These documents are provided in Appendix B.

3.6 Council Property Files

Correspondence with Lance Faulkner from the Selwyn District Council concluded that there were no documents in the property file for this site.

3.7 Council Contamination Enquiry

The ECan Listed Land Use Register (LLUR) holds information regarding sites that have been, or are currently, used for activities which have the potential to cause contamination. This database indicates no nearby sites of interest (within 50m of the site under evaluation).

The LLUR listed one site (3 and 5 Brookside Road) within a 100m radius of the site which had a history indicative of contamination. Six soil samples were taken from this site and all results met the MFfE (1999) guidelines so no issues are anticipated.

3.8 Anecdotal Evidence

The current owner's representative, Nigel Lilley, indicated that the brown coloured area that first appeared in the 2004 historical photo was a topsoil scrape and stockpile. The white debris was concluded to be concrete rubble which has since been removed. The structure first noted in late 2013 was a portable house on wheels only temporarily situated on site for advertisement purposes.

In summary, the anecdotal evidence indicates that no HAIL activities have been carried out on site.

3.9 Aerial Photos

Aerial Photograph (date and source)	Site Observations	Surrounding Land Features
1984 (Canterbury Maps)	Site is grassed and no structures or trees are present on site.	Residential properties are present in the adjacent land to the south of the site, State Highway 1 is to the North of the site, a farm shed to the west and a parking lot to the north-east.
1994 (Canterbury Maps)	Trees are present on site, mostly in the south-western side of the site.	A fourth residential property has been developed to the south of the site.
2004 (Canterbury Maps)	The trees have been removed except from around the site boundary. A brown coloured section of debris is visible in the centre of the site.	Further residential development has occurred to the south-west of the site, with a lifestyle block adjacent to the site.
2009 (Google Earth)	No significant changes visible.	No significant changes visible.
2011 (Google Earth)	Tyre tracks are visible on site. An area of light coloured debris can be seen in the north-eastern portion of the site.	No significant changes visible.
30/8/2013 (Google Earth)	A small structure is in the middle of the site.	No significant changes visible.

The historical aerial photos are attached as Appendix C.

4.0 SITE CONDITION AND SURROUNDING ENVIRONMENT

The following site description is based on observations from the site walkover conducted on the 16/04/2015, and information available from ECan GIS systems.

- The site is accessed via the car park of 2 Brookside Road and the topography of the land is considered to be generally flat.
- At the time of this investigation the ground cover was grass and there were no structures present. An area near the centre of the site has been scraped of topsoil and is bare ground.
- Adjacent properties include:
  - Residential properties along with the Rolleston Food Bar to the south
  - An empty paddock to the west
  - State Highway 1 to the North
  - The Rolly Inn (Rolleston Pub) to the East.
- There was no visual evidence of contamination on site.
- There were no odours noted at the site.
- There are no sensitive environments within or adjacent to site.

Site photos are included as Appendix D.

5.0 REGULATORY IMPLICATIONS

5.1 Regulatory Framework

The key legislation and planning controls around this site include:

- Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES)
- The Selwyn District Plan

These regulatory requirements form the basis of our assessment of the requirement for contamination remediation and contamination related consents relevant to the site development.

5.2 NES

The NES came into effect on 1 January 2012. Each Territorial Authority implements the NES in accordance with their Section 31 functions under the Resource Management Act 1991 (RMA).

The NES applies to assessing and managing the actual or potential adverse effects of contaminants in soil on human health from five activities: subdivision, land-use change, soil disturbance, soil sampling, and removing fuel storage systems. The NES only applies to land affected by or potentially affected by soil contaminants. This is if an activity or industry on the Hazardous Activities or Industries List (HAIL) has been, is, or is more likely than not to have been undertaken on that land.

We do not consider that contamination has occurred and hence the NES does not apply in this instance and no Resource Consent is required.

5.3 Selwyn District Plan

The NES supersedes the District Plan except where the District Plan has rules regarding effects not covered in the NES.

No HAIL activity has been identified, and therefore we do not consider that consent is required.

6.0 CONCEPTUAL SITE MODEL

This section provides a qualitative risk assessment of the risk posed from potential on and off-site contamination sources, identified by the information presented in the previous sections.

The conceptual model below has been developed based on the commonly adopted source-pathway-receptor model.

6.1 Potential Pathways

It is proposed that the entire subject site is to be developed for commercial use in the form of a motel. Pathways may exist via dermal contact, ingestion or inhalation of soil particles or groundwater.

6.2 Potential Receptors

Receptor		Additional Information
Human Health	Future site users	A female child will be regarded as the critical receptor; a female child being generally lower body weight than a male of the same age.
Human Health	Construction workers	A female worker will be regarded as the critical receptor.
Groundwater users	Aquifer – Undifferentiated Layers	Very low sensitivity.
Other	Neighbouring buildings	Three current residential neighbouring properties and a Pub

Table 1: Summary table for Receptors

6.3 Pollutant linkages

Pollutant Linkage	Source	Pathway	Receptor	Probability	Consequence	Risk
1	Contaminated Soils	Ingestion of soil, dermal contact, inhalation of dust, ingestion of home grown produce	Humans – end users	Unlikely	Medium	Low
2	Contaminated Water Supplies	Ingestion of water, Migration of organic contaminants via pipes	Humans – end users	Unlikely	Medium	Low
3	Contaminated Soils	Ingestion of soil, Dermal contact; Inhalation of dust.	Construction workers	Unlikely	Medium	Low
4	Contaminated Soils	Inhalation of soil dust	Members of the public adjacent to the site during construction	Unlikely	Medium	Low
5	Contaminated Soils	Uptake of available phytotoxic contaminants	Flora & Fauna	Unlikely	Minor	Negligible

Table 2: Summary of Pollutant Linkages

Due to no contamination being anticipated on site, the probability and risk of each form of contamination is considered low likelihood and very low risk respectively. However, the receptors are still present should future contamination occur.

7.0 SITE CHARACTERISATION

7.1 Type of Environmental Contamination

The term contaminant refers to a substance that is not normally present in the environment (or exceeding naturally occurring soil/water concentrations). This report cannot confirm if contamination exists, merely it comments on the likelihood that a potentially contaminating HAIL activity is likely to have occurred. If such an activity has occurred, a DSI would be undertaken to qualify and quantify if soil contamination has occurred.

There is no evidence of historical HAIL activities; therefore we believe the status of the site should be "clean".

7.2 Extent of Environmental Contamination

The analysis of historical land uses of the site, along with a site walk over, has concluded that no environmental contamination is anticipated on site.

7.3 Exposure Routes and Risks to Exposed Populations

For human health, exposure is the primary concern, and for exposure to occur there must be:

1. Contaminants present at site,
2. Exposure routes via which site users would be exposed to same.

For human health, exposure is the primary concern, and below we summarise ways by which exposure is most likely to occur:

- Surface soils (0-1 m)
  - Soil ingestion;
  - Dermal contact (absorption through skin); and
  - Inhalation of soil, dust, or volatised contaminants.
- Sub-surface soils (> 1 m)
  - Water-borne migration of contaminants to surface during times of high rainfall (enabling exposure via all three routes above); and
  - Inhalation via diffusion of vapour-phase contaminants to the surface.

Of these exposure routes, dermal contact and inhalation are likely because of the possibility of workers at the site interacting with site soils during activities involved in the development of the motel.

There are no anticipated contaminants present on site however the exposure routes by which site users could be exposed remain. Since guideline values are risk-based and designed to minimise human health risks, there is a very low potential for an unacceptable risk to affect users.

8.0 CONCLUSIONS AND RECOMMENDATIONS

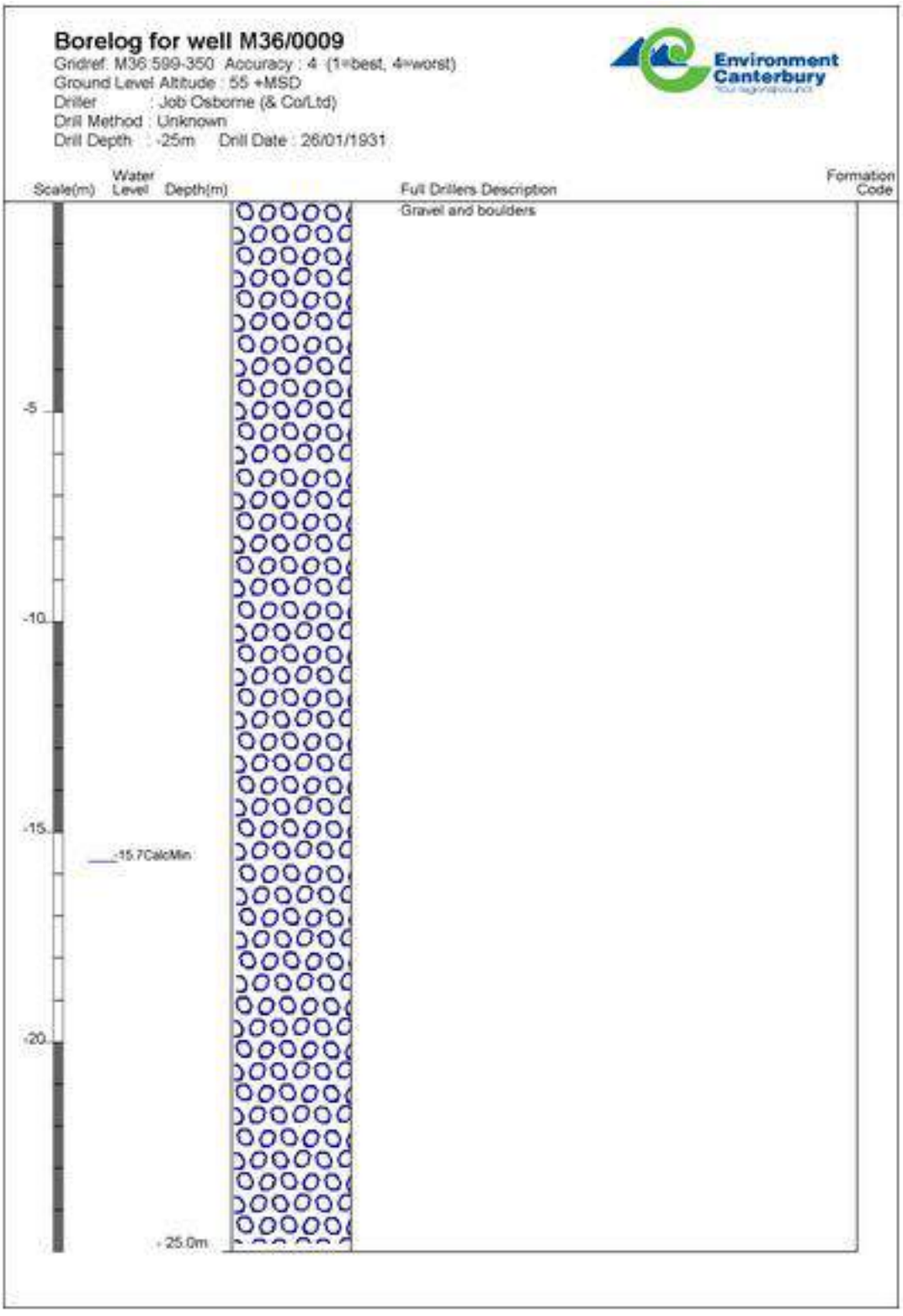
1. The existing site consists of a residentially zoned grassed field with SH1 to the north, a pub to the east, houses to the south and a grassed field to the west.

2. Based on the site visit, and a review of available historical information, we consider that it is more likely than not that a HAIL activity has not occurred at the subject site.

3. A Detailed Site Investigation (SIR) is not required as no HAIL activities have been identified on the site.

APPENDIX A

Borelog M36/0009



APPENDIX B

Historical Certificates of Title

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**CB43C/150**
Land Registration District	**Canterbury**
Date Issued	01 July 1997

Prior References
CB17B/865 CB582/50

Estate	Fee Simple
Area	3460 square metres more or less
Legal Description	Lot 2 Deposited Plan 75460

Original Proprietors
Kenneth Govan Auld

Interests

110032.1 Gazette Notice declaring No. 1 State Highway (Awanui-Bluff) adjoining the within land to be a limited access road (affects part formerly CT CB17B/865) - 15.12.1976 at 9.25 am

410953.1 Compensation Certificate pursuant to Section 19 Public Works Amendment Act 1981 - 23.11.1982 at 9.32 am (affects part formerly CT CB17B/865)

5595126.3 Transfer to Russell Walter Charles Lilley and Helen Shirley Lilley - 21.5.2003 at 9:00 am

5595126.4 Mortgage to Southland Building Society - 21.5.2003 at 9:00 am

5647775.1 CAVEAT BY MARIE LOUISE LILLEY AND NIGEL CRAIG LILLEY - 8.7.2003 at 9:00 am

6421085.1 Withdrawal of Caveat 5647775.1 - 13.5.2005 at 1:58 pm

6421085.2 Discharge of Mortgage 5595126.4 - 13.5.2005 at 1:58 pm

6421085.3 Transfer to Nigel Craig Lilley (1/2 share) and Marie Louise Lilley (1/2 share) - 13.5.2005 at 1:58 pm

6421152.1 Mortgage to Southland Building Society - 13.5.2005 at 2:04 pm

9722170.1 Discharge of Mortgage 6421152.1 - 15.5.2014 at 10:18 am

9722170.2 Transfer to Nigel Craig Lilley and Sarah Kim Ellis - 15.5.2014 at 10:18 am

9722170.3 Mortgage to ANZ Bank New Zealand Limited - 15.5.2014 at 10:18 am

LT 69

References:
Prior C/T 17B/865, 582/50
Document No. A305375.3

REGISTER

No. 43C/150

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 1st day of July one thousand nine hundred and ninety-seven under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that KENNETH GOVAN AULD of Christchurch, Hotelkeeper ---

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 3460 square metres or thereabouts being Lot 2 Deposited Plan 75460 ---

DISTRICT LAND REGISTRAR
ASSISTANT LAND REGISTRAR
CANTERBURY

Subject to:

No. 110032.1 Gazette Notice declaring No. 1 State Highway (Awanui-Bluff) adjoining the within land to be a limited access road (affects part formerly 17B/865)

No. 410953.1 Compensation Certificate pursuant to Section 19 of the Public Works Amendment Act 1981 - 23.11.1982 at 9.32am (affects part formerly 17B/865)

A.L.R.

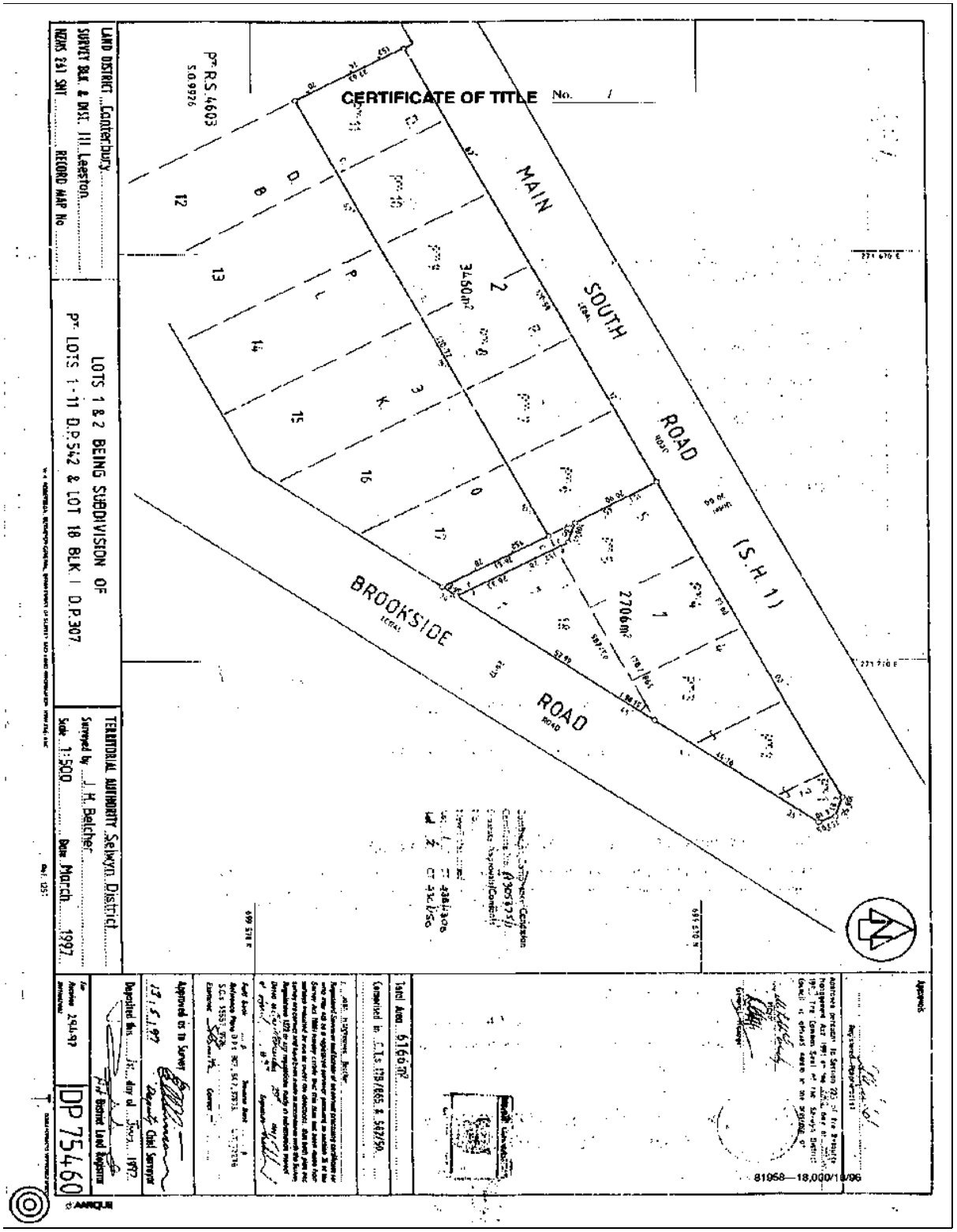
A283426/4 Mortgage to Westpac Banking Corporation 20.2.1997 at 10.27

DISCHARGED 11/2/98 A.L.R.

A.L.R.

No. 43C/150

Identifier **CB43C/150**



[Land and Deeds—L.

NEW ZEALAND.

Form B.

Reference: Vol. 64, Folio 181 / Transfer No. / Application No. / Order for N/C No. 7071

Register-book, Vol. 466, folio 79

CANCELLED

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

This Certificate, dated the Twentieth day of May one thousand nine hundred and Forty under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury Witnesseth that

THOMAS GLEN of Christchurch Agent

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon; subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing ONE ACRE ONE ROOD AND THIRTY-EIGHT PERCHES or thereabouts situated in Block III of the Lecaton Survey District being Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 on plan deposited in the Land Registry Office at Christchurch as No. 542 part of Rural Section 4603

A. R. Bass.
District Land Registrar.

Mortgage 19[illegible] produced 27 February 1937 at 3 p.m. Thomas Glen to New Zealand [illegible] Limited

DISCHARGED. 31-1-1947 A. R. Bass D.L.R.

Lease 10851 produced 9 May 1940 at 11.27 a.m. Thomas Glen to Denis Urban Crosbie of Lots 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 Plan 542 for 3 years from 14 April 1940

A. R. Bass. D.L.R. to 14th April 1945

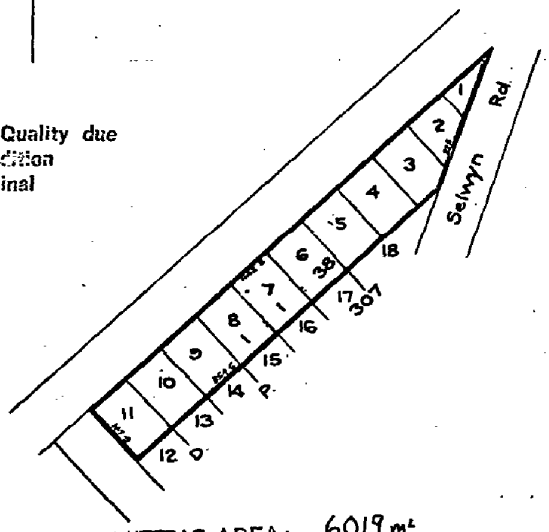
Extension of the term of Lease 10851 produced 13 April 1945 at 2.10 p.m. Rawlinson

Mortgage 122627 produced 9 October 1945 at 3 p.m. for £1,225 from [illegible] to New Zealand Insurance Co. Ltd. PRODUCED 30/10/45 Noted [illegible]

Lease 11512 produced 10 October 1945 at 11.26 a.m. Thomas Glen to Thomas Ebenezer Robinson for 3 years less one day from 14 April 1945 of Lots 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 Plan 542

30/5999 Transmission to Enid Allerdice of Timaru Stenographer, Margaret Agnes Keeling Cockburn of Christchurch Accountant and Enid Christina Breach of Christchurch married woman as Executors entered 14th February 1949 at 2.30 p.m.

30/7140 Caveat by the registered proprietors to Enid Christina Breach of Christchurch married woman and the Perpetual Trustee Estate and Agency Company of New Zealand Limited produced 13 June 1949 at 10.56 a.m.



METRIC AREA:— 6019 m²

Scale: 2 chains to an inch

Image Quality due to Condition of Original

466/79
326323 Lease the above premises to Moses Ebenezer Robinson of Christchurch Hotelkeeper of Lots 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 for five years from 14th day of April 1948 — Produced 18th day of August 1950 at 10.24 a.m. Rowlinson Leath

Extension of the Term of Lease 326323 to 14 April 1958 and variation of term produced 13 April 1953 at 2.9 p.m.

ALR

381945 Transmission of Lease 326323 to Gordon Allison Grey Counsel as executor entered 28th July 1958 at 12.25 p.m.

ALR

381946 Transfer of Lease 326323 Gordon Allison Grey Counsel to Rolleston Hotel Limited having its registered office at Rolleston produced 28th July 1958 at 12.26 p.m.

ALR

Variation of the terms of Mortgage 222527.
the 12 day of July 1957, at 1.30 p.m.
Rowlinson Leath

Extension of the Term of Lease 326323 to 14/4/1963 and variation of the terms produced 14/4/1958 at 2.9 p.m.

ALR

Mortgage 501794 Public Trustee Estate and Agency Company of New Zealand Limited & Canterbury Wine & Spirit Company Limited produced 3/5/1959 at 2.56 p.m.

JLP

Lease 605610 of Lots 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 DP 542 Term 5 years from 14 April 1963 to Rolleston Hotel Limited - 30/7/1963 at 11.40 a.m.

Variation of the terms of Mortgage 501794 produced the 30th day of April 1963 at 10.25 a.m.

ALR

Mortgage 724686 to Canterbury Wine & Spirit Company Limited - 13.11.1967 at 11.50 a.m.

ALR.

Extension of term of Lease 605610 to 14 April 1971 - 7/4/1968 at 12 noon.

ALR.

THIS REPRODUCTION (ON A REDUCED SCALE) CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL REGISTER FOR THE PURPOSES OF SECTION 213A LAND TRANSFER ACT 1952.

A.L.R.

Lease 878936 of Lots 2,3,4,5,6,7,8,9,10 and 1/4 D.P. 542 Term 3 years from 1/7/1971 to Rolleston Hotel Limited - 2578/1972 at 1.54 p.m.

A.L.R.

Caveat 94243/1 by New Zealand Breweries Limited - 19.8.1976 at 10.47 a.m. (affects part)

A.L.R.

Caveat 94244/1 by New Zealand Breweries Limited - 19.8.1976 at 10.50 a.m. (part) (Affects Lots 2, 3, 4 and 5 DP 542)

A.L.R.

General Notice 110037 declaring No. 1 State Highway (Awarua Hill) fronting the within land to be a limited access road produced 16/12/1976 at 9.25 am

A.L.R.

DUPLICATE 115618/1 - 9/2/77

115618/1 the outstanding duplicate thereof having been declared lost this Certificate of Title is cancelled and New Certificate of Title 178/865 issued therefor produced 9.2.1977 and entered 11.3.1977 at 9.00 am.

L.R.

CANCELLED

NEW ZEALAND. CANCELLED

(C)

XXVII 184.185

CERTIFICATE OF TITLE.

Register Book,

Vol. XLVI Folio 122

cancelled

Pursuant to Memorandum of Transfer No 1093 from Thomas Henry Ranger and William Hickley Spurdy to Joseph Thomas Stronge and Thomas Frederick Fountaine of Christchurch Drapers are now seized of an Estate in fee simple subject nevertheless to such encumbrances liens and interests as are notified by memorial endorsed hereon in those pieces of land situated in the District of Lincoln containing altogether three roods and twenty one perches or thereabouts bounded as appears in the plan hereon and thereon coloured green being the Lots marked 16 and 18 Block I and Lots 3 and 5 Block II on the plan deposited in the Lands Registry office as No 307 Lots 16 and 18 forming part of the under mentioned section 4603 and Lots 3 and 5 forming part of the under mentioned section 4830 which said pieces of land are part of the Rural Sections marked 4603 and 4830 delineated in the Public Map of the said District deposited in the office of the Chief Surveyor which said section 4603 was originally granted the ninth day of October 1863 under the Seal of the Colony and Hands of Sir George Grey the then Governor of New Zealand to Henry Selfe Selfe and said section 4830 was originally granted the second day of February 1864 under the said Seal and Hand aforesaid to James Betts

In Witness whereof I have hereunto signed my name and affixed my Seal this sixth day of October one thousand eight hundred and seventy nine

Signed in the presence of

J. A. Ambrose

the 6th day of October 1879

District Land Registrar
of the District of Canterbury

Transfer No. 21782 produced 12th November 1888 at 4 p.m. Joseph Thomas Stronge and Thomas Frederick Fountaine of William Pickerton and James William Reilly of Christchurch Merchants

Purchasers

372862 Note that the above described land is vested in the Public Trustee pursuant to Section 70 of the Public Trust Office Act 1908 and CT Vol 572 Folio 34 issued.

cancelled

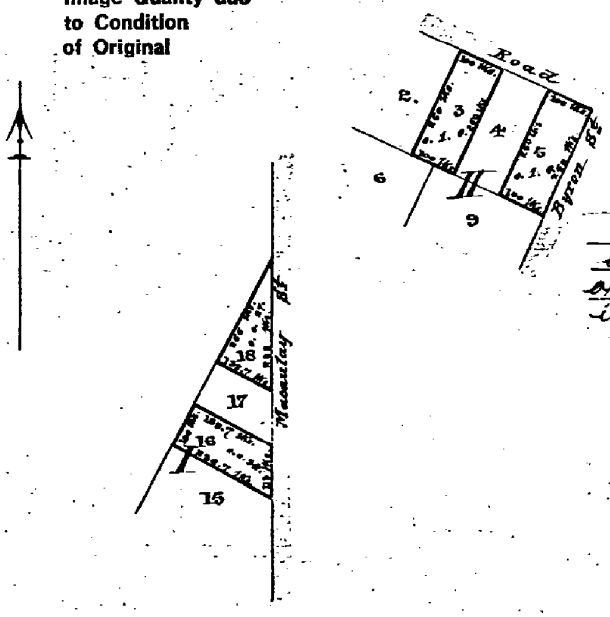


Image Quality due to Condition of Original

16 122

4830



46 122

CANCELLED

CANCELLED

[Land and Deeds—4
FORM B.

Register-book,
Vol. 582 *, folio* 50

Reference: *Vol.*572 *, Folio* 34
Transfer No. 379847
Order for N/C No.

NEW ZEALAND

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate, dated the Twenty-third day of June, one thousand nine hundred and fifty-three under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury *Witnesseth* that

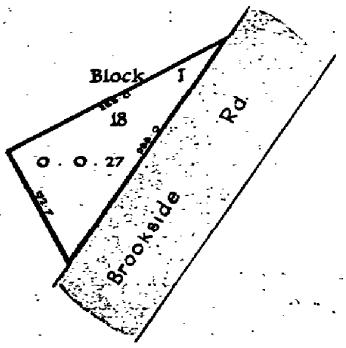
ROSE-MARIE FITZGIBBON of Rolleston Clerk

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon, subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing TWENTY-SEVEN PERCHES or thereabouts situated in Block III of the Leeston Survey District being Lot 18 Block I on Deposited Plan No.307 part of Rural Section 4603

MAP

CANTERBURY DISTRICT LAND REGISTRY NEW ZEALAND

Assistant
~~District~~ *Land Registrar.*



METRIC AREA:— 683m²

Scale: 1 chain to an inch

No. 652548 Evidence of the Marriage of the above named Rose Marie Fitzgibbon with Brian Francis O'Connell of West Melton Labourer entered 14/5/1965 at 2.35 pm.

THIS REPRODUCTION (ON A REDUCED SCALE) CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL REGISTER FOR THE PURPOSES OF SECTION 215A LAND TRANSFER ACT 1952.
A.L.R.

Transfer 208294/2 to Lion Breweries Limited, at Wellington - 20-12-1978 at 10.39a.m.
A.L.R.

No.686371/1 Change of Name of the abovenamed registered proprietor to Lion Corporation Limited - 15.6.1987 at 11.59a.m.
for A.L.R.

No.852986/1 Change of Name of the abovenamed registered proprietor to Lion Nathan Limited - 29.1.1990 at 10.08am
for A.L.R.

OVER

Transfer 877922/1 to Fayden Properties Limited at Christchurch - 25.5.1990 at 9.19am

for A.L.R.

Lease 877922/2 Term 21 years from 30.3.1990 to Lion Nathan Limited - 25.5.1990 at 9.19am

for A.L.R.

Lease 877922/3 of Lease 877922/2 Term 21 years less 3 days from 30.3.1990 to Fayden Properties Limited - 25.5.1990 at 9.19am

Fee Simple and for A.L.R.

Mortgage 877922/4 of Lease 877922/3 to The National Bank of New Zealand Limited - 25.5.1990 at 9.19am

for A.L.R.

Lease 984795/1 of Lease 877922/3 Term 19 years 116 days from 1.12.1991 to Kenneth Govan Auld - 25.3.1992 at 11.30am

A.L.R.

Mortgage 984795/2 of Lease 984795/1 to Rita Sydney Auld - 25.3.1992 at 11.30am

A.L.R.

Transfer A159054/5 to Kenneth Govan Auld of Christchurch, Hotelkeeper - 16.2.1995 at 11.57am

for A.L.R.

Mortgage A159054/6 to The National Bank of New Zealand Limited - 16.2.1995 at 11.57am

for A.L.R.

Mortgage A159054/7 to Rita Sydney Auld - 16.2.1995 at 11.57am

for A.L.R.

Mortgage A283426/4 to Westpac Banking Corporation - 20.2.1997 at 10.27am

for A.L.R.

PLAN No. 75460 LODGED 29/4/97
AND DEPOSITED 1.7.97

No. A305375/1 Certificate pursuant to Section 224(c) Resource Management Act 1991 - 1.7.1997 at 12.11pm

OCT A305375/2,3 - 1.7.1997 Cancelled and CsT 43B/1300 and 43C/150 issued for Lots 1 and 2 DP 75460 respectively

A.L.R.

CANCELLED DUPLICATE DESTROYED

572/034

[Land and Deeds—4
FORM B.

Register-book,
Vol. 572, folio 34

Reference: Vol. 46, Folio 122
Transfer No.
Order for N/C No. 372862

NEW ZEALAND

CANCELLED.

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

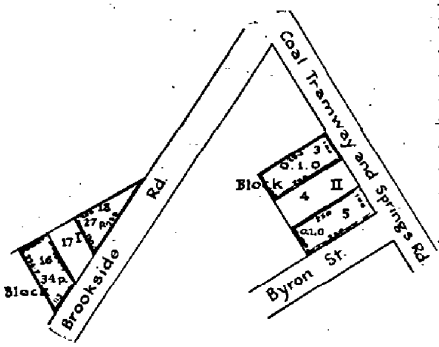
This Certificate, dated the Eleventh day of February, one thousand nine hundred and fifty-three under the hand and seal of the District Land Registrar of the Land Registration District of Canterbury **Witnesseth** that THE PUBLIC TRUSTEE of the Dominion of New Zealand is seised of an estate in fee simple under the provisions of Part II of the Public Trust Office Act 1908

~~is seised of an estate in fee simple~~ (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon, subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All ~~that~~ those parcel of land containing Together THREE ROODS AND TWENTY-ONE PERCHES or thereabouts situated in Block III of the Leeston Survey District being Lots 16 and 18 Block I and Lots 3 and 5 Block II on Deposited Plan No. 307 part of Rural Sections 4603 and 4830

CANCELLED
AS TO PART COLOURED RED.

CANTERBURY DISTRICT LAND REGISTRAR NEW ZEALAND

Assistant ~~District Land~~ Registrar.



Total Area: 0 . 3 . 21

Scale: 3 chains to an inch

379846 Transfer of Lots 3 and 5 Block II Plan 307 The Public Trustee to James Francis Stewart and Annie Margaret Stewart produced 23 June 1953 at 12.1 pm. D.L.R.
C/T 582/49 issued.

379847 Transfer of Lot 18 Blk I Plan 307 The Public Trustee to Rose Marie Fitzgibbon produced 23 June 1953 at 12.2 pm. D.L.R.
CT 582/50 issued.

379848 Transfer of Lot 16 Block I Plan 307 The Public Trustee to Madeline Jessie Fitzgibbon produced 23 June 1953 at 12.3 pm. D.L.R.
CT 582/51 issued.

CANCELLED.

572/034

572/034



References
Prior C/T 466/79
Decl of Loss 115618/1
Transfer No.
N/C. Order No.

Land and Deeds 69

CANCELLED **REGISTER**

CANCELLED

No. 17B / 865

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 11th day of March one thousand nine hundred and seventy-seven under the seal of the District Land Registrar of the Land Registration District of CANTERBURY

WITNESSETH that RUTH CHRISTINA BREACH of Christchurch, Widow and THE PERPETUAL TRUSTEES ESTATE AND AGENCY COMPANY OF NEW ZEALAND LIMITED are —

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 6010 square metres or thereabouts situated in Block III of the Leeston Survey District being Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 on Deposited Plan 542 —

DISTRICT LAND REGISTRAR
CANTERBURY N.Z.

for Assistant Land Registrar

Subject to:

Mortgage 507794 to Canterbury Wine & Spirit Company Limited - 31.7.1959 at 2.56 pm (as varied once subsequently).

DISCHARGED 7 JULY 1971

Mortgage 724686 to Canterbury Wine & Spirit Company Limited - 10.7.1967 at 11.50 am.

WITHDRAWN 21/6/77

X Caveat 94243/1 by New Zealand Breweries Limited - 19.8.1976 at 10.05 am (affects Lots 1 to 5 DP 542).

WITHDRAWN 21/6/77

X Caveat 94244/1 by New Zealand Breweries Limited - 19.8.1976 at 10.30 am (affects Lots 2 to 5 DP 542).

Transfer 134897/2 to New Zealand Breweries Limited at Wellington - 21.6.1977 at 9.08 am.

L.R.

Cazette Notice 110032/1 declaring no 1 State Highway (Awanui-Bluff) adjoining the within land to be a limited access road - 15.12.1976 at 9.25 am.

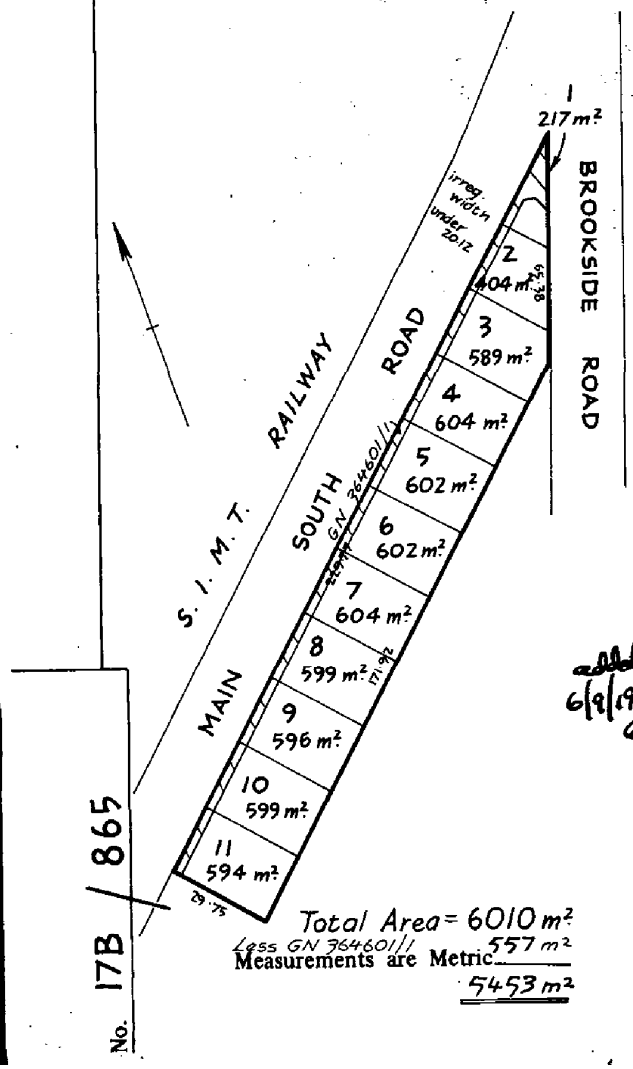
A.L.R.

No.267226/1 Compensation Certificate pursuant to Section 17 of the Public Works Amendment Act 1948 - 21.3.1980 at 9.04 a.m.

DISCHARGED 12/3/80

for A.L.R.

OVER...



6/9/1977

No. 17B / 865

CERTIFICATE OF TITLE No. 17B / 865

No. 364601/1 Gazette Notice declaring parts of the within land (557m2) to be taken for a Limited Access Road from and after 14.1.1982 - 26.1.1982 at 9,35 a.m.

A.L.R.

No. 410953/1 Compensation Certificate pursuant to Section 19 of the Public Works Amendment Act 1981 - 23.11.1982 at 9.32 a.m.

for A.L.R.

No. 735467/2 Change of Name of the registered proprietor to Lion Corporation Limited - 11.4.1988 at 11.14am

for A.L.R.

No.852986/1 Change of Name of the abovenamed registered proprietor to Lion Nathan Limited - 29.1.1990 at 10.08am

for A.L.R.

Transfer 877922/1 to Fayden Properties Limited at Christchurch - 25.5.1990 at 9.19am

for A.L.R.

Lease 877922/2 Term 21 years from 30.3.1990 to Lion Nathan Limited - 25.5.1990 at 9.19am

for A.L.R.

Lease 877922/3 of Lease 877922/2 Term 21 years less 3 days from 30.3.1990 to Fayden Properties Limited - 25.5.1990 at 9.19am

for A.L.R.

Mortgage 877922/4 of Lease 877922/3 to The National Bank of New Zealand Limited - 25.5.1990 at 9.19am

for A.L.R.

Lease 984795/1 of Lease 877922/3 Term 19 years 116 days from 1.12.1991 to Kenneth Govan Auld - 28.3.1992 at 11.30am

A.L.R.

Mortgage 984795/2 of Lease 984795/1 to Rita Sydney Auld - 25.3.1992 at 11.30am

A.L.R.

Transfer A159054/5 to Kenneth Govan Auld of Christchurch, Hotelkeeper - 16.2.1995 at 11.57am

for A.L.R.

Mortgage A159054/6 to The National Bank of New Zealand Limited - 16.2.1995 at 11.57am

for A.L.R.

Mortgage A159054/7 to Rita Sydney Auld - 16.2.1995 at 11.57am

for A.L.R.

NOTICE OF CLAIM A235013/1 UNDER SECTION 42 OF THE MATRIMONIAL PROPERTY ACT 1976 BY RITA SYDNEY AULD - 3.5.1996 at 12.35pm

for A.L.R.

Mortgage A283426/4 to Westpac Banking Corporation - 20.2.1997 at 10.27am

for A.L.R.

PLAN No. 75460 LODGED 27-4-97
AND DEPOSITED 1.7.97

No. A305375/1 Certificate pursuant to Section 224(c) Resource Management Act 1991 - 1.7.1997 at 12.11pm

OCT A305375/2,3 - 1.7.1997 Cancelled and CsT 43B/1300 and 43C/150 issued for Lots 1 and 2 DP 75460 respectively

A.L.R.

CANCELLED DUPLICATE DESTROYED

41697E—20,000/2/74 W K

CANCELLED

Image Quality due to Condition of Original

NEW ZEALAND.

(C) XXXVI. 18a. 15

CERTIFICATE OF TITLE CANCELLED

Register Book 4

Vol. ~~LXIII~~ Folio. 181.

Cancelled.

Pursuant to Memorandum of Transfer No 15028 from Thomas Hobson Ranger and William Rickley Gundry. — William Wilson of Christchurch Said Merchant is now seized of an Estate in fee simple subject nevertheless to such encumbrances liens and interests as are notified by Memorial under written or endorsed hereon in that piece of Land situated in the District of Lincoln containing One acre one rood and thirty eight perches or thereabouts bounded as appears on Plan thereon and thereon colored green being the Lots marked 1.2.3.4.5.6.7.8.9.10 and 11 on the plan deposited in the Land Registry office as No 542 Which said piece of Land is part of the Rural Section marked 4603 delineated in the Public Map of the said District deposited in the office of the Chief Surveyor originally granted the ninth day of October 1863 under the Seal of the Colony and Hand of Sir George Grey then Governor of New Zealand to Henry Selfe Selfe.

IN WITNESS whereof I have hereunto signed my name and affixed my Seal this twenty eighth day of March One thousand eight hundred and eighty one.

Signed in the presence of

the 26th day of August 1881

District Land Registrar of the District of Canterbury

CANTERBURY DISTRICT LAND REGISTRY NEW ZEALAND

Declaration lodged as to the loss of the original of this certificate and advertised 23rd November 1882, Provisional certificate of title issued 13th December 1882

Mortgage No 15148 produced 16th November 1882 at 2.40 pm William Wilson to New Zealand Trust and Loan Company Limited

Memorials Continued

Lease 10851 produced 9 May 1940 at 11.27 am Thomas Glen to Denis Urban Crosbie of lots 2.3.4.5.6.7.8.9.10 and 11 plan 542 for 3 years from 14 April 1940 c/

Cancelled and New C.T. issued

Volume 466 Folio 79

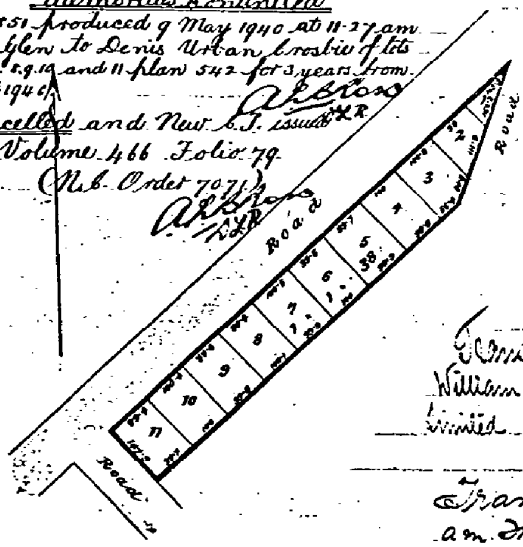
M.L. Order 7071

Variation No 17[illegible] dated 15th February 1884 at 2.30 pm William Wilson New Zealand Trust and Loan Company Limited to [illegible]

Variation No [illegible] dated 5th January 1884 at 2.30 pm William Wilson New Zealand Trust and Loan Company Limited

Transfer No 5[illegible] produced 15th April 1887 at 2.20 pm William Wilson New Zealand Trust and Loan Company Limited

Transfer 39626 produced 21 July 1894 at 10.45 am The New Zealand Trust and Loan Company Limited to The Crown Tenancy Company Limited



Scale 2 chains to 1 inch

64/181

Lease 4099 produced 6 March 1904 at 2.15 pm The Crown Brewery Company Limited to James Henry Spence for 5 years from 1 March 1904.

Mortgage 53716 of Lease 4099 produced 11 March 1904 at 10.45 a.m. James Henry Spence to George Humphreys and William Thomas Charlewood.

Lease 5476 produced 19 February 1913 at 11.30 am The Crown Brewery Company Limited to Peter Joseph Keller for 3 years from 1 March 1912

Mortgage 84442 of Lease 5476 produced 19 February 1913 at 11.30 am Peter Joseph Keller to George Humphreys and William Thomas Charlewood

Lease 5647 produced 19 February 1913 at 11.30 am The Crown Brewery Company Limited to Martin Bernard Gregan for 1 year from 1 March 1913.

Transfer 97107 of Leases 5476 produced 19 February 1913 at 11.30 am Peter Joseph Keller to Martin Bernard Gregan.

Mortgages 85473 of Leases 5476 and 5647 produced 19 February 1913 at 11.30 am Martin Bernard Gregan to George Humphreys and William Thomas Charlewood

Transfer 101354 of Leases 5476 and 5647 produced 9 January 1914 at 11.30 am Martin Bernard Gregan to Thomas Glen

Transfer 152558 produced 10th June 1923 at 10.50 am The Crown Brewery Company Limited to Thomas Glen of Rotorua Hotelkeeper

Mortgage 132271 produced 10 June 1923 Thomas Glen to The Crown Brewery Company Limited

DISCHARGED 7/3/1928

Mortgage 132272 produced 10 June 1923 at 10.55 am Thomas Glen to [illegible] and Arnold Limited

DISCHARGED 7/3/1925

Lease 7693 produced 26th July 1924 at 11.50 am Thomas Glen to Alfred Curtis of Christchurch Hotelkeeper for 6 years from 1st April 1924

Mortgage 138714 produced 26th July 1924 at 11.50 am Alfred Curtis to Frederick Cross & John Lucas Chas Maunsell Executors

DISCHARGED 29/1/1925

Mortgage 161581 produced 8 March 1928 at 3 pm Thomas Glen to The National Bank of New Zealand Limited

29-3-1928

Transfer 182323 of Lease 7693 produced 29 March 1928 at 12.37 pm Alfred Curtis to Walter Henry Newey

Lease 8565 produced 2 May 1928 at 3 pm Thomas Glen to Percy Curtis for 5 years from 1 April

Transfer 183514 of Lease 8565 produced 15 June 1928 at 11.30 am Percy Curtis to Walter Henry Newey

Transfer 185912 of leases 7693 and 8565 produced 26 October 1928 at 11.20 am Walter Henry Newey to Robert Henry Davis

Mortgage 165443 of leases 7693 and 8565 produced 26 October 1928 at 11.30 am Robert Henry Davis to Quilt Clothes Limited

Mortgage 175049 produced 29 May 1930 at 11.45 am Thomas Glen to Frances Alice Osborn, Frederick Albert Richards and Thomas [illegible]

DISCHARGED 29/8/1934

Mortgage 180041 produced 5 June 1931 at 2.55 pm Thomas Glen to Joseph [illegible]

DISCHARGED 29/8/1934

Transfer 199947 of Mortgage 180041 produced 24 August 1931 at 12.25 pm Joseph Taylor to Dominion Builders Supplies (Auckland) Limited

DISCHARGED

Evidence of the marriage 29111 (Yelloworld) of Mortgage 175049 Frances Alice Osborn with Randolph Hay entered 12 April 1932 at 10.00 am

Lease 7818 produced 9 August 1934 at 3 pm Thomas Glen to Frederick Thomas Buchanan of Lots 2. 3. 4. 5. 6. 7. 8. 9. 10. and 11 plan 542 for 3 years from 7 April 1934

Mortgage 186954 produced 29 August 1934 at 12.22 pm Thomas Glen to The Southland Building and Investment Society and Bank of Deposit

DISCHARGED 4-2-1937

Mortgage 198732 produced 10 May 1935 at 2.35 pm Thomas Glen to [illegible]

DISCHARGED 4-2-1937

Mortgage 193844 produced 4th February 1937 at 3 pm Thomas Glen to [illegible] Brewery Limited

CANCELLED

Memorials continued on front:-

64/181

T64/45

APPENDIX C

Historical Aerial Photos



Figure 2: Historical photo from 1984 (Canterbury Maps)



Figure 3: Historical photo from 1994 (Canterbury Maps)



Figure 4: Historical photo from 2004 (Canterbury Maps)

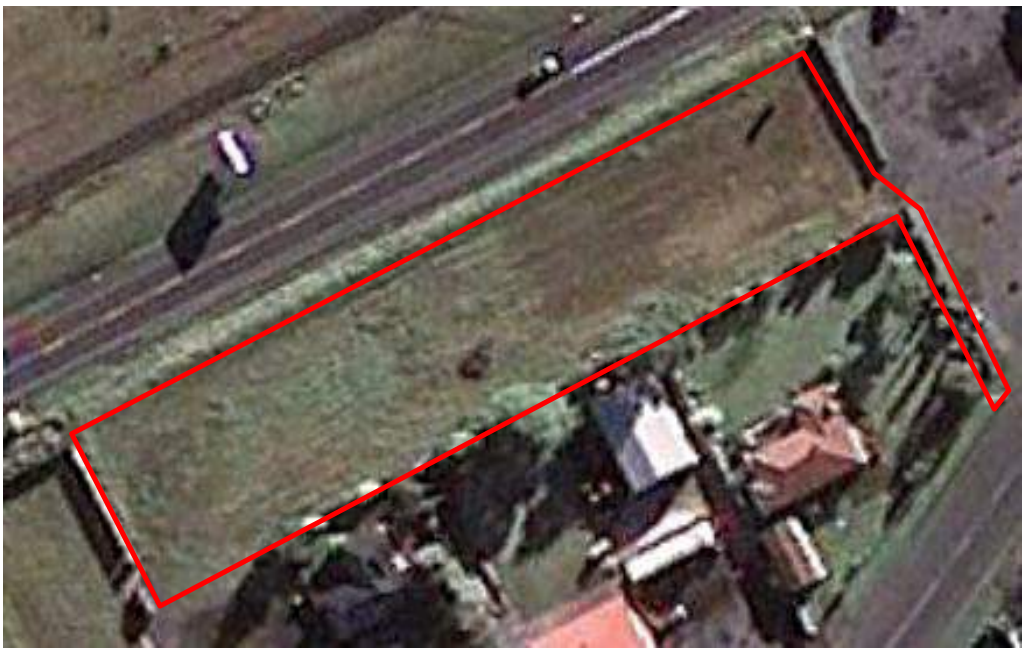


Figure 5: Historical photo from 2009 (Google Earth)



Figure 6: Historical photo from 2011 (Google Earth)



Figure 7: Historical photo from 2012 (Google Earth)



Figure 8: Historical photo from 29/1/2013 (Google Earth)



Figure 9: Historical photo from 30/8/2012 (Google Earth)

APPENDIX D

Site Walkover Photos



Figure 10: View of site from the west, towards the Rolly Inn



Figure 11: View of the site to the east towards the empty field

9.0 REFERENCES

P.J. Forsyth, D. B. (2008). *Geology of the Christchurch Area.* Lower Hut: GNS Science.

Appendix G

Photographic Log

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 1	**Date:** 02/05/17
Description: Northwest corner of the site, facing southwest along Main South Road (State Highway 1)	

Photo No. 2	**Date:** 02/05/17
Description: Location of TP01 (foreground) facing south-southeast from the northern site boundary.	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 3	**Date:** 02/05/17
Description: Entrance to yard and motel construction site close to western site boundary.	

Photo No. 4	**Date:** 02/05/17
Description: Approximate location of SS01 (foreground to the left), close to the western site boundary.	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 5	**Date:** 02/05/17
Description: Southwest corner of site facing southwest, close to location of TP02.	

Photo No. 6	**Date:** 02/05/17
Description: View from centre of car-parking area, facing northwest.	

AECOM	PHOTOGRAPHS	
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 7	**Date:** 02/05/17
Description: Bottle shop entrance to south of on-site building.	

Photo No. 8	**Date:** 02/05/17
Description: Garden area to northeast of the public house building facing northwest.	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 9	**Date:** 02/05/17
Description: View along northern site boundary, facing southwest along Main South Road (State Highway 1).	

Photo No. 10	**Date:** 02/05/17
Description: Excavation of TP01.	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 11	**Date:** 02/05/17
Description: Excavated material from TP01.	

Photo No. 12	**Date:** 02/05/17
Description: Excavation of TP02 facing northwest.	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 13	**Date:** 02/05/17
Description: Excavated material (river gravels) from TP02.	

Photo No. 14	**Date:** 02/05/17
Description: Excavation TP02.	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 15	**Date:** 02/05/17
Description: Excavation of TP03, close to the southern boundary, facing north.	

Photo No. 16	**Date:** 02/05/17
Description: Excavated material from TP03.	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 17	**Date:** 02/05/17
Description: Excavation of TP04.	

Photo No. 18	**Date:** 02/05/17
Description: Excavation TP04.	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 19	**Date:** 02/05/17
Description: Commencing excavation of TP05.	

Photo No. 20	**Date:** 02/05/17
Description: Excavation TP05.	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 21	**Date:** 02/05/17
Description: Excavation TP05.	

Photo No. 22	**Date:** 02/05/17
Description: Commencing excavation of TP06.	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 23	**Date:** 02/05/17
Description: Material excavated from TP06.	

Photo No. 24	**Date:** 02/05/17
Description: Excavation TP06.	

AECOM	PHOTOGRAPHS	
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 25	**Date:** 02/05/17
Description: Excavation of TP07.	

Photo No. 26	**Date:** 02/05/17
Description: Material excavated from TP07, including fragments of ceramic pipe (centre of photograph).	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 27	**Date:** 02/05/17
Description: Excavation TP07: Ceramic pipe in-situ at approximately 0.6 m bgl at the southern (foreground) end of excavation.	

Photo No. 28	**Date:** 02/05/17
Description: Excavation TP07 showing ceramic pipe in-situ at approximately 0.3 m bgl at northern end (far end in photograph) of excavation.	

AECOM	PHOTOGRAPHS	
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 29	**Date:** 02/05/17
Description: Excavation of TP08.	

Photo No. 30	**Date:** 02/05/17
Description: Excavated material from TP08.	

AECOM	PHOTOGRAPHS	
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 31	**Date:** 02/05/17
Description: Excavation TP08 (asphalt material at base of excavation has fallen from the surface).	

Photo No. 32	**Date:** 02/05/17
Description: Excavation of TP09.	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 33	**Date:** 02/05/17
Description: Excavated material from TP09.	

Photo No. 34	**Date:** 02/05/17
Description: Excavation of TP09 (refusal at approximately 1.0 m bgl on compacted clayey silt material.	

AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 35	**Date:** 02/05/17
Description: Location of TP10 in central car parking area.	

Photo No. 36	**Date:** 02/05/17
Description: Excavation of TP10.	

PHOTOGRAPHS

Client Name:	Site Location:	Project No.
Z ENERGY LIMITED	2 BROOKSIDE ROAD, ROLLESTON	60542718/1.1

Photo No.	Date:
37	24/05/17

Description: Historical Aerial photograph from 1972. The investigation area is towards south to south west.



Photo No.	Date:
38	24/05/17

Description: Historical Aerial photograph from 1984. The investigation area is towards centre of the photograph.



AECOM		PHOTOGRAPHS
Client Name: Z ENERGY LIMITED	**Site Location:** 2 BROOKSIDE ROAD, ROLLESTON	**Project No.** 60542718/1.1

Photo No. 39	**Date:** 24/05/17

Description:
Historical aerial photograph from 1984 representing the site towards the centre of the photograph.



Photo No. 40	**Date:** 24/05/17

Description:
Historical aerial photograph from 2016 representing the site towards northwest of the photograph.



Appendix H

Test Pit Logs

LOG OF DRILLHOLE

HOLE IDENTIFICATION **TP01**

Client Z Energy Limited
Project Environmental Site Assessment
Project number 60542718

Co-ordinates
Orientation -90° Elevation
Location 2 Brookside Road, Rolleston
Consent No.

Excavation Method / Casing remarks	Core Loss/Lift 0-100%	SAMPLING & TESTING: Sample ID	Analysis	PID (ppm)	Depth	Graphic Log	MATERIAL DESCRIPTION (consistency, relative density, water content, plasticity, grading, etc)	GEOLOGICAL DESCRIPTION	STAINING/ ODOURS AND COMMENTS	Groundwater	Well Construction
EX							ASPHALT.	ASPHALT	No staining or odour.		
		TP01_0.2-0.3		0.2			Fine to medium SAND with some clay and minor gravel; brown. Loosely packed; dry; gap graded; gravel, rounded medium to coarse.	FILL	Some brick fragments present.		
					1		Fine to medium Sandy GRAVEL, minor cobbles; brown. Loosely packed; dry; gap graded; Gravel, rounded medium.	Natural	suspected natural/re-worked natural		
		TP01_1.4-1.5		0.4			TP01 terminated at 1.5mbgl target depth				

GROUNDWATER OBSERVATIONS
Depth _ Reading Date

Date logged 02/05/2017
Logged JG
Checked AT

Remarks

Driller Landtest
Drill Rig Machine Excavator
Started 2/05/2017
Finished 2/05/2017

Date Printed: 17/05/2017

DRILLHOLE LOG ENVIRONMENTAL BORE LOGS - COPY.GPJ BASE.GDT 17/05/17

LOG OF DRILLHOLE

HOLE IDENTIFICATION **TP02**

Client Z Energy Limited
Project Environmental Site Assessment
Project number 60542718

Co-ordinates
Orientation -90° Elevation
Location 2 Brookside Road, Rolleston
Consent No.

Excavation Method / Casing remarks	Core Loss/Lift 0-100%	SAMPLING & TESTING: Sample ID	Analysis	PID (ppm)	Depth	Graphic Log	MATERIAL DESCRIPTION (consistency, relative density, water content, plasticity, grading, etc)	GEOLOGICAL DESCRIPTION	STAINING/ ODOURS AND COMMENTS	Groundwater	Well Construction
EX							ASPHALT	FILL ASPHALT	No staining or odour.		
							Fine to medium sandy GRAVEL; brown. Loosely packed, dry. Gravel rounded medium to coarse				
							Fine to medium sandy silty GRAVEL, minor cobbles; grey to brown. Loosely packed; dry. Gravel, rounded fine to medium.	Natural			
		TP02_1.2-1.3	TPH	0.4	1				suspected natural/re-worked natural		
							TP02 terminated at 1.5mbgl target depth				

GROUNDWATER OBSERVATIONS
Depth _ Reading Date

Date logged 02/05/2017
Logged JG
Checked AT

Remarks

Driller Landtest
Drill Rig Machine Excavator
Started 2/05/2017
Finished 2/05/2017

Date Printed: 17/05/2017

DRILLHOLE LOG ENVIRONMENTAL BORE LOGS - COPY.GPJ BASE.GDT 17/05/17

LOG OF DRILLHOLE

HOLE IDENTIFICATION **TP03**

Client Z Energy Limited
Project Environmental Site Assessment
Project number 60542718

Co-ordinates
Orientation -90° Elevation
Location 2 Brookside Road, Rolleston
Consent No.

Excavation Method / Casing remarks	Core Loss/Lift 0-100%	SAMPLING & TESTING: Sample ID	Analysis	PID (ppm)	Depth	Graphic Log	MATERIAL DESCRIPTION (consistency, relative density, water content, plasticity, grading, etc)	GEOLOGICAL DESCRIPTION	STAINING/ ODOURS AND COMMENTS	Groundwater	Well Construction
EX							ASPHALT.	ASPHALT	No staining or odour.		
							Gravelly fine to medium SAND with some silt, clay and minor cobbles; orangey brown. Gravel, rounded medium to coarse.	FILL	Metal, rubber and wood fragments noticed in the pit.		
		TP03_0.5-0.6	TPH	1.1	1		Fine to medium Sandy GRAVEL, some silt and clay, minor cobbles; brownish orange. Gravel, rounded medium to coarse.	Natural	suspected natural/re-worked natural		
							TP03 Terminated at 1.5mbgl target depth				

GROUNDWATER OBSERVATIONS
Depth _ Reading Date

Date logged 02/05/2017
Logged JG
Checked AT

Remarks

Driller Landtest
Drill Rig Machine Excavator
Started 2/05/2017
Finished 2/05/2017

Date Printed: 17/05/2017

DRILLHOLE LOG ENVIRONMENTAL BORE LOGS - COPY.GPJ BASE.GDT 17/05/17

LOG OF DRILLHOLE

HOLE IDENTIFICATION **TP04**

Client Z Energy Limited
Project Environmental Site Assessment
Project number 60542718

Co-ordinates
Orientation -90° Elevation
Location 2 Brookside Road, Rolleston
Consent No.

Excavation Method / Casing remarks	Core Loss/Lift 0-100%	SAMPLING & TESTING: Sample ID	Analysis	PID (ppm)	Depth	Graphic Log	MATERIAL DESCRIPTION (consistency, relative density, water content, plasticity, grading, etc)	GEOLOGICAL DESCRIPTION	STAINING/ ODOURS AND COMMENTS	Groundwater	Well Construction
EX		TP04_0.3-0.4	TPH	1.6			Silty gravelly fine to medium SAND; dark brown. Loosely packed; dry. Gravel, rounded fine to medium.	FILL	No odours or staining with concrete fragments.		
					1		Fine to medium sandy GRAVEL, minor cobbles; brown. Loosely packed; dry; gap graded; Gravel, rounded medium.	Natural	suspected natural/re-worked natural		
							TP04 terminated at 1.5mbgl traget depth				

GROUNDWATER OBSERVATIONS
Depth _ Reading Date

Date logged 02/05/2017
Logged JG
Checked AT

Remarks

Driller Landtest
Drill Rig Machine Excavator
Started 2/05/2017
Finished 2/05/2017

Date Printed: 17/05/2017

DRILLHOLE LOG ENVIRONMENTAL BORE LOGS - COPY.GPJ BASE.GDT 17/05/17

LOG OF DRILLHOLE

HOLE IDENTIFICATION **TP05**

Client Z Energy Limited
Project Environmental Site Assessment
Project number 60542718

Co-ordinates
Orientation -90° Elevation
Location 2 Brookside Road, Rolleston
Consent No.

Excavation Method / Casing remarks	Core Loss/Lift 0-100%	SAMPLING & TESTING: Sample ID	Analysis	PID (ppm)	Depth	Graphic Log	MATERIAL DESCRIPTION (consistency, relative density, water content, plasticity, grading, etc)	GEOLOGICAL DESCRIPTION	STAINING/ ODOURS AND COMMENTS	Groundwater	Well Construction
EX							ASPHALT.	ASPHALT	No staining or odour.		
							Medium to coarse sandy GRAVEL, some cobbles; grey. Loosely packed; dry. Gravel, rounded medium to coarse.	NATURAL			
							Dark brown				
							brownish orange		suspected natural/re-worked natural		
		TP05_1.4-1.5	TPH PAH	0.7	1						

GROUNDWATER OBSERVATIONS
Depth _ Reading Date

Date logged 02/05/2017
Logged JG
Checked AT

Remarks

Driller Landtest
Drill Rig Machine Excavator
Started 2/05/2017
Finished 2/05/2017

Date Printed: 17/05/2017

DRILLHOLE LOG ENVIRONMENTAL BORE LOGS - COPY.GPJ BASE.GDT 17/05/17

LOG OF DRILLHOLE

HOLE IDENTIFICATION **TP06**

Client Z Energy Limited
Project Environmental Site Assessment
Project number 60542718

Co-ordinates
Orientation -90° Elevation
Location 2 Brookside Road, Rolleston
Consent No.

Excavation Method / Casing remarks	Core Loss/Lift 0-100%	SAMPLING & TESTING: Sample ID	Analysis	PID (ppm)	Depth	Graphic Log	MATERIAL DESCRIPTION (consistency, relative density, water content, plasticity, grading, etc)	GEOLOGICAL DESCRIPTION	STAINING/ ODOURS AND COMMENTS	Groundwater	Well Construction
EX							ASPHALT.	ASPHALT	No staining or odour.		
							Medium to coarse sandy GRAVEL, some cobbles, grey. Loosely packed; dry. Gravel rounded medium to coarse.	NATURAL			
							Dark brown				
							Brownish orange				
		TP06 0.9		0.4	1				suspected natural/re-worked natural		

GROUNDWATER OBSERVATIONS
Depth _ Reading Date

Date logged 02/05/2017
Logged JG
Checked AT

Remarks

Driller Landtest
Drill Rig Machine Excavator
Started 2/05/2017
Finished 2/05/2017

Date Printed: 17/05/2017

DRILLHOLE LOG ENVIRONMENTAL BORE LOGS - COPY.GPJ BASE.GDT 17/05/17

LOG OF DRILLHOLE

HOLE IDENTIFICATION **TP07**

Client Z Energy Limited
Project Environmental Site Assessment
Project number 60542718

Co-ordinates
Orientation -90° Elevation
Location 2 Brookside Road, Rolleston
Consent No.

Excavation Method / Casing remarks	Core Loss/Lift 0-100%	SAMPLING & TESTING: Sample ID	Analysis	PID (ppm)	Depth	Graphic Log	MATERIAL DESCRIPTION (consistency, relative density, water content, plasticity, grading, etc)	GEOLOGICAL DESCRIPTION	STAINING/ ODOURS AND COMMENTS	Groundwater	Well Construction
EX							ASPHALT.	ASPHALT	No staining or odours.		
							Medium to coarse sandy GRAVEL, some cobbles; grey. Loosely packed; dry. Gravel, rounded medium to coarse.				
							Dark brown		Ceramic pipe at 0.3mbgl at northern end of excavtion		
							Brownish orange				
									Ceramic pipe at 0.6mbgl at southern end of excavation		
					1			NATURAL	suspected natural/re-worked natural		
		TP07_1.7-1.8	TPH	1.3			TP07 terminated at 1.7mbgl target depth				

GROUNDWATER OBSERVATIONS
Depth _ Reading Date

Date logged 02/05/2017
Logged JG
Checked AT

Remarks

Driller Landtest
Drill Rig Machine Excavator
Started 2/05/2017
Finished 2/05/2017

Date Printed: 17/05/2017

DRILLHOLE LOG ENVIRONMENTAL BORE LOGS - COPY.GPJ BASE.GDT 17/05/17

LOG OF DRILLHOLE

HOLE IDENTIFICATION **TP08**

Client Z Energy Limited
Project Environmental Site Assessment
Project number 60542718

Co-ordinates
Orientation -90° Elevation
Location 2 Brookside Road, Rolleston
Consent No.

Excavation Method / Casing remarks	Core Loss/Lift 0-100%	SAMPLING & TESTING: Sample ID	Analysis	PID (ppm)	Depth	Graphic Log	MATERIAL DESCRIPTION (consistency, relative density, water content, plasticity, grading, etc)	GEOLOGICAL DESCRIPTION	STAINING/ ODOURS AND COMMENTS	Groundwater	Well Construction
EX							ASPHALT	ASPHALT	No odour or staining.		
							Sandy gravelly FILL.	FILL			
							Fine to medium sandy GRAVEL, some silt, some clay, minor cobbles; brown. Loosely packed; dry. Gravel is medium to coarse and rounded.	NATURAL			
		TP08_0.9-1.0	TPH Metals	0.3	1		Becoming silty		suspected natural/re-worked natural		
							TP08 terminated at 1.5mbgl target depth				

GROUNDWATER OBSERVATIONS
Depth _ Reading Date

Date logged 02/05/2017
Logged JG
Checked AT

Remarks

Driller Landtest
Drill Rig Machine Excavator
Started 2/05/2017
Finished 2/05/2017

Date Printed: 17/05/2017

DRILLHOLE LOG ENVIRONMENTAL BORE LOGS - COPY.GPJ BASE.GDT 17/05/17

LOG OF DRILLHOLE

HOLE IDENTIFICATION **TP09**

Client Z Energy Limited
Project Environmental Site Assessment
Project number 60542718

Co-ordinates
Orientation -90° Elevation
Location 2 Brookside Road, Rolleston
Consent No.

Excavation Method / Casing remarks	Core Loss/Lift 0-100%	SAMPLING & TESTING: Sample ID	Analysis	PID (ppm)	Depth	Graphic Log	MATERIAL DESCRIPTION (consistency, relative density, water content, plasticity, grading, etc)	GEOLOGICAL DESCRIPTION	STAINING/ ODOURS AND COMMENTS	Groundwater	Well Construction
EX							ASPHALT	ASPHALT	No odour or staining.		
							Gravelly SILT with minor cobbles; brown. Dry; gravel, medium to coarse and rounded.				
							SILT with some gravel and minor cobbles; pale orange. Dry; gravel, medium to coarse and rounded.	NATURAL			
		TP09_0.8-0.9		0.1							
							Clayey SILT; pale orange. Firm, dry.		suspected natural/re-worked natural		
					1		TP09 resfusal at 1.0mbgl				

GROUNDWATER OBSERVATIONS
Depth _ Reading Date

Date logged 02/05/2017
Logged JG
Checked AT

Remarks

Driller Landtest
Drill Rig Machine Excavator
Started 2/05/2017
Finished 2/05/2017

Date Printed: 17/05/2017

DRILLHOLE LOG ENVIRONMENTAL BORE LOGS - COPY.GPJ BASE.GDT 17/05/17

LOG OF DRILLHOLE

HOLE IDENTIFICATION **TP10**

Client Z Energy Limited
Project Environmental Site Assessment
Project number 60542718

Co-ordinates
Orientation -90° Elevation
Location 2 Brookside Road, Rolleston
Consent No.

Excavation Method / Casing remarks	Core Loss/Lift 0-100%	SAMPLING & TESTING: Sample ID	SAMPLING & TESTING: Analysis	SAMPLING & TESTING: PID (ppm)	Depth	Graphic Log	MATERIAL DESCRIPTION (consistency, relative density, water content, plasticity, grading, etc)	GEOLOGICAL DESCRIPTION	STAINING/ ODOURS AND COMMENTS	Groundwater	Well Construction
EX							ASPHALT.	ASPHALT	No odour or staining.		
							Medium to coarse sandy GRAVEL, some cobbles; grey. Loosely packed; dry. Gravel, rounded medium to coarse.	NATURAL			
		TP10_0.3-0.4	TPH PAH BTEX				Dark brown				
							Brownish orange		Suspected natural/re-worked natural		
					1						
		TP10_1.5-1.6	TPH Metals				TP10 terminated at 1.6mbgl target depth				

GROUNDWATER OBSERVATIONS
Depth _ Reading Date

Date logged 02/05/2017
Logged JG
Checked AT

Remarks

Driller Landtest
Drill Rig Machine Excavator
Started 2/05/2017
Finished 2/05/2017

Date Printed: 17/05/2017

DRILLHOLE LOG ENVIRONMENTAL BORE LOGS - COPY.GPJ BASE.GDT 17/05/17

AECOM Imagine it. Delivered.

AECOM New Zealand Limited
Level 2, 2 Hazeldean Road
Addington, Christchurch 8024
P O Box 710, Christchurch MC
Christchurch 8140
New Zealand
www.aecom.com

+64 3 966 6000 tel
+64 3 966 6001 fax

24 January 2020

Martin Robertson, Environmental Manager
Z Energy Limited
PO Box 2091
Wellington

Dear Martin

NES Consent Review - Proposed Z Rolleston, 2 Brookside Road, Ellesmere, Rolleston 7614

1.0 Introduction

This letter has been prepared by AECOM New Zealand Limited (AECOM) on behalf of Z Energy Limited (Z Energy) to provide additional information relating to environmental condition of land at 2-10 Brookside Road, Ellesmere, Rolleston (the site).

2.0 Background

Z Energy plan to develop the site, which is currently occupied by a public house and related car-parking, into a retail service station.

2.1 AECOM Limited Environmental Site Assessment (ESA)

As part of the proposed development, AECOM prepared a limited environmental site assessment (ESA) in 2018[1]. Fieldworks were completed in May 2017 to coincide with a geotechnical investigation occurring at that time.

A review of site history did not identify Hazardous Activities and Industries List (HAIL) activities and therefore the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES Soil) was not considered to apply. A total of nine soil samples were collected and analysed for a range of potential contaminants, including metals. The results of which complied with the applicable standards under regulation 7 of the NES Soil for commercial/industrial land-use.

2.2 Engineering Design Consultants' Detailed Site Investigation (DSI)

Engineering Design Consultants Limited (EDC) also completed an environmental investigation in 2018[2] at 45 Main South Road, which included sampling at the site.

One of 24 soil samples analysed for lead (ref. #205) exceeded the soil contaminant standard (SCS) for commercial/industrial outdoor worker (unpaved). The report noted that: "*This sample was located between a shed and the entrance to restaurant, in the yard area and appeared to be a thin veneer of fill (50 mm). The natural soil at 100 mm depth beneath the elevated surface sample was below the SCS but approximately one order of magnitude higher than the background concentration for lead*".

Environment Canterbury listed the site on the Listed Land Use Register (LLUR) under HAIL category "I – Any other land" with site category yet to be reviewed as a result of the EDC investigation.

3.0 Management of Lead Exceedance

The single sample (#205) which contained a lead concentration that exceeded the SCS for commercial/industrial land-use outdoor worker (unpaved), is located immediately to the southwest of the existing Rolleston Inn building (which will remain following the proposed development). The location will lie just to the northeast of the proposed car-park from the new service station development. This part of the site is currently sealed and will be sealed post development; therefore, as outlined in the Ministry for the Environment (MfE) Methodology for Deriving Standards for Contaminants in Soil to Protect

[1] AECOM, 2018. Limited Environmental Site Assessment, 2 Brookside Road, Ellesmere-Rolleston 7614,. Final report dated 21 June 2018.
[2] EDC, 2018. Detailed Site Investigation Report. Rolly Inn Development, 45 Main South Road, Rolleston. Project 48122. Revision 0 dated 9 August 2018.

Human Health (the Methodology), commercial / industrial (indoor worker) is appropriate where direct exposure to soil is limited or zero. Table 34 of the Methodology indicates there is no limit for lead for the commercial/industrial indoor worker scenario; therefore, for the current and proposed land use the sample is not considered to exceed the SCS. It is not considered that HAIL category I *Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment* applies as the presence of lead does not present an unacceptable risk to human health. Neither remediation of the lead impacted soil or subsequent soil validation is required. In the absence of a HAIL activity having occurred on the site, the NES Soil is not considered to apply.

While the area is not due to be directly disturbed as part of the works, the developer may decide to remove the shallow fill in that area and replace it with imported clean fill for geotechnical reasons. Soil disturbance works would be undertaken in accordance with Z's Environmental Management Plan, and the soil would require appropriate management during handling and disposal.

4.0 Additional Development Footprint

At the time of the AECOM limited ESA, different options for development were under consideration. Subsequently the plans for the proposed development have been prepared and the site now includes a portion of land to the west of the previous AECOM investigation area, being part of Lot 1 DP 507204.

A review of the LLUR on 20 January 2020 did not identify any HAIL activities at the additional piece of land included as part of the development; therefore, the NES Soil is considered not to apply.

As such, additional soil sampling is considered unnecessary and the application can proceed on the basis of the existing DSI and limited ESA for the wider site. Demolition of the existing building on 10 Brookside Road will need to be managed in such way to avoid contaminating soil (particularly from asbestos containing material); however, demolition is not a NES Soil matter.

5.0 Closing

We trust that this information is of assistance with your forthcoming consent application. If you require further information as the project progresses, please do not hesitate to contact the undersigned.

Yours faithfully

Josh Girvin
Senior Environmental Consultant
josh.girvin@aecom.com

Mobile: +64 21 901 356
Direct Dial: +64 3 996 6119
Direct Fax: +64 3 966 6001

Sarah Knowles
Associate Director – Environment
sarah.knowles@aecom.com

Mobile: +64 21 302 320

encl: Figure 1 - Z Brookside Road
cc: Karen Blair (4Sight Consulting);
Neil Moon (Z Energy Limited)

Statement of Limitations

This document was prepared for the sole use of Z Energy Limited, the only intended beneficiaries of our work. Any advice, opinions or recommendations contained in this document should be read and relied upon only in the context of the document and related project as a whole and are considered current to the date of this document. Any other party should satisfy themselves that the scope of work conducted and reported herein meets their specific needs. AECOM cannot be held liable for third party reliance on this document, as AECOM is not aware of the specific needs of the third party.

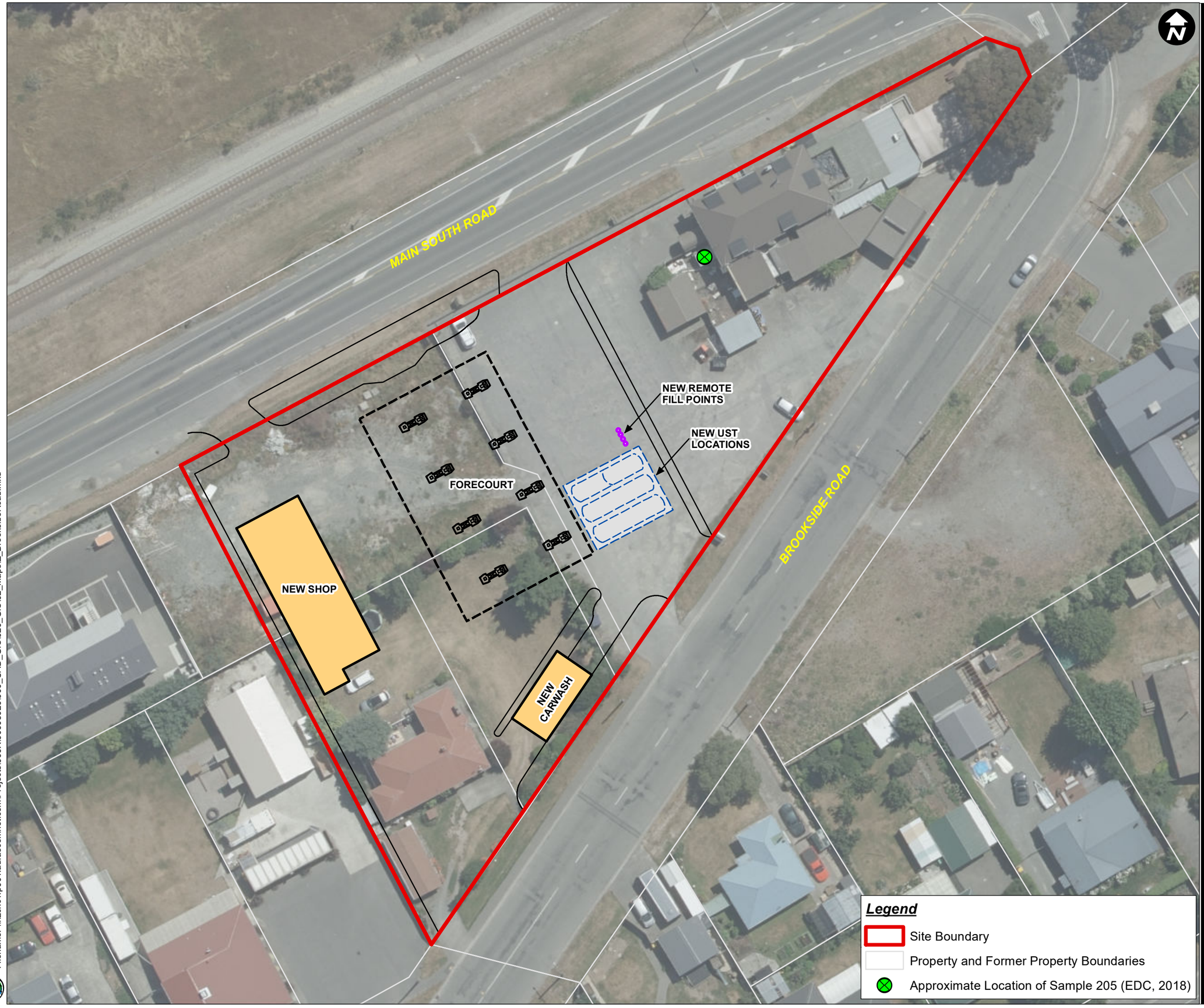
This document was prepared for the purpose described in the scope of works proposal document dated 20 April 2017 and as agreed to by Z Energy Limited. From a technical perspective, the subsurface environment at any site may present substantial uncertainty. It is a heterogeneous, complex environment, in which small subsurface features or changes in geologic conditions can have substantial impacts on water and chemical movement. Uncertainties may also affect source characterisation assessment of chemical fate and transport in the environment, assessment of exposure risks and health effects, and remedial action performance.

AECOM's professional opinions are based upon its professional judgement, experience, and training. These opinions are also based upon data derived from previous reports and the testing and analysis described in this document. It is possible that additional testing and analysis might produce different results and/or different opinions. AECOM has limited its investigation to the scope agreed upon with its client. AECOM believes that its opinions are reasonably supported by the testing and analysis that have been done, and that those opinions have been developed according to the professional standard of care for the environmental consulting profession in this area at this time. That standard of care may change and new methods and practices of exploration, testing, analysis and remediation may develop in the future, which might produce different results.

AECOM's professional opinions contained in this document are subject to modification if additional information is obtained, through further investigation, observations, or validation testing and analysis during remedial activities.

© AECOM New Zealand Limited. All rights reserved.

ISO A3 297mm x 420mm



© Copyright AECOM New Zealand Limited, 2015. This map is confidential and shall only be used for the purposes of this project. The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM Quality Assurance system certified to AS/NZS ISO 9001:2008.

AECOM

PROJECT

Z BROOKSIDE ROAD, ELLESMERE-ROLLESTON, SELWYN - ENVIRONMENTAL SITE ASSESSMENT

CLIENT

Z ENERGY LIMITED

CONSULTANT

AECOM New Zealand Limited
www.aecom.com

SPATIAL REFERENCE

Scale: 1:500 (A3 size)

10 5 0 10 Meters

Map features depicted in terms of NZTM 2000 projection.

Data Sources:
Cadastral Boundaries – LINZ NZ Cadastral Dataset

PROJECT MANAGEMENT

Approved	JG	Date	24/01/2020
Checked	JG	Date	24/01/2020
Designed	SS	Date	24/01/2020
Drawn	SS	Date	24/01/2020

ISSUE/REVISION

Rev	Date	Description
A	24/01/2020	DRAFT

KEY PLAN



PROJECT NUMBER

60608926

SHEET TITLE

PROPOSED SITE LAYOUT PLAN

MAP NUMBER

FIGURE 2

Last saved by: SERGEY.SOKOLOV (2020-01-24) Last Plotted: 2017-05-17
Filename: \\nzchc1fp001.au.aecomnet.com\Projects\606X\60608926\900_CAD_GIS\920_GIS\02_Maps\Z_BrooksideRoad.mxd

Memorandum

Boffa Miskell
Level 1, 141 Cambridge Terrace,
Christchurch
PO Box 110, Christchurch 8140
Telephone: +64 3 366 8891

Boffa Miskell

Attention:	Tim Bailey, Project Manager
Company:	Z Energy
Date:	30 January 2020
From:	Jane Rennie, Urban Designer / Senior Principal
Message Ref:	Z Energy Rolleston – Urban Design Assessment
Project No:	C18173

1.0 Introduction and Overview

Z Energy Limited proposes to establish and operate a Z-branded service station, including car wash, at 2 Brookside Road, Rolleston. The service station would provide services, including fuel, convenience retail and a carwash service, predominantly to passing motorists and the local community. As the wider site includes the Rolleston Inn (the Rolly Inn), changes are also proposed to the layout of the car parking and access. A detailed description of the proposal is outlined in the associated AEE submitted as part of the resource consent.

A pre-application meeting was held with SDC on the 9th of December 2019 and this was attended by the Council's urban designer Gabi Wolfer. A number of urban design matters were raised by Gabi Wolfer. The purpose of this Memorandum is to outline the urban design related issues that have been raised and to provide an urban design assessment to accompany the resource consent application.

2.0 The Site and Planning Context

As noted above, the site is located at 2 Brookside Road, Rolleston. The site has road frontage to both the Main South Road (SH1) and Brookside Road (northern and southern boundaries respectively) (see Figure 1). A detailed description of the site and context is outlined in the AEE prepared by 4Sight Consultants and this has not been repeated.



- Lot 1 DP 75460

Figure 1 – Site Location / Aerial

Source: Canterbury Maps (not to scale)

Note: There is a small rectangular area to the northwest that is not included in the application site, but which adjoins the motel site (owned by the same landowner) and where there is an access gate between the two properties.

However, of key relevance to this urban design assessment are the following:

- The site currently comprises a pub (the Rolly Inn) which includes the Rolly Thai restaurant/takeaway and bottle store, a car parking area, a garage, a small mix of grass and vegetation and a residential dwelling. The site comprises limited amenity and is used for commercial purposes. It is zoned Living 1 under the District Plan.

- A bus stop is located alongside the property facing SH1 and this is utilised by the Intercity Bus, with passengers being dropped off within the State Highway road reserve and adjacent to the site.

- The immediate context comprises a mix of residential, a vacant lot and commercial uses, including the Rolleston Veterinary Services opposite the site on Brookside Road, and the fire station, a small neighbourhood retail adjoining Chaucer Street and the Rolleston Highway Motel to the west.

- The site is bordered by SH1 near the entrance to Rolleston township where several State Highway service facilities are located.

Therefore, given the sites current use, location adjoining SH1 and its double road frontage, the site is well suited to a service station use, subject to managing any amenity effects that may arise on the nearby residential properties.

3.0 Urban Design Matters Raised by SDC

During the pre-application meeting a draft site plan was tabled. During the pre-application meeting Gabi Wolfer advised the Applicant that the following was generally supported:

- Location of the retail store to align with the internal boundary.

- In terms of parking across the wider Rolly Inn site, Ms Wolfer's preference would be for a parking shortfall rather than have the Z Energy site provide for overflow parking for the Rolly Inn.

- The absence of signage on the side of the carwash facing Brookside Road (with the exception of entry and exit signs), instead with this interface to be landscaped.

The following issues were identified as needing further consideration prior to lodgement of the application:

- Access behind the Z store – This should be gated off to the public.

- Cycle parks - To be relocated to the southern side of the store near the rubbish compound.

- Design of the rubbish compound - There was some discussion as to relocating the rubbish compound, however it was explained that there is no feasible / practicable alternative location. Fencing is therefore to be considered in this to create an attractive for pedestrians approaching the store from the street, so it does not appear as the 'end' of the service area. Aligning the northern end of the pedestrian pathway with the pedestrian desire line (diagonal) was also highlighted as important and in providing space for cycle parking on arrival from Brookside Road. – perhaps green wall – largely so that the pedestrian path doesn't appear to "end" at the services area.

- Whether two crossings were required along the SH1 frontage.

- Vehicular access into the Rolly Inn site: a combined main access crossing was preferred over two separate accessways, with a greater separation from the nearby Z crossing.

4.0 The Proposal

The proposal comprises the development of a 24/7 Z Energy service station on the vacant portion of the site on the corner of Main South Road (SH1) and Brookside Road. The service station will include a 228sqm store, forecourt, canopy, carwash and carparking. Signage is also proposed within and along the boundaries of the site. Figure 2 below outlines the proposed site layout.

The retail store and carwash buildings will be finished in Eterpan refined cladding with expressed joints along the shop frontage and Dimond Veedek cladding on the side walls. The base finishing colour of the shop is mineral brown with orange trim and the signage above the entry door will incorporate blue, orange and white. Entrance to the shop will be along the Eastern façade (i.e. shop frontage) which faces into the site. The shop frontage will primarily consist of glass (providing passive surveillance of the forecourt). The proposed height of the convenience store will be some 4.2m from the finished level of the ground surface (this excludes the canopy).

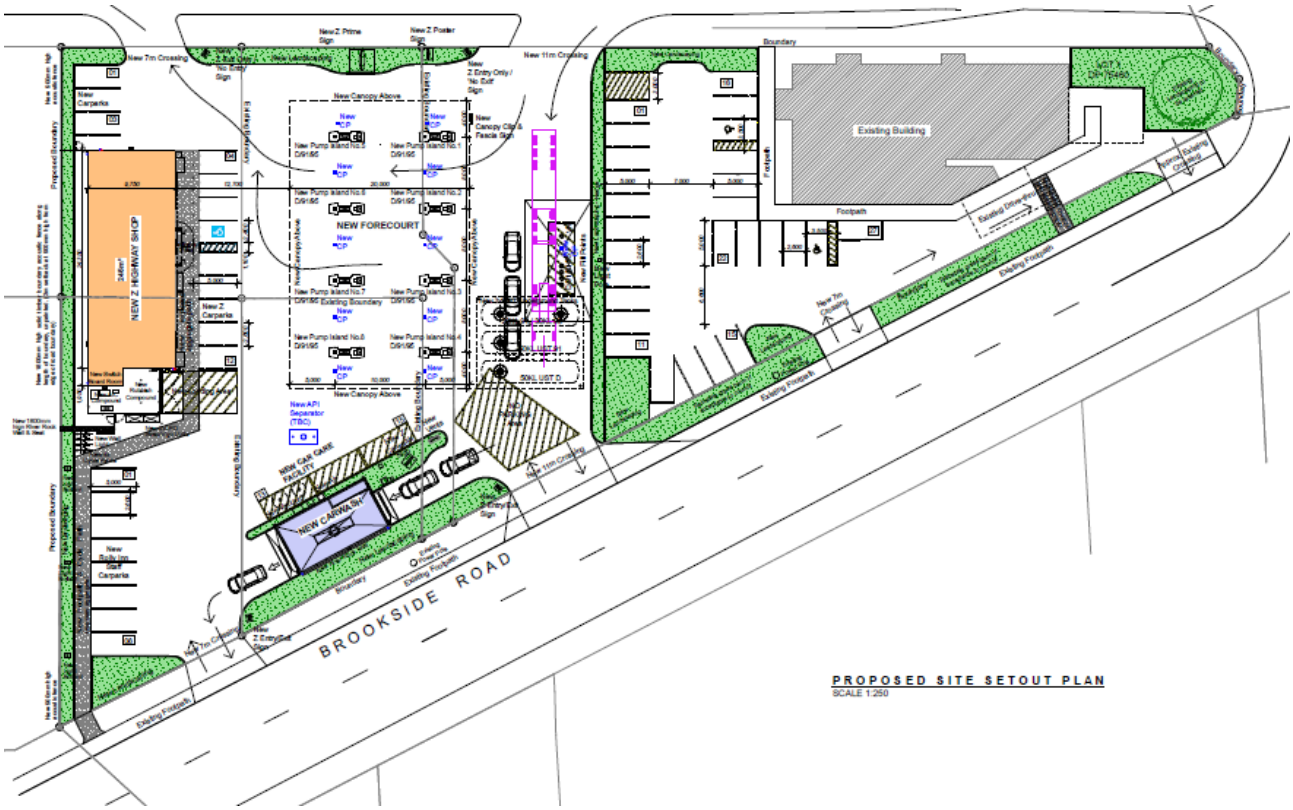


Figure 2: Exert of Drawing Z-PS-A03 – Proposed Site Setout Plan

A landscape plan accompanies the application. The following specifications for the landscaping is proposed:

- **Specimen trees**: Specimen trees are to be evergreen and have a minimum height of 2.5m above the soil when planted, a minimum mature height of 6-8m and a spread of some 2-4m. Leaf cover should have a minimum clearance to the soil of 1.2m.
- **Level 2**: This is the dense planting of grasses and/or shrubs to reach an average mature height of between 1.2 and 2m.
- **Level 1**: This is the dense planting of grasses to reach an average mature height of 0.8m.
- **Edge**: This is the dense planting of grasses to reach a maximum mature height up to 0.4m.
- **Hedge**: Hedge planting is to achieve a dense leaf cover, from no lower than 300mm above the soil. Along the internal boundaries hedging is to be maintained between 1.2 and 1.4m in height.

- **Irrigation**: No irrigation is proposed. Planting is to be mulched to a depth of 75mm, with topsoil to a depth of 400mm.

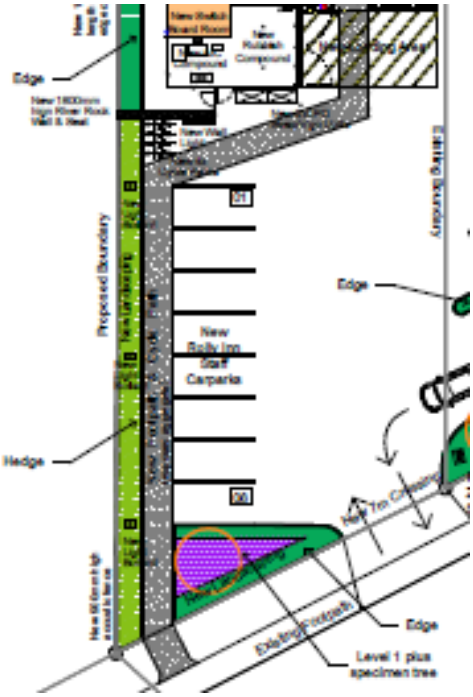
The Rolly Inn is to be retained, with alterations made to access and parking arrangements. This includes changes to address pedestrian access to the building, access through the site and formalisation of its car parking and vehicle access arrangements. A 7m two way crossing that will be the main crossing and a second exit only crossing to the east (in the position of the existing crossing). This configuration will promote a single main crossing away from the Z Energy access and facilitate the ongoing use of the 'drive through' arrangement. This will support convenient deliveries, short term parking for the bottle store and pick up and drop off for the courtesy van. 8 carparks to the south of the service station shop on the Z Energy site would be used for staff parking for the Rolly Inn and also for parking for the shuttle vans. Those utilising these spaces will access the Rolly Inn site via footpath along Brookside Road. Within the Rolly Inn site, the existing mature trees in the eastern (triangular) corner of the site are to be retained.

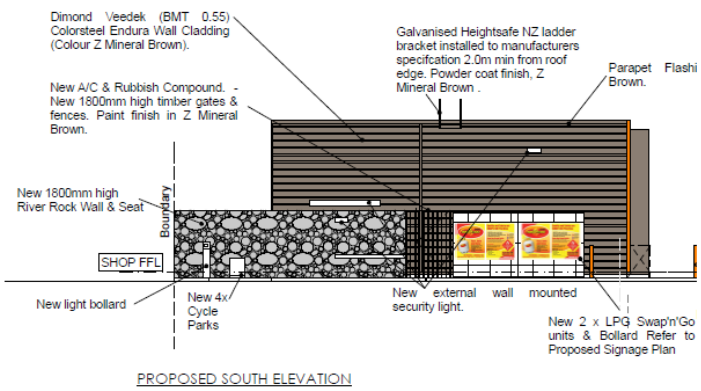
5.0 Key Urban Design Considerations

Pedestrian/Cycle Connectivity and Safety

A pedestrian/cycle pathway 2.0 metres in width comprising exposed aggregate paving is proposed along the western boundary of the site, which will provide direct, convenient access from Brookside Road to the retail store. Planting will be proposed alongside the pathway adjacent to the acoustic fence, comprising hedging approximately 1.2-1.4m in height. This will soften this edge and create a human scale. Cycle parking is proposed alongside the pathway for those that will arrive by cycle. The location of the pathway is ideal for residents approaching the site from the west as it will not require pedestrians to cross over a vehicle crossing. For those approaching the site from the east along Brookside Road a 'give way to pedestrians' sign should be installed within the site for exiting vehicles from both vehicle crossings.

A 1.8 metre river rock wall and seat adjoining the cycle stands will provide customers with the opportunity to sit down in the area (see Figure 4). This will provide a focal point as you approach the store, whilst referencing the locality, with the stone wall a feature that is also incorporated into the carwash building facing Brookside Road.





Right - Figure 3: Exert of Drawing Z_PS_A11 – Proposed Landscaping Plan

Above - Figure 4: Exert of Drawing Z_PS_A09 – Proposed External Elevations – Seating Area alongside the retail store

A hedge up to 1.2-1.4 metres in height is proposed to separate the two sites. This will discourage pedestrians from moving between the sites, instead directing them to use the footpath but allow for some surveillance from a CPTED point of view.

It is not intended to have a dedicated pedestrian entrance through the site given pedestrian access is not possible (or recommended) from SH1.

The Rolly Inn portion of the site has been reconfigured to comprise a footpath around the majority of the perimeter of the site and a connection to Brookside Road in the vicinity of the drive-thru. This will support direct pedestrian access into the site and to building entrances from the north, west and south.

Servicing/ deliveries for the Rolly Inn are undertaken from the carpark area during daytime hours when the carpark is not busy. For this reason, a specific loading space is not considered necessary.

Design and Appearance and Interfaces

The main retail store is setback approximately 25 metres from the Brookside Road frontage and will be seen largely at oblique angles from the residential properties opposite. The rubbish and air conditioning compound adjoining the southern façade of the store will be screened by a 1.8m high timber fence and gates that will be painted the same colour as the shop. The location of the store in conjunction with street frontage landscape comprising five trees will minimise the visual impact of the main building as seen from the street.

The rear of the store will adjoin the Rolleston Fire Station site and an undeveloped portion of the Rolleston Highway Motel fronting SH1. Given the height of the store at approximately 4 metres it is not inconsistent with the scale of single storey buildings in the vicinity. As such, it is not considered necessary to establish specific landscape mitigation beyond the acoustic fence.

The carwash will align with the southern boundary, setback approximately 5m metre from the footpath edge mid-way along the Z Energy site frontage. The elevation fronting Brookside Road will incorporate Eterpan cladding (fibre cement board) finished in 'mineral brown' paint colour and a 1.8m high river rock wall feature along the bottom half of the elevation. This will create visual interest along the rear of the carwash facing the street. There will be no carwash billboard along the southern side of the building.

The proposed forecourt canopy will sit behind the carwash building and will be approximately 5.6 metres in height and 19 metres in length and will be illuminated. The landscape strip alongside the carwash comprising 4 medium scale trees and low level shrubs/planting will help to partially screen the development from the residential properties located opposite, which are also set back from the street frontage with partially front boundary fencing. The use of recessive colours where possible also helps to reduce the commercial appearance of the buildings from the wider area.

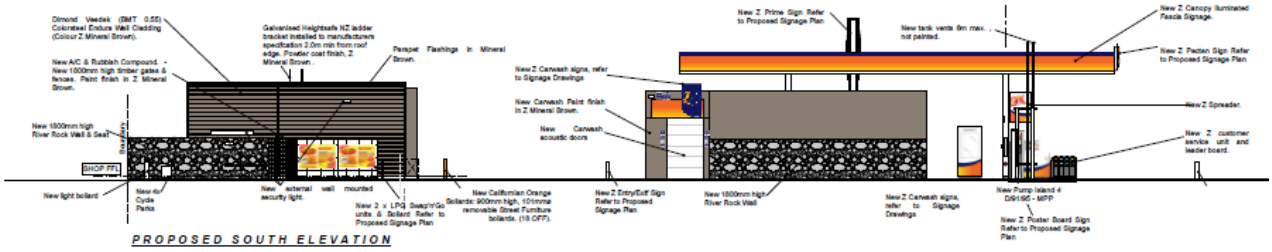


Figure 5: Exert of Drawing Z-PS_A08 – Proposed External Elevations – South Elevation as Viewed from Brookside Road (without landscape mitigation)

The reconfiguration of the Rolly Inn frontage to Brookside Road will both formalise vehicle access into and out of the site, but also improve the visual appearance of the site. The existing established trees on the corner of Brookside Road and SH1 will be retailed and additional trees proposed between the main entrance and the Z Energy site. It is recommended that the grass berm within the road reserve is reinstated, if this is acceptable to Council, in further improving the appearance of the street frontage. Street trees within the berm would also be advantageous in improving the quality of the streetscape.

Signage along the residential interface is limited to small entry and exit signage at the two vehicles entrances along Brookside Road.

CPTED

A 2.5 metre separation between the retail store and the site boundary is necessary in order to maintain access to the rear of the building for servicing. Gates are proposed to restrict access to the to this space. In addition, the air conditioning and rubbish compound will be fenced off and fully secured. This will prevent access into this area of the site. Both areas will be captured by on-site CCTV cameras.

The retail store includes a large glazed frontage along the eastern facade which includes a single point of entrance to the shop. This facade will provide a direct line of sight of the forecourt area and the majority of the site. It has not been possible to include windows along the southern elevation due to the internal layout of the building comprising 'back of house' functions in this area.

The site will be operational on a 24/7 basis, will be appropriately lit and security cameras are proposed to provide passive surveillance of areas where visibility is impaired in responding to CPTED good practice. Given the overall length of the Brookside Road and SH 1 frontages, there will be clear lines of sight into the site from both streets.

The landowner /occupier will take responsibility for the repair and maintenance of the site. To avoid any untoward behaviour from occurring during evening hours, specific downlighting (with nominal light spill) will be located along the pedestrian pathway. Lighting will act as a deterrent, discouraging any potential loitering in this area.

5.0 Assessment Against Relevant District Plan Provisions

The following table outlines consideration of the District Plan objectives and policies relevant to this urban design assessment. Refer to the accompanying AEE for a comprehensive assessment of the Objectives and Policies.

Chapter 3 People's Health, Safety and Values – Quality of the Environment, Noise, Glare, Dust, Traffic, Outdoor Storage, Outdoor Signs and Noticeboards, Building Design & Landscaping and Amenity Plantings	
Objective B3.4.2 *A variety of activities are provided for in townships, while maintaining the character and amenity values of each zone.* ***Objective B3.4.3*** *"Reverse sensitivity" effects between activities are avoided.* ***Objective B3.4.4*** *Growth of existing townships has a compact urban form and provides a variety of living environments and housing choices for residents, including medium density housing typologies located within areas identified in an Outline Development Plan* ***Objective B3.4.5*** *Urban growth within and adjoining townships will provide a high level of connectivity both within the development and with adjoining land areas (where these have been or are likely to be developed for urban activities or public reserves) and will provide suitable access to a variety of forms of transport.* ***Policy B3.4.2*** *To provide for any activity to locate in a zone provided it has effects which are compatible with the character, quality of the environment and amenity values of that zone.* ***Traffic*** ***Policy B3.4.19(a)***	The proposal seeks to redevelop a site which is currently partially vacant, with changes to improve the visual appearance of the existing commercial development (i.e. the Rolly Inn and associated bottle store). One house is to be removed as a result of the development, this will not significantly alter the existing residential fabric. Given the location and double frontage of the site use of the site for a commercial activity is considered to be an appropriate response. The proposal seeks to improve the appearance of the site through modern buildings and increased landscaping and is expected to result in an overall improvement to amenity. 5 trees and ground cover landscape are proposed along the Brookside Road frontage of the Z Energy site in seeking to promote a greener, residential edge. An additional 2 trees are proposed on the Rolly Inn site. The proposed layout will not affect the amenity values of the surrounding streets, in part because of the orientation to SH1. The impact

Ensure all activities have appropriate car-parking facilities to avoid, remedy or mitigate and adverse effects of car-parking on: - *The amenity values of streets;* - *The privacy of residents; and* - *Safe and convenient access to sites.* ***Policy B3.4.19(b)*** *Ensure that a high level of amenity safety and accessibility is achieved for pedestrians, users of public transport and cyclists when car parking is provided.* ***Outdoor Storage*** ***Policy 3B.4.20*** *Avoid adverse effects on the amenity or aesthetic values of Living and Business Zones from the outdoor storage of goods on sites.* ***Building Design*** ***Policy B3.4.23*** *Allow people freedom in their choice of the design of buildings or structures except where building design needs to be managed to:* - *Avoid remedy or mitigate adverse effects on adjoining sites; or* - *Maintain the character of areas with outstanding natural features or landscapes values or special heritage or amenity values; or* - *Maintain and establish pleasant and attractive streets and public areas in the Business 1 Zone.* ***Policy B3.4.25*** *In all townships, ensure buildings:* - *Do not shade adjoining properties; and* - *Maintain a predominantly low-rise skyline* ***Policy B3.4.26*** *Ensure buildings are setback an appropriate distance from road boundaries to maintain privacy and outlook for residents and to maintain the character of the area in which they are located.* ***Landscaping and Amenity Plantings*** ***Policy B3.4.31*** *Encourage sites in Living and Business 1 Zones to maintain a landscaped area along the road frontage of the site.* ***Policy B3.4.33*** *Encourage people who are developing or redeveloping sites in townships to retain trees, bush or other natural features on the site, as part of the new development.*	of the proposed layout will be mitigated by the placement of the buildings on the site, the scale of the buildings, the proposed landscape treatment including tree planting, and the absence of fencing along the street boundary. The proposed layout of the Z Energy Site is the most pragmatic way to address and provide for the safest and most convenient access to and from the site, and provides appropriate sight distances for vehicles, and a defined pedestrian path for use from Brookside Road. Reconfiguration of the Rolly Inn site will support better site wayfinding and legibility and a more attractive street frontage. Glare issues are covered in the accompanying AEE. The immediate environment is dominated by SH1 which includes significant street lighting. The proposed lighting strategy for the site is common for many Z service station developments, with lighting designed to promote safety and addressing CPTED considerations without causing a nuisance. Outdoor signs are also discussed in detail in the accompanying AEE. The landscape strip adjoining the car wash and Brookside Road which will include 4 trees will soften and partially screen the buildings from the street. The proposed retail unit is similar than other Z service station sites. The proposed position and height will not adversely affect any adjoining properties. The location of the car wash will help to screen views of the forecourt and canopy area from Brookside Road. The land on the opposite side of SH1 is industrial and faces away from the SH, and there is other commercial development fronting SH1 in the vicinity.

6.0 Summary and Conclusions

This Memorandum outlines the relevant urban design issues associated with the proposed redevelopment of a site on the corner of Brookside Road and Main South Road SH1 for a new Z Energy petrol station along with site layout changes to the existing Rolly Inn. It outlines the issues that were raised by SDC and provides an urban design assessment, including against the relevant District Plan provisions to accompany the application.

From an urban design perspective, the proposal is considered to be an improvement to the current amenity of the site given it is partially vacant and uncared for and there is limited on-site landscaping. The commercial use of the site is also considered appropriate given its frontage to the State Highway.

The proposed layout of the Z Energy site, with the location of the retail store aligning with the internal boundary with the Rolleston Fire Station and Motel sites and the carwash aligning with Brookside Road is a pragmatic way to address several site constraints. Careful consideration has been given to landscape

treatment of the Brookside Road frontage to address the residential context through planting that will provide a good level of screening mitigation. The addition of a stone wall along the carwash façade avoids the development of a blank wall along the street frontage, creating visual interest through use of local vernacular materials.

A direct pedestrian pathway from Brookside Road will provide a dedicated route for pedestrian and cyclists visiting the retail store and a small seating area adjoining a stone wall will create a feature along the southern extent of the store. The use of recessive colours where possible helps to reduce the commercial appearance of the buildings from the wider area.

The reconfiguration of the Rolly Inn site will improve on site access and the overall visual amenity of the site, including new trees along part of the Brookside Road frontage. A hedge will separate the two sites restricting any movement between the two and encouraging pedestrians to utilise the footpath. It is recommended that the grass berm within the road corridor is reinstated and ideally several street trees introduced to further enhance the quality of the streetscape.

In conclusion, the proposal is considered to be acceptable in urban design terms.



MARSHALL DAY Acoustics

Z ENERGY SERVICE STATION ROLLESTON
ASSESSMENT OF NOISE EFFECTS

Rp 001 R01 20190944 | 7 February 2020

MARSHALL DAY Acoustics

Level 3 69 Cambridge Terrace
PO Box 4071
Christchurch 8140 New Zealand
T: +64 3 365 8455 F: +64 3 365 8477
www.marshallday.com

Project: **Z ENERGY SERVICE STATION ROLLESTON**

Prepared for: **Z Energy**
c/- 4Sight Consulting
PO Box 911 310
Victoria St West
Auckland 1142

Attention: **Karen Blair**

Report No.: **Rp 001 R01 20190944**

Disclaimer

Reports produced by Marshall Day Acoustics Limited are based on a specific scope, conditions and limitations, as agreed between Marshall Day Acoustics and the Client. Information and/or report(s) prepared by Marshall Day Acoustics may not be suitable for uses other than the specific project. No parties other than the Client should use any information and/or report(s) without first conferring with Marshall Day Acoustics.

The advice given herein is for acoustic purposes only. Relevant authorities and experts should be consulted with regard to compliance with regulations or requirements governing areas other than acoustics.

Copyright

The concepts and information contained in this document are the property of Marshall Day Acoustics Limited. Use or copying of this document in whole or in part without the written permission of Marshall Day Acoustics constitutes an infringement of copyright. Information shall not be assigned to a third party without prior consent.

Document Control

Status:	Rev:	Comments	Date:	Author:	Reviewer:
Approved	-	-	5 Feb 2020	A Staples	J Farren
Approved	R01	Rolly Inn private function space	7 Feb 2020	A Staples	G Walton

Certified System ISO 9001

EXECUTIVE SUMMARY

This report provides an assessment of the potential adverse noise effects arising from a proposed service station at 2 Brookside Road in Rolleston.

Our assessment relies on the following noise mitigation measures being implemented:

- A minimum 1.8 metre high solid timber fence along the southern boundary of the site. Note that the height of the fence is reduced to 900 mm for the first three metres of each end of the fence for visibility reasons;
- Carwash and vacuum facility operation is limited to daytime hours only (0730-2000 hours); and
- The carwash is fitted with high sound insulation performance doors to ensure it does not exceed 84 dB L_{AE} at 10 metres from the entry/exit doors for one full cycle of the longest carwash option.

Based on these noise mitigation measures, our assessment can be summarised as follows:

- Noise emissions from the proposed service station will achieve the District Plan daytime noise limits and be well below existing ambient noise levels from traffic on the local roading network;
- When heavy vehicles access the site during night-time hours, such as tankers delivering fuel, we predict that the District Plan night-time noise limits would be exceeded at all surrounding properties. However, considering the relatively high levels of ambient noise in the area, primarily from State Highway 1, we do not expect any adverse noise effects to arise as a result of these exceedances; and
- At times when there are no heavy vehicle movements on site, we predict that the night-time District Plan noise limits would be achieved and that noise emissions from the proposed service station would be largely inaudible over existing noise from the local roading network.

This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

TABLE OF CONTENTS

1.0 INTRODUCTION 5

2.0 SITE & ACTIVITY DESCRIPTION 5

2.1 Proposed Site 5

2.2 Proposed Activity 5

3.0 EXISTING NOISE ENVIRONMENT 7

3.1 Ambient Noise 7

3.2 Rolly Inn Noise 7

4.0 NOISE ASSESSMENT CRITERIA 8

4.1 Selwyn District Plan Noise Limits 8

4.2 World Health Organisation Guidelines 8

4.3 NZS 6802:2008 Guideline Upper Noise Limits 9

4.4 Discussion of Noise Assessment Criteria 9

5.0 PREDICTED NOISE LEVELS 10

5.1 Noise Sources 10

5.2 Noise Mitigation Measures 10

5.3 Predicted Cumulative Noise Levels 10

6.0 ASSESSMENT OF NOISE EFFECTS 11

7.0 CONCLUSIONS 12

APPENDIX A GLOSSARY OF TERMINOLOGY

APPENDIX B PROPOSED SITE PLAN

APPENDIX C NOISE SURVEY DETAILS

APPENDIX D NOISE SOURCE DATA & ASSUMPTIONS

APPENDIX E STANDARD FENCE DETAIL

This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

1.0 INTRODUCTION

Marshall Day Acoustics has been engaged by Z Energy to assess the potential noise-related effects from a proposed service station at 2 Brookside Road in Rolleston.

This report provides:

- A description of the proposed site and activity with respect to noise generation;
- A summary of the applicable District Plan noise standards and other relevant noise performance standards;
- Recommended noise mitigation measures;
- Predicted noise levels from the proposed activity; and
- An assessment of the noise-related effects that may arise as a result of the development.

A glossary of the technical terminology used in this report is provided in Appendix A.

2.0 SITE & ACTIVITY DESCRIPTION

2.1 Proposed Site

The proposed service station site is located adjacent to State Highway 1 at 2 Brookside Road and includes properties 10 Brookside Road and part of 6 Brookside Road, as shown in Figure 1. The site and nearby properties on Brookside Road are zoned *Living 1* under the Selwyn District Plan.

The Rolly Inn bar and restaurant will remain on the site, though new landscaping and car parking is proposed.

Figure 1: Proposed site, locality and ambient noise monitoring locations



This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

2.2 Proposed Activity

With respect to noise, the key features of the proposed activity include:

- Carwash facility;
- Vacuum cleaning facility;
- Eight double-sided fuel pumps to enable simultaneous refuelling of up to 16 vehicles beneath a canopy;
- Shop building with associated outdoor mechanical plant; and
- Fuel deliveries, anticipated to occur one to two times per day, depending on demand.

These features are shown on the site plan provided in Appendix B.

The proposed hours of operation for the facility will be 24 hours per day, seven days per week. However, use of the carwash and vacuum cleaning facility will be limited to daytime hours only (0730 – 2000 hours).

Based on the traffic information provided by Stantec, we understand that peak hour traffic generation is anticipated to be up to 150 vehicle movements per hour. Stantec estimate that the service station traffic generation will be split between the access points as shown in Table 1.

Table 1: Service station traffic generation by access point (provided by Stantec)

Frontage	Direction	Peak period	
		Morning	Evening
Main South Road (State Highway 1)	In	38 vph	45 vph
	Out	44 vph	39 vph
	In and out combined	**82 vph**	**84 vph**
Brookside Road (across both driveways)	In	37 vph	29 vph
	Out	31 vph	36 vph
	In and out combined	**68 vph**	**65 vph**

Based on the data provided above, the vehicle movement split between the State Highway 1 access points and the Brookside Road access points is approximately 55%/45%.

We understand that heavy vehicles will generally favour the truck stop located at 25 Hoskyns Road, which is around a kilometre away on the opposite side of State Highway 1, and that the proposed site will not be set up for heavy vehicles (aside from fuel deliveries).

We understand the activity status is *Non-complying* with respect to the Selwyn District Plan.

The Rolly Inn bar and restaurant is included in the application area and therefore we have included noise emissions from this activity within our assessment. We understand that the only change proposed to the Rolly Inn activity is to provide a private function space on the first floor of the building. The proposed private function space will only be used within the existing operating hours of the Rolly Inn, and will not include the use of any amplified sound systems or music. We understand that the space will cater for around 60 people and is only expected to be used a few times per month.

This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

3.0 EXISTING NOISE ENVIRONMENT

3.1 Ambient Noise

On 11 July 2018, we undertook a brief night-time (early morning) ambient noise survey in the vicinity of the proposed service station site. The survey is intended as a snapshot of ambient noise levels in the area under favourable conditions, i.e. fine with relatively light winds.

The results of our ambient noise survey are summarised in Table 2. The duration of each measurement was 10 minutes. The location of the ambient noise measurement positions is shown in Figure 1 with red and white markers.

Further information such as equipment and calibration details are provided in Appendix C.

Table 2: Summary of ambient noise survey results

Start time	Measured noise levels				Comments
hours	dB L_{Aeq}	dB L_{A10}	dB L_{A90}	dB L_{AFmax}	
Position A					
0530	67	69	61	78	State Highway 1 traffic generally dominant; freight train idling contributes.
0603	64	68	52	78	State Highway 1 traffic dominant.
Position B					
0541	65	68	52	82	State Highway 1 and Brookside Road traffic generally dominant; freight train idling and movement contributes.
0614	64	66	54	78	State Highway 1 and Brookside Road traffic dominant.
Position C					
0553	62	65	49	75	State Highway 1 and Brookside Road traffic dominant.
0625	64	67	57	76	

Our measurements show that early morning noise levels in the vicinity of the proposed service station site are dominated by traffic on State Highway 1 and Brookside Road.

3.2 Rolly Inn Noise

On Saturday 21 December 2019, we undertook a noise survey of the Rolly Inn activity. The results of our noise measurements are summarised in Table 3 overleaf. Noise from local traffic dominated our noise measurements at both positions, though laughter and raised voices from patrons in the Rolly Inn outdoor area were audible at times.

Further noise survey information is provided in Appendix C.

This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

Table 3: Summary of Rolly Inn noise survey results

Start time hours	Measured noise levels dB L_{Aeq}	dB L_{A10}	dB L_{A90}	dB L_{AFmax}	Comments
Position B					
2155	59	62	49	75	State Highway 1 traffic generally dominant. Vehicles passes on Brookside Road contribute significantly at times (responsible for L_{AFmax}). Laughter and raised voices from Rolly Inn patrons in outdoor area audible at times (around 50 dBA).
Position C					
2207	60	62	50	76	State Highway 1 traffic generally dominant. Vehicles passes on Brookside Road contribute significantly at times (responsible for L_{AFmax}). Laughter and raised voices from Rolly Inn patrons in outdoor area audible at times (55-60 dBA).

Our Rolly Inn noise survey shows that even on a Saturday evening, noise levels in the vicinity of the Rolly Inn and the proposed service station site are dominated by traffic on State Highway 1 and Brookside Road. Rolly Inn patrons are audible at times, but relatively quiet compared to noise received from traffic on State Highway 1.

4.0 NOISE ASSESSMENT CRITERIA

4.1 Selwyn District Plan Noise Limits

The proposed service station site and surrounding properties on Brookside Road are zoned *Living 1* under the Selwyn District Plan. The applicable District Plan noise limits for this zone are summarised in Table 4. We note that roads in the Selwyn District are zoned which results in technical non-compliances because of the wording of the noise limits (e.g. Brookside Road is zoned *Living 1*).

Table 4: Summary of *Living 1* noise limits

Assessment location	Daytime (0730-2000 hours)	Night-time (2000-0730 hours)
At any point beyond the boundary of the site from which the source of any noise of interest is situated.	50 dB L_{A10} 85 dB L_{Amax}	35 dB L_{A10} 70 dB L_{Amax}

We understand that the status of the activity is *Non-complying* and we have therefore considered the following documents in assessing the potential for noise effects.

4.2 World Health Organisation Guidelines

The World Health Organisation (WHO) Guidelines for Community Noise (Berglund, Lindvall and Schwela, 1999) provide guidelines for environmental noise exposure. For community or environmental noise, the critical health effects (those effects which occur at the lowest exposure levels) are sleep disturbance and annoyance.

These guideline values are the exposure levels that represent the onset of the effect for the general population.

This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

Table 5: WHO guideline values for the critical health effects of community or environmental noise

Specific Environment	Critical health effect(s)	dB L_{Aeq}	Time base (hours)	dB L_{AFmax}
Outdoor living area	Serious annoyance, daytime & evening	55	16	-
	Moderate annoyance, daytime & evening	50	16	-
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60

4.3 NZS 6802:2008 Guideline Upper Noise Limits

The 2008 version of NZS 6802:2008 *"Acoustics - Environmental Noise"* (note that the District Plan refers to the 1991 version) makes reference to the following guideline upper limits of sound exposure at or within the notional boundary of a rural dwelling:

- Daytime: 55 dB $L_{Aeq(15min)}$
- Night-time: 45 dB $L_{Aeq(15min)}$ and 75 dB L_{AFmax}

4.4 Discussion of Noise Assessment Criteria

The District Plan night-time noise limit of 35 dB L_{A10} is 10 dB lower than the guideline night-time upper noise limit provided in the latest version of NZS 6802, and the WHO guideline value to minimise the onset of sleep disturbance with bedroom windows open, though the L_{A10} parameter is used rather than L_{Aeq}. The L_{Aeq} parameter is the average noise level and is consistent with industry best practice and the current New Zealand noise assessment standards. In addition, the L_{Aeq} parameter better captures noise from short duration events such as occasional heavy vehicle movements or carwash dryers whereas the L_{A10} parameter does not account for noisy events that occur for less than 10% of the assessment period. For this reason, we consider the L_{Aeq} parameter to be a better metric for assessing the noise effects of this activity.

Night-time (early morning) ambient noise levels are currently well above the District Plan night-time noise limit, primarily due to traffic on State Highway 1 and Brookside Road. Our noise monitoring undertaken during the late evening/night-time period between 2100-2300 hours (when people generally tend to be going to sleep) shows that ambient noise levels are in the order of 60 dB L_{Aeq} near the properties closest the proposed service station.

Based on the relatively high levels of traffic noise levels in the area, we consider relaxed day and night-time noise limits to be appropriate for this site. We discuss appropriate noise limits further in Section 6.0.

This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

5.0 PREDICTED NOISE LEVELS

5.1 Noise Sources

The following sources of noise relating to the proposed service station development have been considered when predicting noise levels received at the nearest properties. Our source data and assumptions are summarised in Appendix D.

- Carwash facility;
- Vacuum facility;
- General activity on the forecourt such as customers arriving and filling their vehicles;
- Heavy vehicle movements and fuel delivery activity, which utilises a gravity fed system; and
- Outdoor mechanical plant and equipment such as air conditioning units, extract fans and condensers associated with the future store building.

5.2 Noise Mitigation Measures

Our predicted noise levels rely on the following mitigation measures:

- A minimum 1.8 metre high solid timber fence along the western boundary of the site (refer to Appendix E for a copy of our standard fence drawing). Note that the height of the fence is reduced to 900 mm for the first three metres of each end of the fence for visibility reasons;
- Carwash and vacuum facility operation is limited to daytime hours only (0730-2000 hours); and
- The carwash is fitted with high sound insulation performance doors to ensure it does not exceed 84 dB L_{AE} at 10 metres from the entry/exit doors for one full cycle of the longest carwash option.

5.3 Predicted Cumulative Noise Levels

Our predicted cumulative noise levels at the nearest properties are summarised in Table 6 overleaf. Predicted noise levels are provided with and without heavy vehicle (HV) movements accessing the site for both the daytime and night-time periods.

As requested, we have provided predicted peak hour noise levels for all properties where we anticipate the District Plan noise limits to be exceeded. Exceedances are shown in bold red text in Table 6.

Note that the morning and evening peak hour of use for the service station do not coincide with the busiest times for the Rolly Inn (Friday and Saturday nights). Noise emissions from the service station during peak hours of use will be greater than that produced by the Rolly Inn, and therefore our assessment focuses on service station noise emissions.

Based on our noise measurements of Rolly Inn activity on a Saturday night, we estimate that the Rolly Inn would continue to exceed the District Plan 35 dB L_{A10} night-time noise limit at 7 Brookside Road (vacant site) and 3-5 Brookside Road (Veterinary Clinic) by 10-15 dB. However, this is still below the ambient noise received from traffic on State Highway 1 and Brookside Road.

This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

Table 6: Predicted service station peak hour noise levels at nearest properties

Receiver (dwelling unless otherwise stated)	Predicted noise level during daytime (0730 – 2000 hours), dB $L_{Aeq(15\ min)}$		Predicted noise level during night-time (2000 – 0730 hours), dB $L_{Aeq(15\ min)}$	
	Including HV movements	Excluding HV movements	Including HV movement	Excluding HV movement
3-5 Brookside Road (Veterinary Clinic)	43	41	**40**	< 30
4 Brookside Road*	49	49	**38**	33
6 Brookside Road* (vacant site)	44	43	**39**	35
7 Brookside Road (vacant site)	50	47	**46**	34
9 Brookside Road	50	49	**45**	34
11 Brookside Road	49	48	**41**	33
15 Brookside Road	46	45	**36**	30
10 Byron Street	50	50	**39**	34
12 Byron Street	46	44	**42**	31
14 Byron Street	49	47	**44**	33
20 Byron Street	48	47	**39**	32
6 Tennyson Street	39	37	35	< 30
8 Tennyson Street	39	37	35	< 30

* Includes noise reduction provided by the proposed solid boundary fence described in Section 5.2.

The District Plan noise limits, which use the L_{A10} parameter, will be exceeded at all surrounding properties during night-time hours.

We predict that the District Plan daytime noise limit of 85 dB L_{Amax} will be achieved at all surrounding properties. However, the District Plan night-time noise limit of 70 dB L_{Amax} could be exceeded at the following properties at times when a heavy vehicle (e.g. fuel tanker) accesses the site and uses its park brake:

- 3-5, 4, 6, 7, 9, 11 Brookside Road; and
- 10, 12, 14, 20 Byron Street.

This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

6.0 ASSESSMENT OF NOISE EFFECTS

6.1 Daytime

During daytime hours, predicted noise levels will no more than 50 dB $L_{Aeq(15min)}$ at the nearest dwellings. This is consistent the WHO guideline value for minimising the onset of moderate annoyance and well below the existing ambient noise levels from traffic on the local roading network. We therefore consider the potential adverse noise effects of noise emissions from the proposed activity during the day to be acceptable.

6.2 Night-time

At night, noise emissions from the proposed service station are predicted to exceed the relatively low District Plan noise standards of 35 dB L_{A10} and 70 dB L_{AFmax} at all surrounding properties when a heavy vehicle accesses the site. During these times, noise levels of up to 45 dB $L_{Aeq(15min)}$ are predicted at the nearest dwellings. This is consistent with the WHO guideline value for minimising the onset of sleep disturbance with bedroom windows open and well below the existing ambient noise levels from traffic on the local roading network.

At times when there are no heavy vehicle movements on site, we predict that the night-time District Plan noise limits would be achieved and that noise emissions from the proposed service station would be largely inaudible over existing noise from the local roading network.

Based on the above, we consider the potential adverse noise effects of noise emissions from the proposed activity at night to be acceptable.

7.0 CONCLUSIONS

Marshall Day Acoustics has assessed the potential noise-related effects of the proposed service station at 2 Brookside Road, Rolleston, and draws the following conclusions based on the noise mitigation measures outlined in this report:

- Noise emissions from the proposed service station will achieve the District Plan daytime noise limits and be well below existing ambient noise levels from traffic on the local roading network;
- When heavy vehicles access the site during night-time hours, such as tankers delivering fuel, we predict that the District Plan night-time noise limits would be exceeded at all surrounding properties. However, considering the relatively high levels of ambient noise in the area, primarily from State Highway 1, we do not expect any adverse noise effects to arise as a result of these exceedances; and
- At times when there are no heavy vehicle movements on site, we predict that the night-time District Plan noise limits would be achieved and that noise emissions from the proposed service station would be largely inaudible over existing noise from the local roading network.

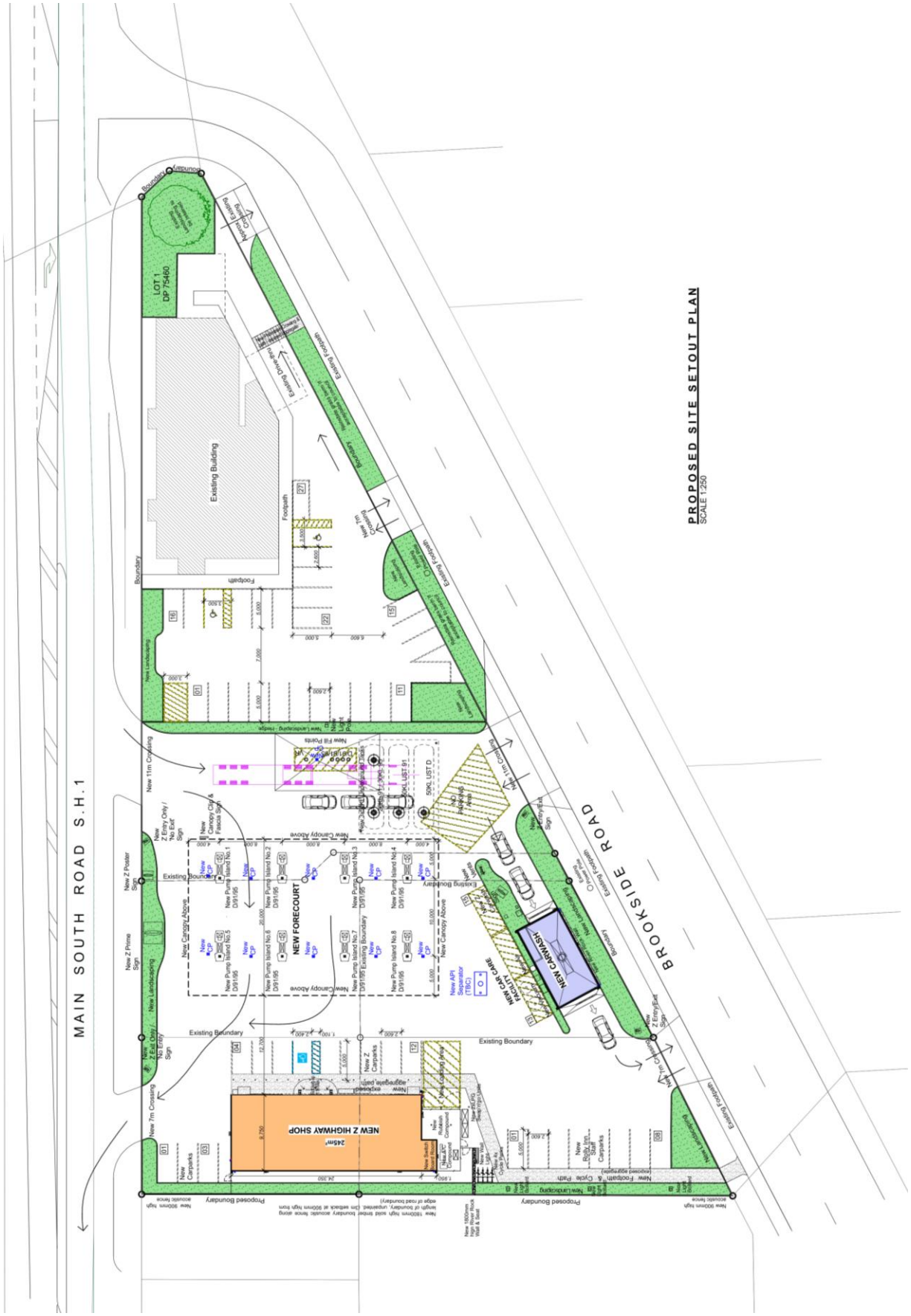
This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

APPENDIX A GLOSSARY OF TERMINOLOGY

Noise	A sound that is unwanted by, or distracting to, the receiver.
Ambient	The ambient noise level is the noise level measured in the absence of the intrusive noise or the noise requiring control. Ambient noise levels are frequently measured to determine the situation prior to the addition of a new noise source.
SPL or L_P	Sound Pressure Level A logarithmic ratio of a sound pressure measured at distance, relative to the threshold of hearing (20 μPa RMS) and expressed in decibels.
dB	Decibel The unit of sound level. Expressed as a logarithmic ratio of sound pressure P relative to a reference pressure of Pr=20 μPa i.e. dB = 20 x log(P/Pr)
A-weighting	The process by which noise levels are corrected to account for the non-linear frequency response of the human ear.
$L_{Aeq\ (t)}$	The equivalent continuous (time-averaged) A-weighted sound level. This is commonly referred to as the average noise level. The suffix "t" represents the time period to which the noise level relates, e.g. (8 h) would represent a period of 8 hours, (15 min) would represent a period of 15 minutes and (2200-0700) would represent a measurement time between 10 pm and 7 am.
L_{A90}	The A-weighted noise level equalled or exceeded for 90% of the measurement period. This is commonly referred to as the background noise level.
L_{A10}	The A-weighted noise level equalled or exceeded for 10% of the measurement period. This is commonly referred to as the average maximum noise level.
L_{Amax}	The A-weighted maximum noise level. The highest noise level which occurs during the measurement period.
SEL or L_{AE}	Sound Exposure Level The sound level of one second duration which has the same amount of energy as the actual noise event measured. Usually used to measure the sound energy of a particular event, such as a train pass-by or an aircraft flyover
NZS 6801:2008	New Zealand Standard NZS 6801:2008 *"Acoustics – Measurement of environmental sound"*
NZS 6802:2008	New Zealand Standard NZS 6802:2008 *"Acoustics – Environmental Noise"*

This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

APPENDIX B PROPOSED SITE PLAN


PROPOSED SITE SETOUT PLAN
SCALE 1:250
MAIN SOUTH ROAD S.H.1
BROOKSIDE ROAD
LOT 1 DP 75460
Existing Building
NEW FORECOURT
NEW CARWASH
NEW Z HIGHWAY SHOP
245m²
Existing Boundary
Proposed Boundary
New Landscaping
New Carparks
New Canopy Above
New Pump Island No.1
New Pump Island No.2
New Pump Island No.3
New Pump Island No.4
New Pump Island No.5
New Pump Island No.6
New Pump Island No.7
New Pump Island No.8
New 11m Crossing
New 7m Crossing
New Z Entry Only / No Exit Sign
New Z Exit Only / No Entry Sign
New Z Poster Sign
New Z Prime Sign
New Canopy Clip A Fascia Sign
New Entry Exit Sign
New Footpath
Existing Footpath
Existing Crossing
New Rubbish Compound
New Plant Compound
New Water Tank
New Pylon Sign
New Rally Inn Staff Carparks
New Footpath & Cycle Path
New Retaining Wall
New 1800mm High Post Rock Wall & Slat
New 180mm high solid timber boundary acoustic fence along length of boundary, topmost 12m setback at 900mm high from edge of road boundary)
New 900mm high acoustic fence
New Kerb & Channel
Existing Kerb & Channel
Footpath
Boundary
Kerb & Channel
Existing Drive-thru
Existing Footpath
Existing Boundary
New 11m Crossing
New Landscaping - mulch
New Fill Points
50KL UST D
50KL UST 91
NO PARKING AREA
New Canopy Above
New Pump Island No.1 D91/95
New Pump Island No.2 D91/95
New Pump Island No.3 D91/95
New Pump Island No.4 D91/95
New Pump Island No.5 D91/95
New Pump Island No.6 D91/95
New Pump Island No.7 D91/95
New Pump Island No.8 D91/95
New Canopy Above
New Canopy Above
New Canopy Above

APPENDIX C NOISE SURVEY DETAILS

The key details of our noise surveys are provided below.

C1 Ambient Noise Survey

Date: 11 July 2018, 0530 – 0645 hours

Personnel: Alex West, Marshall Day Acoustics

Weather: -2°C, clear sky, variable light wind estimated to be less than 2 m/s

Instrumentation: Brüel & Kjær Type 2250 analyser, serial 2488377, calibration due 02/08/2018
Brüel & Kjær Type 4231 calibrator, serial 1882775, calibration due 08/02/2019

Calibration: Field calibration of the equipment was carried out before measurements, and the calibration checked after measurements. Observed change less than 0.1 dB.

C2 Rolly Inn Noise Survey

Date: 21 December 2019, 2155 – 2315 hours

Personnel: Markus Schmid, Marshall Day Acoustics

Weather: 15°C, overcast, easterly wind estimated to be 3-5 m/s

Instrumentation: Brüel & Kjær Type 2250 analyser, serial 3010261, calibration due 22/05/2021
Brüel & Kjær Type 4231 calibrator, serial 3004051, calibration due 19/09/2020

Calibration: Field calibration of the equipment was carried out before measurements, and the calibration checked after measurements. Observed change less than 0.1 dB.

This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

APPENDIX D NOISE SOURCE DATA & ASSUMPTIONS

D1 Carwash Facility

A WashTec SoftCare Pro carwash is proposed for the service station. Based on the manufacturer's noise data provided for this model, the carwash is expected to produce 94 dB L_{AE} at 10 metres from the carwash entry/exit with doors open. A carwash that has been fitted with high-performance sound insulation doors reduces carwash noise by around 10 decibels, i.e. 84 dB L_{AE} at 10 metres from the carwash entry/exit.

For our noise predictions, we have assumed that two vehicles are washed in the carwash within a 15-minute period.

D2 Vacuum Facility

The specific type of vacuum for the service station is yet to be confirmed. We have therefore undertaken a review of vacuum facilities we have previously measured at other fuel station and car cleaning developments.

A vacuum cleaner typically produces around 80 dB L_{A10}/L_{Aeq} at two metres, including sound reflection from a hard surface behind, such as a carwash facility wall.

For our noise assessment, we have assumed that the vacuum operates for 50% of the time.

D3 General Forecourt Activity

The dominant source of noise from general forecourt activity is from customer vehicles arriving and departing. Four fuel pump islands are proposed under the redevelopment, meaning that up to eight vehicles will be able to refuel at any one time.

As a peak daytime scenario, we have predicted noise levels based on the traffic movement information supplied by Stantec (previously TDG). We understand that up to 150 light vehicles movements are anticipated during peak hour. For the purposes of our calculations this equates to 38 light vehicle movements in a 15-minute period (19 in and 19 out) and one heavy vehicle movement. Traffic volumes are divided between the three access points as follows based on the information provided by Stantec:

- State Highway 1 access points: 55% of vehicle movements (assumed to be equally split between the two access points); and
- Bookside Road access points: 45% of vehicle movements (assumed to be equally split between the two access points).

For a peak night-time scenario, we have assumed half of the number of light vehicle movements, i.e. 19, and one heavy vehicle movement within a 15-minute period.

D4 Heavy Vehicle Movements and Fuel Deliveries

Predicted noise levels from heavy vehicles movements and fuel deliveries are based on previous noise measurements that Marshall Day Acoustics has conducted of low speed heavy vehicle movements and truck park brake air releases. A sound exposure level of 87 dB L_{AE} at 8 metres has been used for low speed movement and 90 dB L_{AFmax} at 10 metres for heavy vehicle park brake air release.

Data from our previous measurements confirms that of gravity fed fuelling systems produce negligible noise in the context of the tanker movement noise.

This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

D5 Outdoor Mechanical Plant and Equipment

At this early stage of the project, specific mechanical plant and equipment has not yet been selected for the potential future store building. We have therefore made assumptions about the likely noise emissions from this equipment based on previous projects and provided a noise budget accordingly.

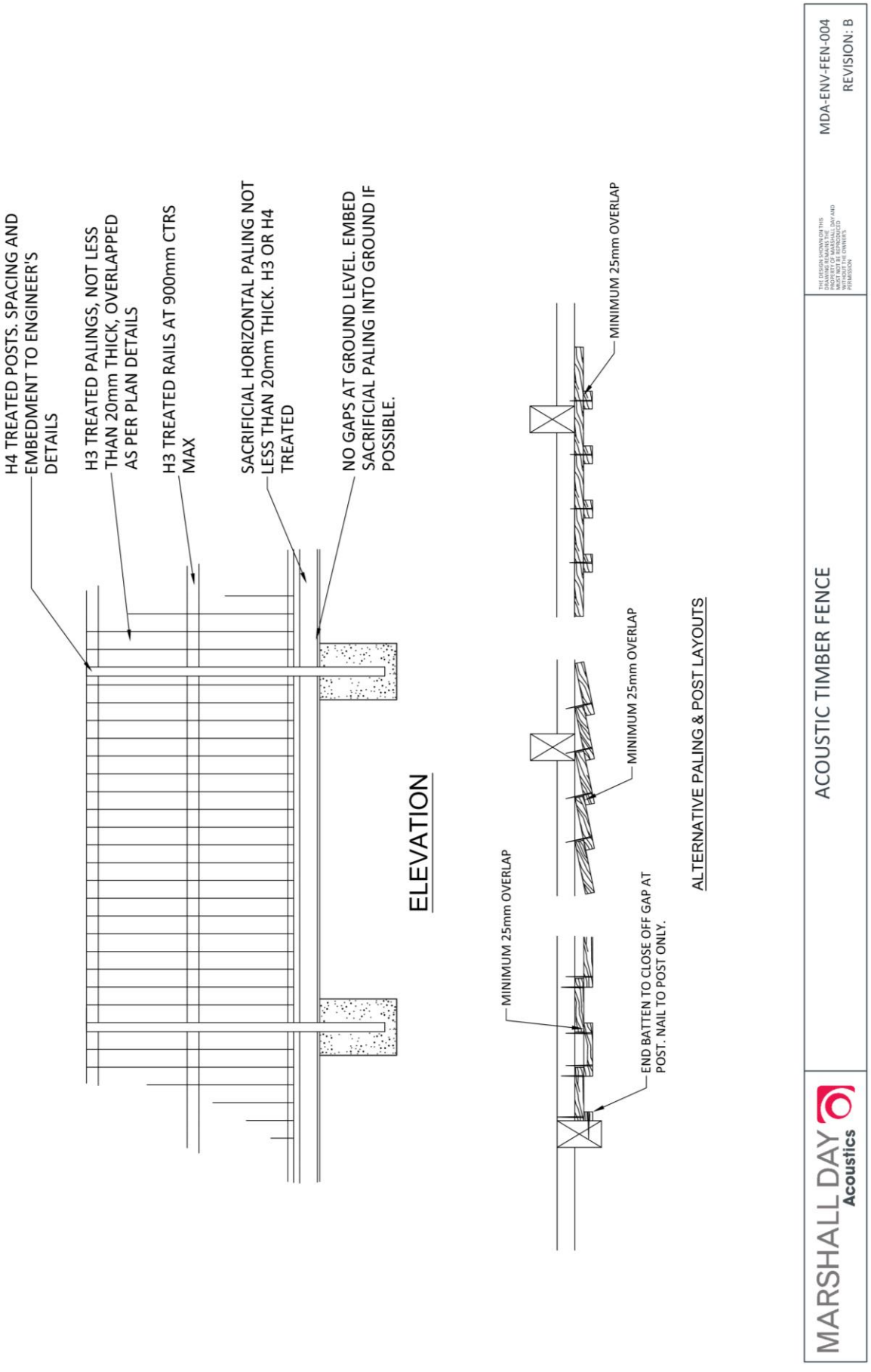
Our noise budget upon which our calculations have been based is as follows:

Cumulative noise levels from all mechanical plant and equipment shall not exceed:

- *50 dB $L_{Aeq(15\ min)}$ within the boundary of any other site that contains a residential activity during daytime hours (0730-2000 hours)*
- *40 dB $L_{Aeq(15\ min)}$ within the boundary of any other site that contains a residential activity during night-time hours (2000-0730 hours)*

This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

APPENDIX E STANDARD FENCE DETAIL



This document may not be reproduced in full or in part without the written consent of Marshall Day Acoustics Limited

ROLLESTON SERVICE STATION INTEGRATED TRANSPORT ASSESSMENT

PREPARED FOR Z ENERGY

11 February 2020



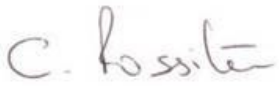
Stantec

This document has been prepared for the benefit of Z Energy. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to Selwyn District Council and New Zealand Transport Agency and other persons for an application for permission or approval to fulfil a legal requirement.

QUALITY STATEMENT

PROJECT MANAGER	PROJECT TECHNICAL LEAD
Andrew Leckie	Andrew Leckie

PREPARED BY		
Andrew Leckie		11/02/2020
CHECKED BY		
Chris Rossiter		11/02/2020
REVIEWED BY		
Andrew Metherell		11/02/2020
APPROVED FOR ISSUE BY		
Andrew Leckie		11/02/2020

CHRISTCHURCH
Hazeldean Business Park, 6 Hazeldean Road, Addington, Christchurch 8024
PO Box 13-052, Armagh, Christchurch 8141
TEL +64 3 366 7449, FAX +64 3 366 7780

Z Energy

Rolleston Service Station Integrated Transport Assessment

CONTENTS

1. Introduction 1
2. Site Location 1
3. Existing Transport Network 3
3.1 Main South Road 3
3.2 Brookside Road 4
3.3 Existing Rolly Inn Activity 6
4. Current Traffic Volumes 7
4.1 Daily Traffic Volumes 7
4.2 Brookside Road Intersection Counts 7
4.3 Existing Intersection Performance 9
5. Crash History 10
6. Future Changes to Transport Network 11
6.1 Main South Road Changes 11
6.2 CSM2 11
7. Proposed Development 12
7.1 Overview 12
7.2 Vehicle Access 12
7.3 Car Parking 16
7.4 Loading / Servicing 17
7.5 Pedestrian Provision 17
7.6 Cycle Parking 18
7.7 InterCity Bus Stop 18
8. Traffic Generation 18
9. Traffic Distribution 19
9.1 Trip Types 19
9.2 Service Station Driveway Movements 19
9.3 Additional Intersection Movements 20
10. Network Effects 21
10.1 Main South Road / Brookside Road Intersection 21
10.2 Brookside Road / Byron Street Intersection 21
10.3 Wider Transport Network 21
11. Access Performance 22
11.1 SH1 Interim Vehicle Access 22
11.2 SH1 Future Vehicle Access 22

11.3 Brookside Road Service Station Vehicle Access 22
11.4 Brookside Road Rolly Inn Vehicle Access 23
12. District Plan Compliance 23
12.1 Rule 5.3.1.1 Distance of Vehicle Crossings from Intersections 23
12.2 Rule 5.3.1.1 Number of Vehicle Crossings 23
12.3 Rule 5.3.1.1 Vehicle Crossing Widths 24
12.4 Rule 5.3.1.4 State Highway Access 24
12.5 Rule 5.5.1.1 Rolly Inn Car Parking Supply 24
12.6 Rule 5.5.1.1 Car Parking Area Location 25
12.7 Rule 5.5.1.2 Loading and Manoeuvring 25
12.8 Rule 5.5.1.2 Rolly Inn Car Park Manoeuvring 25
12.9 Rule 5.5.1.2 Rolly Inn Queuing Space 25
12.10 Rule 5.5.1.4 Service Station Mobility Parking 25
12.11 Rule 5.5.1.7 Rolly Inn Cycle Parking 25
13. Conclusion 26

APPENDICES

Appendix A NZTA Main South Road Scheme Plans
Appendix B District Plan Roading Rules Compliance
Appendix C 4Sight Rolly Inn Car Parking Calculations

1. Introduction

Z Energy proposes to develop a service station on land west of the Rolly Inn on Main South Road in Rolleston. The proposed service station would have a 245m^2 shop, eight fuel pump islands with 16 filling positions and a carwash. It is proposed with direct vehicle access off Main South Road and Brookside Road. As part of the development, changes to the adjacent Rolly Inn site including the formalisation of car parking and vehicle access and the development of a first-floor function room are also proposed.

This report describes the site location and the existing surrounding transport network, current traffic volumes nearby, the recent crash record of the surrounding roads and relevant future changes to the transport network. It then outlines the proposed transport features of the service station and its forecast traffic generation and distribution and assesses effects on the nearby intersections and the performance of the site accesses. The proposal is also assessed against Selwyn District Plan roading rules.

2. Site Location

The proposed service station site is located immediately west of the Rolly Inn, south of Main South Road (State Highway 1) and north of Brookside Road. It is currently occupied by the Rolly Inn car park, one house and vacant land.

Figure 1 shows the site location in the context of the surrounding Selwyn District Plan road hierarchy. Main South Road is classified as a State Highway. The primary point of access from State Highway 1 to Rolleston, is via the traffic signal-controlled intersection on Rolleston Drive to the east. It is supported by the sign-controlled Tennyson Street intersection. The adjacent section of Brookside Road past the site has been downgraded to a local road, which promotes access from the southern portion of Brookside Road to Tennyson Street and Rolleston Drive (via Byron Street and Kidman Street).

Figure 2 shows the Selwyn District Plan zoning of the surrounding area. The site is in the Living 1 zone. In the immediate vicinity of the site are other non-residential activities, including the Rolly Inn, a vet clinic (opposite side of Brookside Road), and the fire station, fish and chip shop, dairy, and a motel (to the west on Chaucer Street).

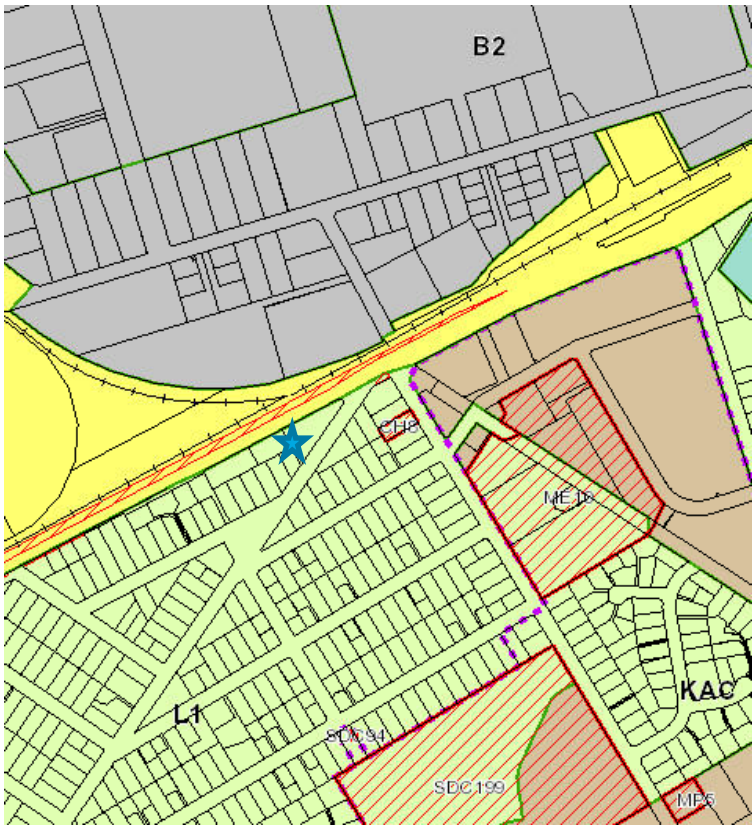
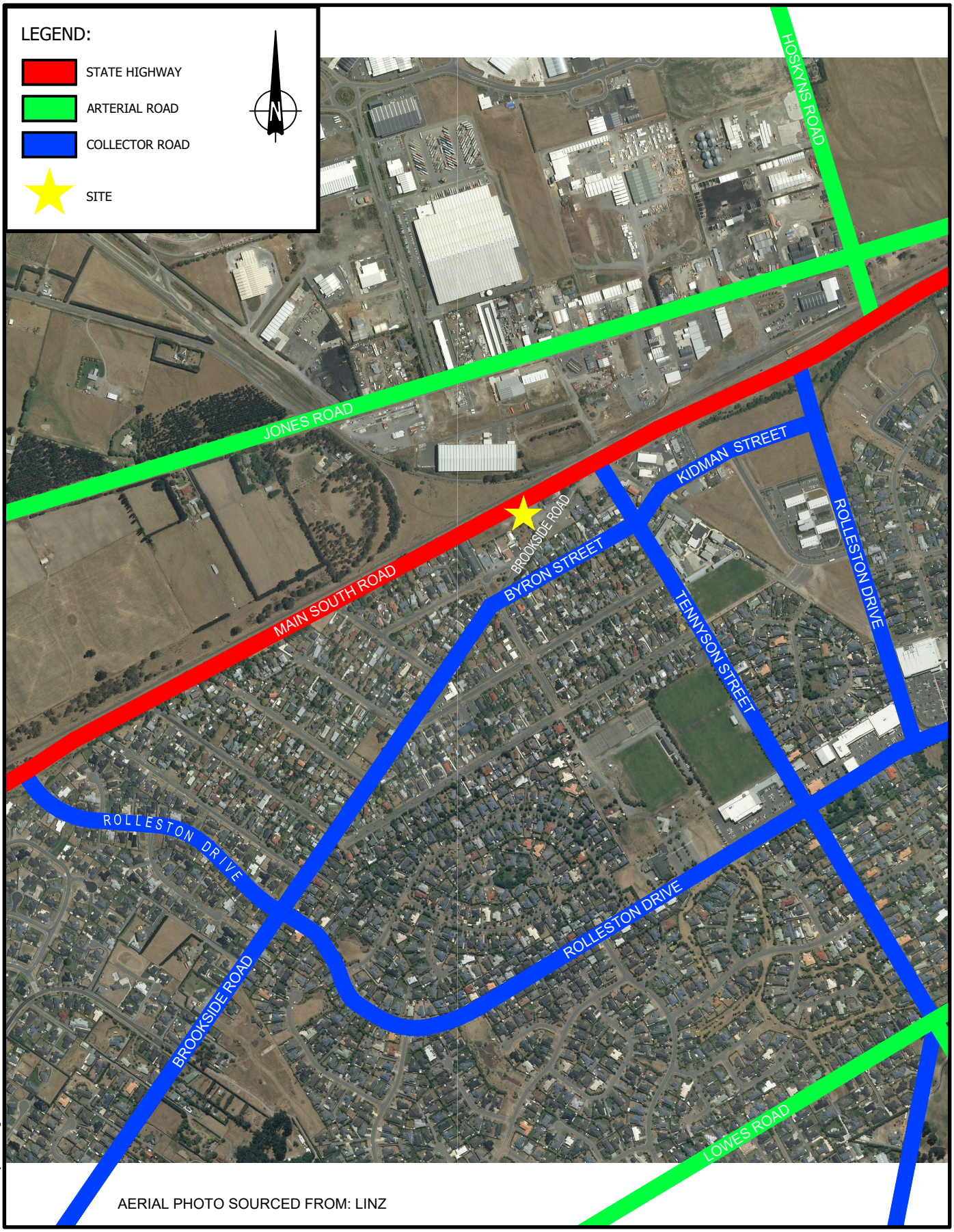


Figure 2: Site Location (Blue Star) and District Plan Zoning

Figure 3 shows an aerial photograph of the site (Part 2, 6 and 10 Brookside Road) in its surrounding context.



Wednesday, 15 August 2018 8:21:14 am 20mm @ A3

Z ROLLESTON

SITE LOCATION & ROAD HIERARCHY

Stantec

1

SCALE: 1:10,000 @ A4

X:\brCHC\OldData\14000-14999\14700-14799\14770 Z Service Station, Rolleston\Drawings\14770_C5A.dwg



Figure 3: Site (Part 2, 6 and 10 Brookside Road) Context Aerial Photograph (Source Canterbury Maps)

3. Existing Transport Network

3.1 Main South Road

Main South Road along the site frontage (**Photograph 1**) is designated as State Highway 1. It is formed with a mix of rural and urban characteristics, with a single lane in each direction, sealed shoulders and kerb and channel along the site frontage. There is an 80km/h speed limit through Rolleston and the 100km/h zone starts approximately 90m west of the site.



Photograph 1: Main South Road Site Frontage, Looking West

There is currently an InterCity bus stop outside the Rolly Inn, shown in **Photograph 2**. Information on the InterCity website indicated the bus stop is typically used three times a day.



Photograph 2: InterCity Bus Stop

East of the Tennyson Street intersection, there is a left turn entry slip lane that services the existing BP service station and the McDonalds fast food restaurant.

3.2 Brookside Road

Brookside Road (**Photograph 3**) past the site is formed as an 11.5m wide urban local road. It has a footpath on the western side (site side) of the road only. The speed limit is 80km/h near the Main South Road intersection, reducing to 50km/h approximately 70m from the intersection.



Photograph 3: Brookside Road- Looking South

Brookside Road meets Main South Road at a stop sign-controlled T-intersection (**Photograph 4**). Near the intersection, there is a tight bend in Brookside Road so that it meets Main South Road at 90 degrees.



Photograph 4: Main South Road / Brookside Road Intersection

Brookside Road meets Byron Street at a stop sign-controlled T-intersection (**Photograph 5**). Priority at the intersection lies with Byron Street east of the intersection and Brookside Road south of the intersection. There is a short separation from the Brookside Road / Byron Street intersection to the Brookside Road / Wordsworth Street T-intersection.



Photograph 5: Brookside Road / Byron Street Intersection from Northern Brookside Road Approach

In 2011/12, this intersection was altered to its current state. Previously, Brookside Road continued straight through the intersection with priority, and three side roads met it in this location. The changes were to downgrade the status of the northern section of Brookside Road and to encourage the use of Byron Street and Kidman Street as the collector roads towards the east and the traffic signals at Main South Road / Rolleston Drive intersection.

3.3 Existing Rolly Inn Activity

The Rolly Inn has been located adjacent to the proposed service station site for a long time, and currently operates as a pub with a Thai restaurant. It has three points of vehicle access on Brookside Road, approximately 30m, 60m, and 110m from Main South Road. There is no access on Main South Road. It is serviced by a large, informal car park area.



Photograph 6: Rolly Inn, Brookside Road Eastern Accesses



Photograph 7: Rolly Inn, Brookside Road Western Access and Car Park

4. Current Traffic Volumes

4.1 Daily Traffic Volumes

The following table contains average weekday daily traffic volumes on Main South Road, Brookside Road and Byron Street.

The Brookside Road and Byron Street daily volumes are estimates based on peak period intersection counts carried out recently.

Table 4-1: Daily Traffic Volumes on Surrounding Roads

Road	Location	Count Date	Mon-Thu Average Two-Way Daily Traffic Volume
Main South Road	South of Weedons Ross Road	30 Oct 2017	26,800vpd
Main South Road	South of Burnham Road	30 Oct 2017	13,800vpd
Brookside Road	South of Main South Road	7 August 2018	1,700vpd*
Byron Street	East of Brookside Road	7 August 2018	4,700vpd*

* Estimate based on factoring of peak hour counts

It can be seen that Main South Road traffic volumes between Rolleston and Christchurch are significantly higher than (almost double) those west of Rolleston. The Main South Road traffic volumes along the site frontage will be between the two counts, but are more likely to be closer to the Burnham count given the position of the site west of Rolleston Drive and Hoskyns Road.

Byron Street carries typical traffic volumes for a collector road and Brookside Road carries lower volumes consistent with its downgraded local road status between Main South Road and Byron Street.

4.2 Brookside Road Intersection Counts

Weekday intersection counts were carried out on Wednesday 8 August 2018 at the Main South Road / Brookside Road and Brookside Road / Byron Street intersections. The 7:00am-9:00am morning peak period and the 4:00pm-6:00pm evening peak period were both covered in the counts. The recorded peak hour traffic volumes at each intersection are summarised below.

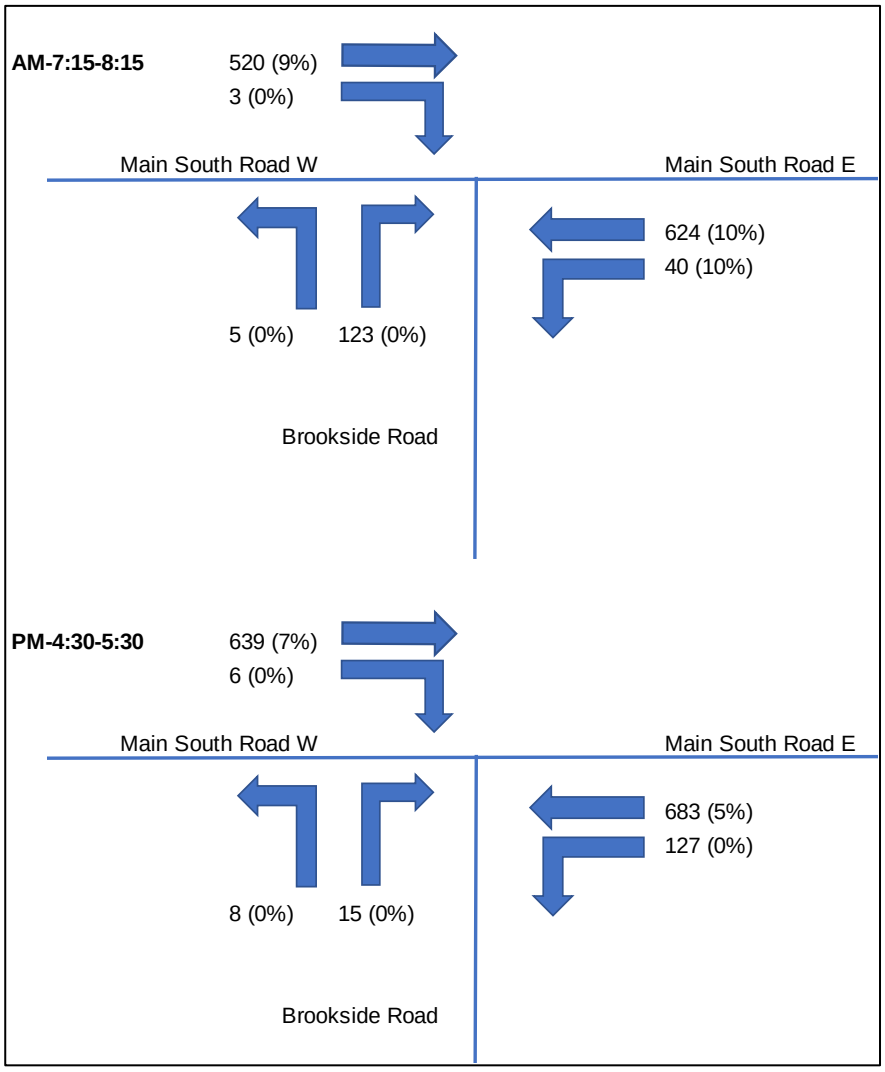


Figure 4: Main South Road / Brookside Road Peak Hour Turning Movements, Total Volume (Heavy Vehicle Percentage)

It can be seen that Main South Road carries high traffic volumes which are relatively balanced, by direction, during both peak periods. The main movements on Brookside Road are the right turn out towards the east during the morning peak hour and the left turn in during the evening peak hour. These movements are consistent with commuter traffic movements to/from Christchurch. There are only very low volumes of movements between Brookside Road and Main South Road to the west of the intersection.

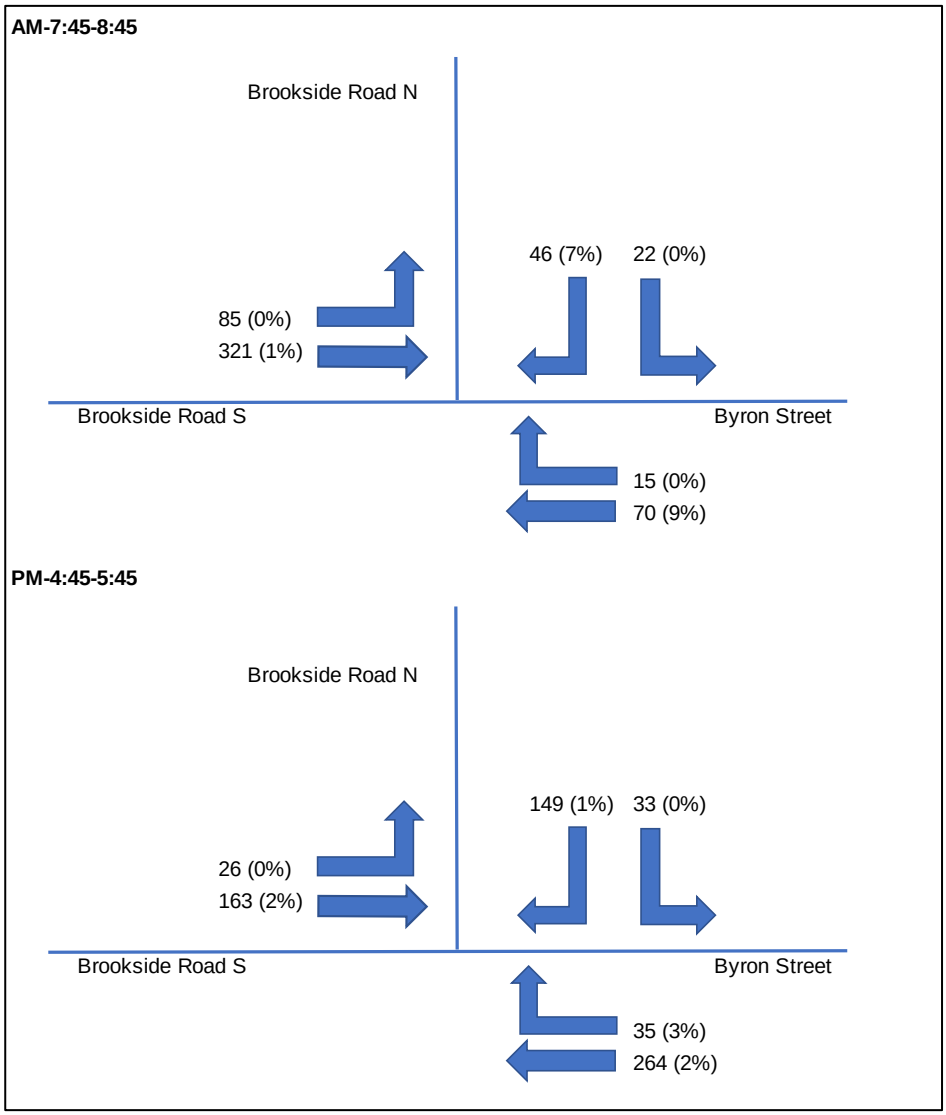


Figure 5: Brookside Road / Byron Street Peak Hour Turning Movements, Total Volume (Heavy Vehicle Percentage)

There is a tidal flow on Byron Street and Brookside Road, south of the intersection, particularly during the morning peak hour. It is also clear that there is demand for travel from the south-west of Rolleston along Brookside Road to the north of the intersection in the morning and vice versa in the evening. These movements are consistent with the main Brookside Road movements at the Main South Road intersection identified above.

It is noted that the traffic volumes on the section of Brookside Road between Main South Road and Byron Street are very similar at both ends during the morning peak hour. During the evening peak hour, there are approximately 90 vehicle movements more on the southern part of that section of Brookside Road. This is attributed to the traffic generation of the motel, local shops and the Rolly Inn.

4.3 Existing Intersection Performance

4.3.1 Main South Road / Brookside Road

The morning peak hour is considered to be the critical hour for the performance of the Main South Road / Brookside Road intersection given the higher volume of traffic turning out of Brookside Road. A delay survey was carried out during the peak hour of 7:15am-8:15am on the same day that the turning count survey was carried out. The delay survey focussed solely on the right turn movement out of Brookside Road, given there were very few left out and right in movements.

An average stopline delay of 23 seconds was recorded. A SIDRA intersection model was developed and calibrated to this observed stopline delay. With geometric delay included, the right turn movement from

Brookside Road is experiencing an average delay of 31s, representing a level of service (LOS) D. This shows that there is some delay already occurring at the intersection, but it is still operating acceptably.

The same calibrated model was used for the evening peak hour of 4:30pm-5:30pm. During this hour, there is a low volume of traffic turning out of Brookside Road and the dominant movement is the left turn from Main South Road. Using the calibrated model, the right turn out during the evening peak hour is forecast to be operating with an average delay of approximately 24s, representing LOS C.

4.3.2 Brookside Road / Byron Street

The Brookside Road / Byron Street intersection has been modelled as a T-intersection using SIDRA. There were very low traffic volumes entering or exiting the Wordsworth Street intersection opposite (20-25vph recorded during peak hour surveys). This means there would be minimal interaction between the staggered Brookside Road / Wordsworth Street and Brookside Road / Byron Street intersections.

The low peak hour through volumes on Byron Street and Brookside Road, south of the intersection, (approximately 400vph two-way) mean that the intersection is currently operating with minimal delays. Using the SIDRA default gap acceptance parameters, the intersection is forecast to be operating with short average delays representing good LOS A/B for all movements.

5. Crash History

A crash search was carried out using NZTA's Crash Analysis System for the surrounding road network. The crash search covered the full five-year period of June 2014- June 2019 and included any crashes reported since then as at 8 January 2020.

The crash search covered the following sections of Main South Road:

- The mid-block section of Main South Road between the Rolleston Drive traffic signals and Tennyson Street, including the commercial accesses;
- The Main South Road intersections with Tennyson Street and Brookside Road;
- The mid-block section of Main South Road between Brookside Road and Rolleston Drive; and
- The Main South Road / Rolleston Drive priority-intersection.

The crash search also covered Brookside Road between Byron Street and Main South Road and the Brookside Road / Byron Street intersection.

One fatal crash was reported along the section of Main South Road between the Rolleston Drive traffic signals and Tennyson Street. In July 2019, an eastbound driver attempted a U-turn and was hit by an eastbound vehicle. It appears the crash occurred opposite the BP service station entry for westbound traffic.

Eleven crashes (two minor-injury and nine non-injury) have been reported at the SH1 / Tennyson Street intersection. Eight of these, included the two minor-injury crashes, involved drivers turning right out of Tennyson Street failing to give-way to through traffic and being hit from the right. Four of the drivers at fault claimed that their visibility to the through traffic was at least partially obscured by a vehicle turning left into Tennyson Street. Two of the remaining crashes involved drivers turning right into Tennyson Street failing to give-way to westbound through traffic. The final crash involved two drivers turning (left and right) out of Tennyson Street being hit by a truck indicating left. Both drivers claim that the truck driver appeared to change their mind about turning left into Tennyson Street and continued towards Brookside Road.

One non-injury crash has been reported at the Main South Road / Brookside Road intersection. It involved a driver turning right out of Brookside Road colliding with a westbound vehicle on Main South Road. The driver claimed that they did not see the vehicle behind turning traffic.

Five crashes, including one fatal crash, were reported along the Main South Road mid-block section between Brookside Road and the southern Rolleston Drive intersection. The fatal crash occurred in November 2014 and involved a distracted driver crossing the centreline and hitting a truck and trailer. Two of the non-injury crashes involved people driving too fast and crashing into the rear of cars in front, one was a loss-of-control crash and one was a head-on crash. Four of the crashes occurred west of the site in the 100km/h zone. The non-injury head-on crash occurred outside the Rolly Inn when a campervan driver crossed the centreline and crashed into a trailer.

Four crashes (1 minor injury, 3 non-injury) were reported at the southern Main South Road / Rolleston Drive priority-control intersection. Both involved right turning vehicles. One lost control turning right into Rolleston

Drive and the other turned right out and collided with an eastbound vehicle on Main South Road. Neither involved left turning traffic or side road traffic colliding with westbound highway traffic.

No crashes were reported along Brookside Road between Main South Road and Byron Street. One minor injury crash was reported at the Brookside Road / Byron Street intersection. It involved a drunk driver losing control on the bend travelling between Byron Street and Brookside Road to the southwest.

6. Future Changes to Transport Network

6.1 Main South Road Changes

NZTA has provided scheme plans for an upgrade to Main South Road within Rolleston. The upgrade would be aimed at improving the safety of the corridor by separating local traffic movements from state highway through traffic. Access between the westbound through lane on Main South Road and Rolleston will be focused at the eastern and western ends of the township, with direct access from Tennyson Street and Brookside Road limited to left in / left out.

The upgrades would involve the development of a westbound 'service lane' separated from the state highway through lanes. The service lane would run from west of the eastern Rolleston Drive intersection to west of the proposed service station site. It would restrict the operation of the Tennyson Street and Brookside Road intersections, and any property accesses, to left-in/left-out only. The service lane would operate with a 50km/h speed limit.

Figure 6 shows the scheme plan adjacent to the proposed service station site and the full set of scheme plans is contained in **Appendix A**.

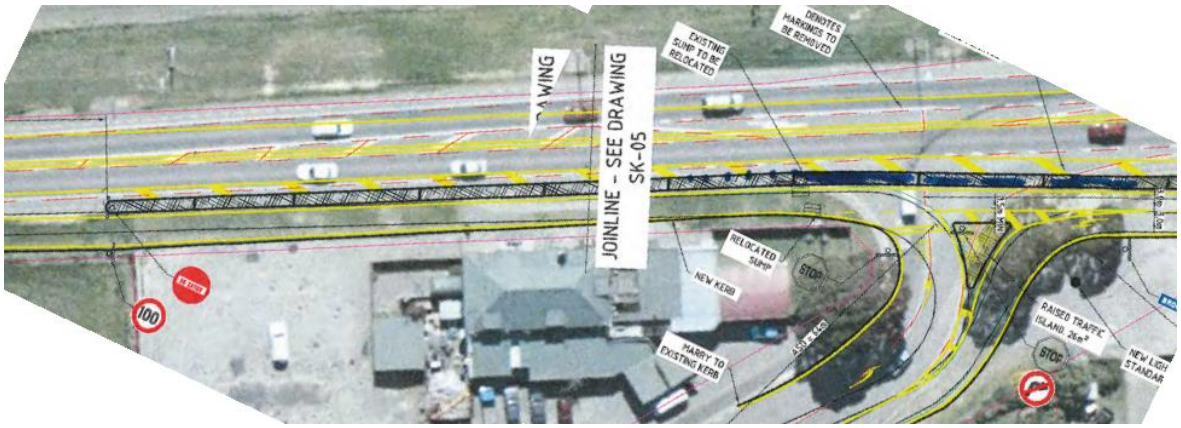


Figure 6: Proposed Changes to Main South Road Adjacent to Site

Timing of the proposed changes has not been confirmed and it is unclear whether these changes will be included in the recently announced NZ Upgrade Programme. That work is to include a new two-lane overbridge between Rolleston Drive and Hoskyns Road for safer and better access between the residential and industrial areas, and upgrades to four intersections between Burnham and Rolleston.

Previously, "Rolleston Intersection Improvements" were included in the NZTA Draft Transport Agency Investment Proposal (TAIP, April 2018) to have the detailed business case, and pre-implementation phase to occur in the period 2018 to 2021. It was classified as a proposed state highway improvement with the note "*Activities which are new or are in an early phase of project development. These activities will continue to be developed and delivered subject to their alignment with the draft GPS priorities.*"

The Selwyn District Plan also includes a 10m wide road widening designation on the northern side of Main South Road opposite the site. There is no discussion within the TAIP to implement the designation, such as for increasing the number of lanes on Main South Road.

6.2 CSM2

The Christchurch Southern Motorway Stage 2 (CSM2) is currently under construction. The southern end of the CSM2 alignment is shown below. The CSM2 will start at Rolleston and a full interchange will be provided at Weedons Ross Road. The CSM2 will be expected to improve travel times and travel time reliability from Rolleston into Christchurch. The Rolleston intersection and interconnection improvements will be closely linked to the changes in access to Rolleston associated with the CSM2 project.



Figure 7: CSM2 Southern End

7. Proposed Development

7.1 Overview

The proposed service station layout is shown in **Figure 8** and will include a 245m^2 shop, eight fuel pump islands with 16 filling positions on the forecourt and a carwash.

Changes to the Rolly Inn site are also proposed. A function room is to be developed on the first floor of the existing building. The function room, which would be for hire for private functions, would have capacity for 60 people. It is forecast to be used twice per month on average. Externally, proposed changes are largely associated with formalising the Rolly Inn car park, which is required as a result of the service station occupying much of the existing informal car park.

7.2 Vehicle Access

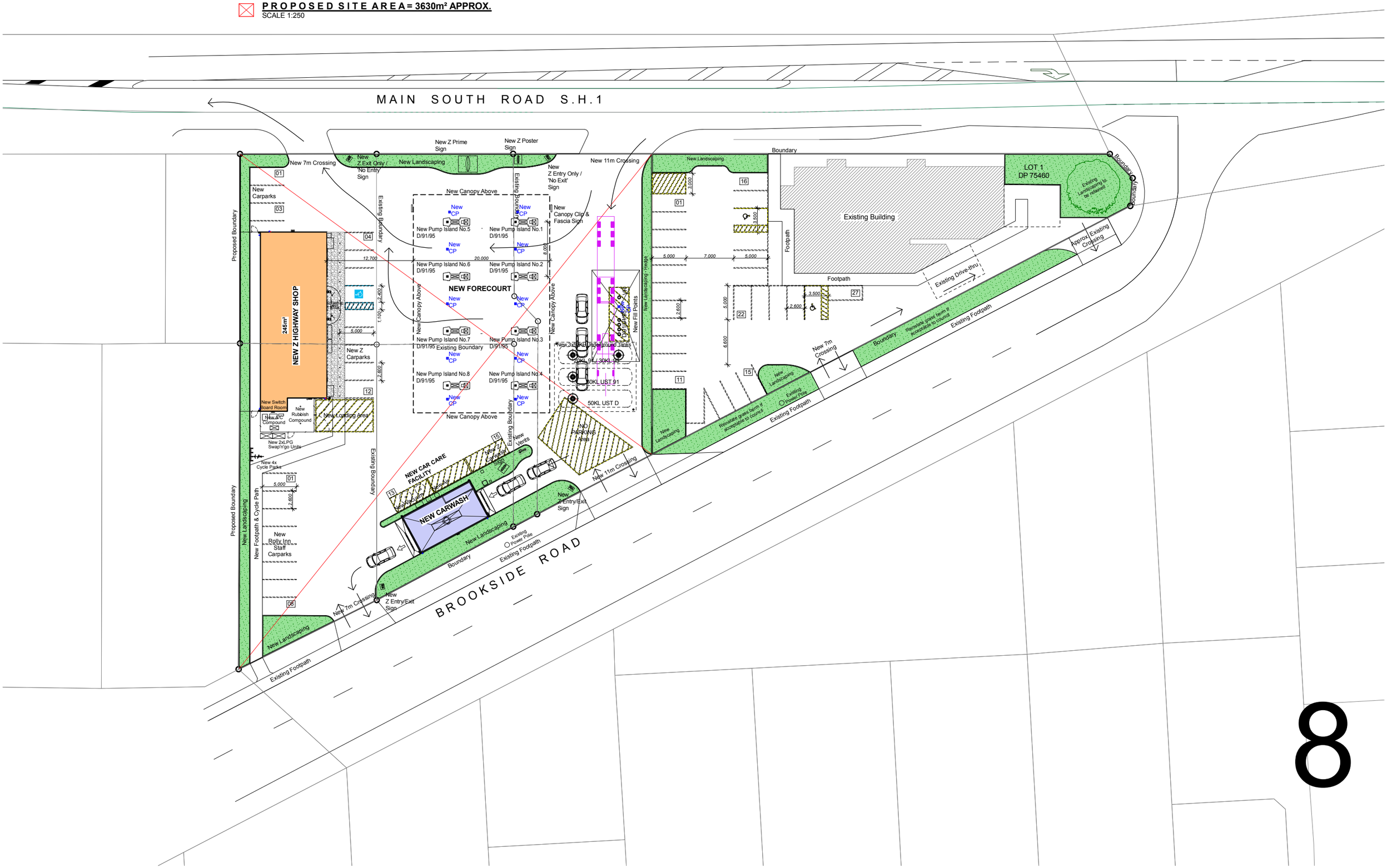
7.2.1 Main South Road Access- Interim Design

In order to provide effective service to passing motorists, vehicle access to the service station is proposed directly to/from Main South Road. The access arrangements have been designed to tie into Main South Road in its current form initially. These arrangements are considered interim because eventually it is expected that Main South Road will be upgraded, as described earlier, in the medium term (previously indicated to be due for detailed business case and pre-implementation by 2021).

Separate entry and exit driveways are proposed to allow left turns into and out of the site only. It is proposed to construct a raised median island on the southern side of the Main South Road centreline to prevent right turns into and out of the site. That will require the westbound traffic lane to shift around the island. A sealed 2.5m shoulder is also proposed on the service station side of the road for an informal deceleration area and general extra road width.

The Main South Road entry driveway has been designed to accommodate a 25m truck and trailer tanker left turn. It is noted the 25m truck and trailer is a 'worst-case' design vehicle due to its maximum length configuration. As shown in **Figure 9**, the tanker would turn left from the Main South Road through lane to enter the site.

PROPOSED SITE AREA = 3630m² APPROX.
SCALE 1:250



8

Z ENERGY LTD
3 QUEENS WHARF
PO BOX 2091
WELLINGTON 6140
NEW ZEALAND
PH. 0800 474 355

Z ENERGY STANDARD DESIGN
Z Brookside Rd-Rolleston NTI
2 Brookside Road
Rolleston

SCHEME

Legal Description
LOT 1 DP 75460

SHA Architecture LIMITED
SHA Ref No 16023

ARCHITECTURE & INTERIORS
PROJECT MANAGERS & CONSULTANTS

AUCKLAND	HAMILTON
P (09) 309 9660	P (07) 839 5622
F (09) 309 9661	F (07) 838 2500
P.O.BOX 8232	P.O.BOX 1465
SYMONDS ST	HAMILTON NZ
AUCKLAND NZ	WWW.SHA.CO.NZ

DRAWING DESIGN LIMITATIONS
NZS 3604:2011 WIND ZONE: LOW, MEDIUM, HIGH
NZS 3604:2011 EXPOSURE ZONE: B AND C (LOW AND MEDIUM)
NZS 4218:2004 CLIMATE ZONE: ZONE 1, ZONE 2, ZONE 3

GENERAL NOTES • Do not reproduce any standard drawing before checking latest drawing revision with Z Energy H.O. engineering division.• Contractor to adhere to all latest Building Codes and regulations including NZS 3604, NZBC and any other codes relevant to these documents and local authority regulations and bylaws.• All OSH regulations to be adhered to for the duration of contract.
• This drawing to be read in conjunction with the other drawings in the standard contract documents drawing set and with site specific drawings for any specific project.
DISCLAIMER: These drawings and specifications must be read in conjunction with NZBC and all other relevant standards and codes. SHA Architecture Limited takes no liability for any alterations, substitutions, ommissions to these documents and codes which result in building failure and or weather tightness failure.

NO	DESCRIPTION	DATE	ISSUED BY
A	SCHEME ISSUE	21/01/2020	J.L

PROPOSED SITE PLAN SCHEME 28

SCALE @ A1. 1:250 SCALE @ A3. 1:500

CONTRACTORS SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. DO NOT SCALE FROM THE DRAWINGS. IF IN DOUBT OBTAIN CLARIFICATION FROM THE PROJECT LEAD CONSULTANT. COPYRIGHT OF THIS DRAWING IS VESTED IN Z ENERGY. COMPLIANCE OF THIS DRAWING IS THE RESPONSIBILITY OF THE AUTHOR OF THE LAST REVISION.

Z ENERGY REF. SITE SPECIFIC

Z-PS-A028

VERSION. REV. A

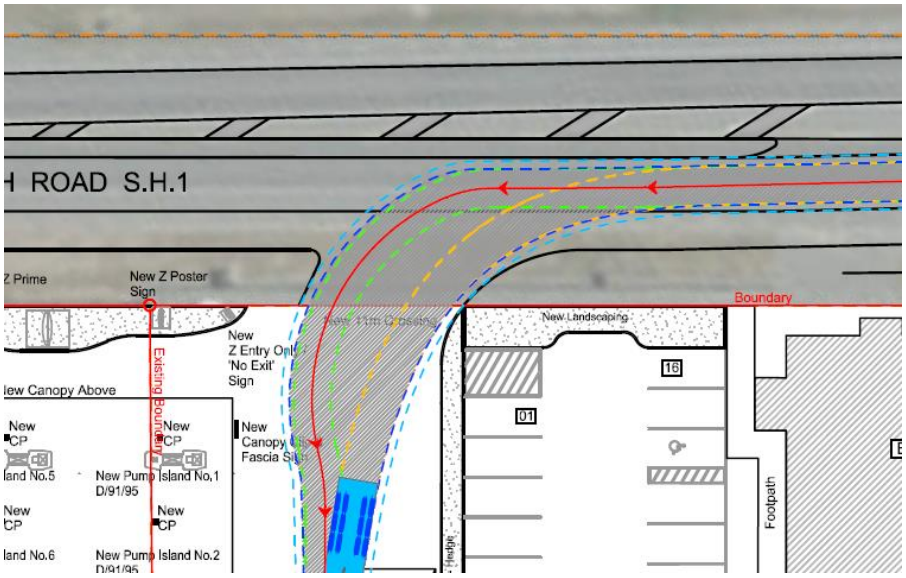


Figure 9: Tanker Entry from Main South Road

The Main South Road exit driveway has been designed to accommodate a medium rigid truck (**Figure 10**). As the site is not intended for use by large trucks, it is considered that this represents the appropriate design vehicle. The driveway has been positioned towards the western end of the site to provide queuing space for vehicles to wait to enter Main South Road without obstructing the fuelling bays. The exit driveway is proposed to meet Main South Road at a 70-degree angle to ensure drivers can comfortably observe and give-way to westbound traffic. Good sightlines in excess of 300m will be available to westbound traffic on Main South Road.

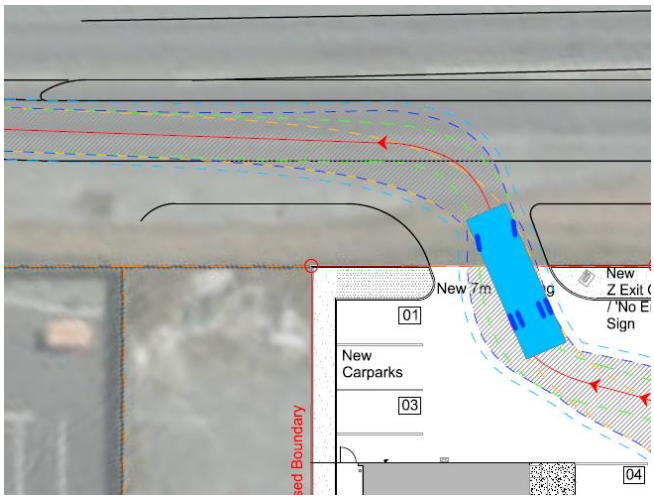


Figure 10- Medium Rigid Truck Exit to Main South Road

The proposed Main South Road vehicle access arrangements have been discussed with NZTA transport planning staff. To date, no concerns have been raised however an approval in principle has not been received at the time of writing.

It is noted that works within the Main South Road corridor would require approval from NZTA under separate legislation.

7.2.2 Main South Road Vehicle Access- Future Layout

The two vehicle crossings proposed on Main South Road are proposed to tie into the existing road formation. However, the on-site layout has been designed to easily be able to tie into the expected future Main South Road layout.

The service lane on Main South Road will be closer to the boundary than the current westbound traffic lane.

That means the tanker, on entry, will require a wider area to turn into the site, as shown in **Figure 11**. The landscaping between the entry and exit driveways has been set back from the entry driveway so that minimal changes will be required within the site boundary when the service lane is constructed. It is expected an altered vehicle crossing would be constructed to suit the service station entry as part of the Main South Road upgrade work.

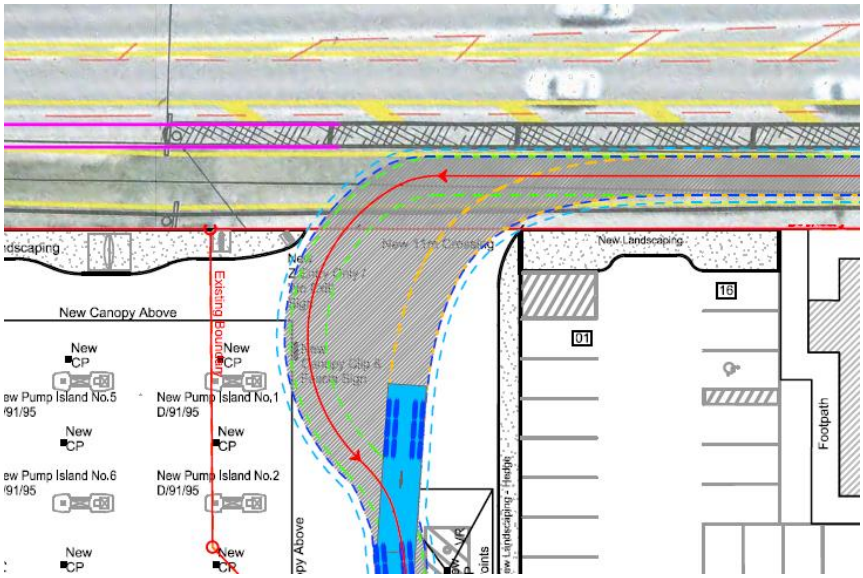


Figure 11: Entry Driveway Future Arrangement

As shown in **Figure 12**, the 7m exit driveway width at the boundary would still be sufficient for a medium rigid truck to turn left out into the service lane. This vehicle crossing would also need to be altered to allow more room for the truck manoeuvring at the time of the road upgrade.

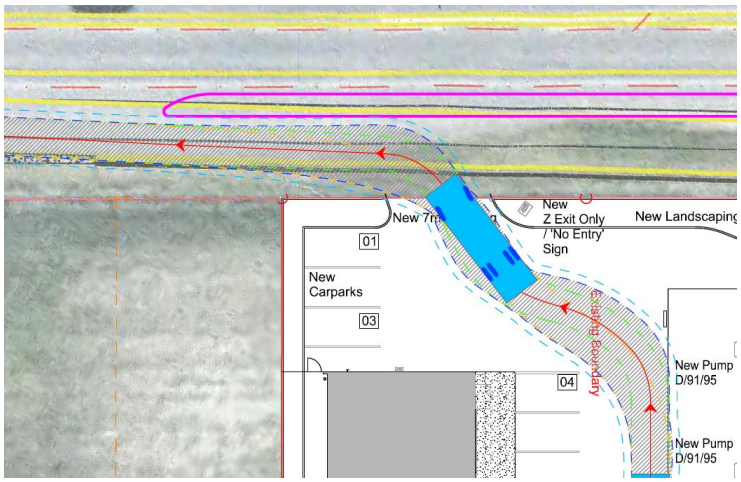


Figure 12: Exit Driveway Future Arrangement

The site layout does anticipate and rely on access to/from the future SH1 service lane, to provide for efficient customer service and site circulation. The position of the exit driveway may influence the length of the service lane at the western end, to allow vehicles exiting the service lane to get back to the through lane traffic speed in the merge area and to prevent right turns in and out. It is noted the service lane island has been extended, as visible in Figure 12, for the service station exit driveway design.

7.2.3 Service Station Brookside Road Vehicle Access

Two new vehicle crossings are proposed on Brookside Road to allow convenient access for people travelling to/from the south-western part of Rolleston.

The eastern vehicle crossing has been designed to accommodate tanker left turns and right turns from the site, as indicted in **Figure 13**. This has been done to allow for flexibility in tanker routing. The design has allowed for kerbside car parking to be retained on the opposite side of the road, by keeping the tanker 2.5m away from the southern kerb.

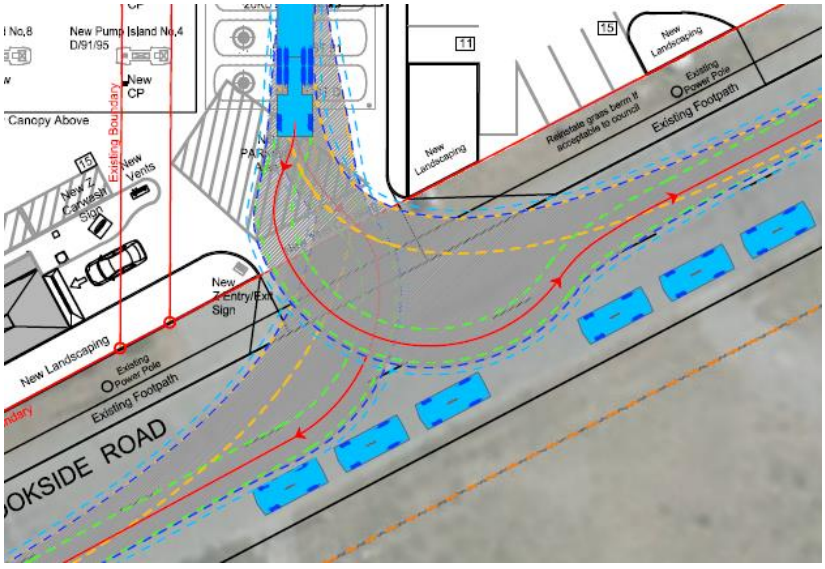


Figure 13: Tanker Tracking at Brookside Road Driveway

Detailed design will be required with topographic information to better define the tanker paths and vehicle crossing designs. The large splay on the exit side of the driveway could be treated with a different surface so that it is can be traversed by trucks, but would discourage its use by light vehicles.

The western vehicle crossing on Brookside Road is proposed with a standard 7m width and is intended to be for two-way light vehicle use. It would be suitable for small delivery vehicles associated with the service station shop.

Good sightlines of at least 100m, appropriate for the 50km/h speed limit, will be available from both driveways.

New vehicle crossings will be constructed as heavy duty vehicle crossings.

7.2.4 Rolly Inn Vehicle Access

The existing vehicle access to the Rolly Inn is proposed to be altered to suit the proposed car parking arrangement.

A new 7m wide vehicle crossing will be constructed to provide two-way vehicle access to the car park and the existing drive-through. The existing vehicle crossing at the eastern end of the frontage is proposed to be retained for vehicles to exit from the drive-through.

Redundant vehicle crossings will be removed and the kerb and channel will be reinstated. The proposed changes along the Brookside Road frontage of the Rolly Inn will tidy up the area and formalise vehicle areas. It has been noted during site visits that people currently park vehicles on the footpath and elsewhere within the road reserve.

As for the service station, any new vehicle crossings will be constructed as heavy duty vehicle crossings.

7.3 Car Parking

7.3.1 Service Station Car Parking

In addition to the fuelling positions, car parking spaces are proposed on the service station site in-front of the shop and along the western boundary of the site.

Nine 90-degree spaces, including one disabled space, are proposed in front of the shop, three 90-degree spaces are proposed between the shop and Main South Road for service station staff, and eight 90-degree spaces are proposed between the shop and Brookside Road for Rolly Inn staff and associated vehicles e.g. courtesy vans.

All 90-degree spaces will be 2.6m wide and the disabled space will be marked 2.4m wide with an adjacent 1.1m shared space in accordance with the NZS2890 parking standard. The combined parking space length and aisle width for all spaces will exceed 12m.

7.3.2 Rolly Inn Car Parking

27 parking spaces, including two disabled spaces (one outside the restaurant entrance and one outside the pub entrance), are proposed on the Rolly Inn site. In addition to this, short-term parking will be available within the existing drive-through which is to be retained. Parking spaces will be 2.6m wide by 5m deep with 6.6m to 7m wide aisles. The disabled spaces will be marked 2.4m wide but will have effective widths of 3.5m allowing for the 1.1m shared spaces adjacent. The shared spaces also provide convenient access for pedestrians to the buildings. A turnaround area is proposed at the end of the dead-end aisle.

7.4 Loading / Servicing

A loading space for the shop is proposed at its southern end. It will be able to accommodate a medium sized rigid truck and its manoeuvring requirements.

Information from the applicant indicates that a tanker would visit the site 1-2 times a day. The fuel tank fill points are located to the east of the forecourt, allowing for easy access for a tanker entering the site from Main South Road. It is understood tanker routes have not been confirmed at this stage, however the site has been designed for tankers to enter only from Main South Road. There will be some flexibility, at least initially, for tankers to either leave the site towards the north or the south along Brookside Road. As outlined earlier, the Brookside Road vehicle crossing has been designed to accommodate both left and right turn movements.

Ultimately, if the Main South Road upgrades are carried out, and depending on the final design of the Brookside Road intersection, the service lane arrangement may not allow for tanker left turns onto Main South Road. In this case, all tankers would need to leave towards the south along Brookside Road.

The left turn from Brookside Road to Byron Street would not be suitable for large vehicles due to the geometry of the intersection and the acute angle between the two roads. Accordingly, tankers leaving the service station along Brookside Road to the south will be required to continue along Brookside Road to the southwest to access the arterial road network.

Figure 14 shows that a tanker making the right turn at the intersection may need to cross the centreline for some distance on the Brookside Road approach. Given the small number of tanker movements each day, this is considered acceptable.



Figure 14: Tanker Right Turn Brookside Road (North) to Brookside Road (Southwest)

The Rolly Inn will continue to be served by small delivery vehicles which can currently travel through the drive-through.

7.5 Pedestrian Provision

A footpath is proposed along the western boundary of the service station site from Brookside Road to the front of the shop. This will provide convenient access for any local pedestrian visits from the nearby

residential areas to the southwest. No changes are proposed to the pedestrian provision on Brookside Road, given the low pedestrian demand that the service station will generate.

No pedestrian connection is proposed between the service station site and the Rolly Inn site. This is intended to encourage use of the Brookside Road footpath rather than the service station forecourt.

The formalisation of the Rolly Inn car park will be an improvement for pedestrians and a footpath is proposed around the outside of the building.

7.6 Cycle Parking

Four cycle parking spaces are proposed at the southern end of the shop.

7.7 InterCity Bus Stop

The InterCity bus stop outside the Rolly Inn may need to be moved closer to the boundary to provide enough clearance to the passing traffic lane. This will need to be confirmed during detailed design when accurate survey data is available and the details of the service station frontage tie-in to the existing road are confirmed.

8. Traffic Generation

Stantec carried out a transportation assessment for an earlier iteration of the proposed service station development in 2018. The earlier service station was proposed with eight fuelling positions and had a slightly smaller shop than that now proposed. Based on a review of published service station traffic generation rates, a two-way peak traffic generation of 110-150 vehicle movements per hour (vph) was estimated for the service station. A peak hour traffic generation of 150vph was adopted for the assessment. At the time, this was considered conservatively high given the passing traffic volumes and the high capture rate that would be required to achieve it.

The now proposed service station has double lanes on the forecourt, so technically 16 fuelling positions instead of the previously proposed eight. However, the double lanes are intended to provide more convenience for visitors, increased space for queuing and improved flow of vehicles through the forecourt area. Neither the double-laning, nor the small increase to the shop area, are expected to increase the traffic generation of the site, which is expected to be largely influenced by the passing traffic volumes.

The Trips Database Bureau (TDB) includes counts at two unmanned service stations in Auckland which found that the number of vehicles entering the service stations ranged between 1.8% and 4.7% of the passing traffic. The results are summarised in the following table. It is noted that Site 1 is located on a road that is median divided and the capture rate is based on only the passing traffic volume that can access the service station.

Table 8-1: TDB movement rates based on passing traffic (vehicles entering site)

Site	AM Peak		Inter-peak		PM Peak	
	% of Traffic	Time	% of Traffic	Time	% of Traffic	Time
Site 1 (Saturday count)	4.3%	9:30 to 10:30	4.7%	11:45 to 12:45	4.5%	3:00 to 4:00
Site 1 (weekday count)	3.8%	9:15 to 10:15	3.2%	12:30 to 1:30	1.8%	4:45 to 5:45
Site 2 (Saturday count)	2.7%	9:15 to 10:15	3.0%	12:00 to 1:00	4.1%	4:15 to 5:15
Site 2 (weekday count)	1.9%	7:00 to 8:00	2.1%	12:30 to 1:30	3.6%	4:45 to 5:45

The assessed peak hour traffic generation of approximately 75vph entering the site equates to an approximately 9% capture rate based on the SH1 westbound and Brookside Road two-way passing traffic volumes or over 5% based on all passing traffic including SH1 eastbound traffic. It is concluded that the assessed two-way peak hour traffic generation of 150vph is conservatively high and remains appropriate for this assessment of the proposed service station.

The only change to the Rolly Inn activity on-site is the proposed addition of the first-floor function room. It will be a relatively small function room and is forecast to be used only twice a month. Accordingly, it is considered it will have a negligible effect on the surrounding road network and Rolly Inn traffic generation is not considered any further in this assessment.

9. Traffic Distribution

9.1 Trip Types

This traffic distribution analysis is based on the interim access scenario, before the NZTA upgrades to Main South Road are implemented. This is considered the critical scenario in terms of potential traffic safety and efficiency effects from the service station. That is because the right turn out of Brookside Road onto Main South Road is still permitted in this scenario and the speed limit on Main South Road is higher than it will be in the future westbound service lane.

Almost all vehicles that visit a service station are already on the road and most are already passing the site.

Traffic surveys at a service station in Christchurch suggested that at least 80% of traffic entering the site could already be passing the site. Pass-by traffic does not add to frontage road volumes or turning volumes at nearby intersections. Given the proposed site location next to a highway, it is expected it will have a high proportion of pass-by usage. For this assessment and to be conservative, 70% of traffic generated has been assessed as pass-by traffic.

The proportion of pass-by trips from each passing traffic stream will depend on the volume of passing traffic in that stream and how easy it is to enter/exit the site. There is a high volume of traffic passing the site westbound on Main South Road and it will be convenient for these drivers to visit the service station on their way past. It will be very convenient for people already passing the site on Brookside Road to visit the service station but the traffic volume passing the site on Brookside Road is much lower than the highway volumes. It will be inconvenient for traffic passing the site eastbound on Main South Road to enter the site and then to get back onto Main South Road. They would have to turn right into Brookside Road to access the site and then turn right out of Brookside Road to re-enter Main South Road. Technically these movements would be part of a diverted trip, since they would add to the traffic volumes using the Brookside Road intersection. For simplicity, they have been treated as pass-by movements in this assessment.

Service stations will attract diverted traffic from alternative routes to pass the site and enter for fuel. For example, the proposed service station will likely divert some drivers travelling from Christchurch to the south-west of Rolleston via a different route, to use Brookside Road and to visit the service station on their way home. 20% of the traffic generated by the service station has been assessed as diverted traffic. Diverted trips would be directional e.g. there would be more diverted trips out of Rolleston in the morning and back into Rolleston during the evening. Most of the diverted traffic would be diverted along Brookside Road between the south-west of Rolleston and Main South Road, to the east and west of Rolleston.

Service stations generate a small number of primary trips which are associated with people travelling to the service station as their primary destination. In this location, primary trips would only be expected to originate from the residential areas to the south-west of the site. It has been assessed that 10% of peak hour traffic generated could be associated with primary trips. It is expected that during peak hours, people are less likely to make a primary trip from home to the service station than at other times of the day or during the weekend. Adopting 10% of peak hour traffic generation as primary trips is considered conservative since all primary traffic movements are new to the road network and in this case, they would all be added to the local Brookside Road / Byron Street intersection.

The following table contains a summary of the assessed split of trip types.

Table 9-1: Proportion of Traffic Generation by Trip Type

Trip Type	Proportion of Traffic Generated	Peak Hour Traffic Generation
Pass-By	70%	105vph
Diverted	20%	30vph
Primary	10%	15vph

9.2 Service Station Driveway Movements

The following table summarises the forecast peak hour service station driveway traffic movements.

Table 9-2: Service Station Traffic Generation by Driveway

Frontage	Direction	Peak Period	
		Morning	Evening
Main South Road	In	38vph	45vph
	Out	44vph	39vph
Brookside Road (Across both driveways)	In	37vph	29vph
	Out	31vph	36vph

The forecast vehicle movements at the two Brookside Road driveways have been combined because drivers will have a choice of which driveway to use to best suit their trip.

It has been assumed that all traffic entering the site from the Main South Road westbound traffic stream will enter via the Main South Road access rather than turning left into Brookside Road and then turning right into the site. In practice, some drivers may turn left into Brookside Road to access the site. Allowing for that traffic to travel straight through the Main South Road / Brookside Road intersection is conservative since traffic turning out of Brookside Road is opposed by it.

It is noted the eight car parking spaces for the Rolly Inn on the service station site will result in a small number of vehicle movements at the Brookside Road vehicle crossings. However, as discussed later in the report, Brookside Road carries low traffic volumes and the Brookside Road accesses will operate efficiently with minimal delays. A small number of additional traffic movements to/from the service station site associated with the Rolly Inn will not affect that.

9.3 Additional Intersection Movements

The table below summarises the forecast changes to intersection traffic volumes for the Main South Road / Brookside Road and Brookside Road / Byron Street intersections.

Table 9-3: Changes in Intersection Peak Hour Traffic Volumes with Service Station

Approach	Movement	AM Peak Change	PM Peak Change
Main South Road / Brookside Road Intersection			
Brookside Road	Left	0	0
	Right	+6vph	+8vph
Main South Road E	Left	0	0
	Through	+1vph	+7vph
Main South Road W	Through	0	0
	Right	+7vph	+7vph
Brookside Road / Byron Street Intersection			
Brookside Road S	Left	+14vph	+10vph
	Through	0	0
Byron Street	Through	0	0
	Right	+4vph	+3vph
Brookside Road N	Left	+2vph	+3vph
	Right	+10vph	+14vph

Since most traffic will already be passing the site, the changes to intersection traffic volumes forecast are only small. Small changes to the split of trip types assessed would result in negligible changes to the changes in intersection traffic volumes.

In the future year scenario, the service station would be more reliant on pass-by traffic than in the interim solution, where diverted trips from Rolleston to Christchurch involving a right turn out of Brookside Road onto Main South Road are still possible. Diverted trips from Main South Road to Rolleston, particularly during the evening, would still be possible in the future scenario.

10. Network Effects

10.1 Main South Road / Brookside Road Intersection

This assessment of traffic effects is focussed on the short-term interim scenario before future upgrades to Main South Road. This is considered the most critical scenario in terms of potential traffic effects from the service station, particularly since it will be expected to add a small traffic volume to the right turn volume out of Brookside Road onto Main South Road.

The performance of the Main South Road / Brookside Road intersection with existing traffic volumes and the additional traffic movements generated by the service station has been modelled using the calibrated SIDRA model. **Table 10-1** shows the forecast average right turn delays during the two peak hours.

Table 10-1: Brookside Road Average Right Turn Delays at Main South Road Intersection

Peak Hour	Without Development	With Development
AM	31s (D)	32s (D)
PM	24s (C)	27s (D)

The number of additional peak hour traffic movements at the intersection as a result of the service station would be small (less than 10vph extra on the Brookside Road approach). The intersection modelling results show that the extra traffic generated by the service station would not be expected to noticeably affect the performance of the intersection.

The intersection is currently operating safely, with only one non-injury crash reported at it in the last five years. With only a very small increase in the traffic volume using the intersection and no noticeable change to the delays experienced by drivers, the proposed service station would have a negligible effect on the safety of the intersection.

As Main South Road traffic volumes grow, delays will increase on Brookside Road. In practice, people divert their trips via a service station because it is convenient to do so. If delays become excessive at the Main South Road / Brookside Road intersection, it will become less attractive for people to divert their trip if it requires a right turn out of Brookside Road.

Regardless, the expected NZTA upgrades to Main South Road would remove the right turn from Brookside Road. Accordingly, a future year analysis of the intersection performance has not been carried out.

10.2 Brookside Road / Byron Street Intersection

The Brookside Road / Byron Street intersection is operating with minimal delays currently. The intersection has been modelled with the forecast additional service station traffic. **Table 10-2** summarises the average delay for the right turn from the northern Brookside Road approach, during both peak hours and with and without the service station.

Table 10-2: Brookside Road Northern Approach Average Right Turn Delay

Peak Hour	Without Development	With Development
AM	11s (B)	11s (B)
PM	11s (B)	11s (B)

With diverted and primary trips to/from the service station, there could be an increase of approximately 30vph using the intersection during peak hours. This small increase in traffic will not affect the efficiency of the intersection and it would be expected to continue to operate with only short delays.

The intersection is operating safely with no crashes involving vehicles turning into or out of Brookside Road (north) reported at it in the last five years. The intersection is forecast to continue to operate with short delays with any extra service station traffic added to it, and its safety performance will not be expected to deteriorate.

10.3 Wider Transport Network

As with all service stations, most of the vehicles visiting the proposed service station will already be on the wider road network. Any increases in traffic volumes on surrounding roads will be small and accordingly the service station would not be expected to noticeably affect the wider road network.

11. Access Performance

11.1 SH1 Interim Vehicle Access

As outlined earlier, a median island will prevent right turns into and out of the service station. The island will need to be well-lit and signed so that it is clearly visible for all drivers.

The entry driveway has been designed to allow a large tanker to turn left into the site. The 25m truck and trailer tanker would be required to turn into the site from through lane. This is considered acceptable given the low frequency of the movement and the negligible effect it would consequently have on through traffic.

A wide shoulder is proposed along the development frontage instead of a short auxiliary left turn lane. This will provide an informal deceleration area but will encourage left turning drivers to stay in the westbound lane for longer, allowing trailing vehicles to be more visible for longer to drivers exiting the site. This mitigates the potential concern of trailing vehicles being obscured behind a left turning vehicle from the exit driveway. The approximately 45m separation between the two driveways will also mitigate any concern.

It is considered acceptable that trailing vehicles be required to potentially slow down if a vehicle in front is turning left into the service station. The service station entry is still within the Rolleston township and there are multiple other accesses and intersections closely spaced to the east, meaning that drivers would be alert to the possibility of slowing and turning vehicles. It is noted that no rear-end crashes have been reported in the last five years involving vehicles turning left into Brookside Road where there is limited provision for the left turn movement.

The approximately 80m separation from the Brookside Road centreline to the service station entry means that drivers will be able to indicate left in plenty of time before turning into the site, without indicating before Brookside Road and causing confusion at that intersection.

The exit driveway will achieve good visibility to the east, with Main South Road being straight and flat along this section. Unrestricted sightlines in excess of 300m will be available.

The westbound traffic volume passing the site, up to 700vph during the evening peak hour, is low enough that there will be regular gaps for drivers exiting the site. Peak hour traffic volumes forecast exiting the service station onto Main South Road are approximately 40vph, which is less than one vehicle per minute on average. There will be minimal delays or queues for drivers exiting the site onto Main South Road.

No crashes have been reported in the last five years involving vehicles turning left out of Tennyson Street, Brookside Road or the southern Rolleston Drive. It is noted that the Tennyson Street left turn is the southbound exit to a range of commercial activities including the town centre activities, and the adjacent BP service station and McDonalds. This suggests that drivers are able to safely select their gap in traffic to turn left out. With good visibility available to the east, drivers will be able to safely select gaps in the westbound traffic stream at the service station driveway too.

As outlined earlier, NZTA have been kept informed of the development of the proposed Main South Road access arrangements and no concerns have been raised to date.

11.2 SH1 Future Vehicle Access

Access to the service station in the future scenario would be achieved from the westbound service lane. The service lane would be expected to operate with a 50km/h or slower speed limit and with left-in and left-out access only. Any potential safety concerns related to driver sightlines or the separation to the Brookside Road intersection will be eliminated by the reduced speed limit and it is considered no further assessment of the future scenario is necessary.

11.3 Brookside Road Service Station Vehicle Access

Brookside Road carries low peak hour traffic volumes of 160-170vph. At these volumes, the service station driveways on Brookside Road will operate efficiently with minimal delays.

Good sightlines will be available in both directions to/from the driveways with Brookside Road being straight and flat in alignment.

11.4 Brookside Road Rolly Inn Vehicle Access

The Rolly Inn vehicle access arrangements are being altered to suit the proposed car parking formalisation. A two-way vehicle crossing will provide access to the car park and the drive-through. The vehicle crossing at the eastern end of the frontage will be retained for exit only from the drive-through.

The low traffic volume on Brookside Road and the low traffic volumes that will use the Rolly Inn driveways mean they will be able to operate efficiently with negligible queuing for entry and exit movements. That means there will be a negligible effect on through traffic on Brookside Road.

The drive-through exit driveway has a relatively short separation to the bend in Brookside Road and the Main South Road intersection. However, this driveway has been in operation for a long time and no crashes have been reported at it in the last five years. The proposed changes to the site layout are not expected to increase the number of vehicles using this driveway. To the contrary, it is expected the formalisation of the vehicle areas, including stopping car parking within the road reserve in front of the drive-through, will reduce the level of vehicle activity in the area. Accordingly, it is considered the existing vehicle crossing can be retained with no adverse effects on the safe operation of Brookside Road.

12. District Plan Compliance

The proposed site layout has been assessed against the Selwyn District Plan living zone roading rules. The full assessment is contained in **Appendix B**. Matters of non-compliance are assessed below.

12.1 Rule 5.3.1.1 Distance of Vehicle Crossings from Intersections

The relevant District Plan minimum requirements are:

- Vehicle crossings on 80km/h state highways to be at least 100m from local road intersections;
- Vehicle crossings on 80km/h local roads to be at least 75m from state highway intersections; and
- Vehicle crossings on 50km/h local roads to be at least 25m from state highway intersections.

The edge of the proposed entry vehicle crossing on Main South Road is approximately 70m from the nearest edge of Brookside Road. As assessed above, it is considered this access will operate safely and NZTA have not raised any concerns to date with the access location and design.

The Rolly Inn driveways are on the section of Brookside Road where the speed limit is 80km/h. The minimum separation requirement for the vehicle crossings from Main South Road is therefore technically 75m. However, traffic on Brookside Road approaching the Main South Road intersection will be slowing down for the tight bend in the road and then the intersection. Furthermore, traffic turning into Brookside Road would be required to slow down to make the turn from Main South Road and then drivers are considered very unlikely to accelerate over 50km/h before they reach the 50km/h speed limit change. Therefore, it is considered 50km/h is a more realistic actual vehicle speed for the road and the 25m minimum separation for a local road vehicle crossing from a state highway intersection is considered a more appropriate minimum.

The approximately 55m to the Rolly Inn car park access exceeds the 25m separation and it is considered it is well positioned for safe and convenient access.

The existing vehicle crossing towards the eastern end of the site, which is proposed to be retained for exits only from the drive-through is approximately 25m from the edge of the Main South Road carriageway. Regardless of whether its location is technically compliant or not, there will be no increased use of this vehicle crossing and accordingly there will be no adverse effects on road safety from retaining it.

12.2 Rule 5.3.1.1 Number of Vehicle Crossings

One vehicle crossing per site is permitted in a residential zone. Four vehicle crossings for the service station are proposed across two site frontages and two vehicle crossings are proposed for the Rolly Inn.

It is understood that this rule is intended for residential activities, given it is a rule for the residential zone. The vehicle crossings proposed will provide flexibility for users of the proposed service station and avoid additional traffic movements through particularly the Main South Road / Brookside Road intersection. It has been assessed earlier that the new vehicle crossings on Main South Road and Brookside Road will operate safely and efficiently.

12.3 Rule 5.3.1.1 Vehicle Crossing Widths

Vehicle crossings for non-residential activities have a maximum permitted width of 7m. The two vehicle crossings which have been designed to accommodate the tanker entry and exit movements are wider than 7m. All other vehicle crossings are proposed 7m wide to comply with the rule.

The entry vehicle crossing on Main South Road is proposed 11m wide to accommodate the tanker tracking. There is no footpath or pedestrian demand along the site frontage, so pedestrian safety is not a concern and it is considered essential to design the vehicle crossing to conveniently accommodate the tanker.

The eastern service station vehicle crossing on Brookside Road is also proposed 11m wide to accommodate potential tanker left turns and right turns. The driveway could be somewhat narrowed if the parking opposite the driveway is removed and the tanker making the left turn is required to pull all the way to the far kerb. It was considered preferable to retain kerbside car parking and to have the driveway constructed wide enough to still accommodate the tanker left turn movement. There will be negligible adverse effect on pedestrian safety arising from the non-compliance, with good visibility to the low number of pedestrians using the footpath available for exiting drivers. The vehicle crossing construction on Brookside Road will reinforce that pedestrians on the footpath have priority over driveway vehicle movements. From multiple site visits, it is concluded there are low pedestrian volumes along the Brookside Road footpath and tanker movements will be infrequent. The detailed design of the vehicle crossing may be able to define a narrower movement area for light vehicles, with a different surface for the area that the tanker would need to encroach onto.

12.4 Rule 5.3.1.4 State Highway Access

The rule does not permit direct access onto a state highway with a speed limit greater than 70km/h. As outlined, it is proposed to have direct left-in / left-out access to the site for westbound traffic on Main South Road. The design of the vehicle crossings and changes to Main South Road to accommodate access have been discussed with NZTA and they have not raised any concerns to date.

The site will have access to Brookside Road but for the viability of the site, the preferred option is to also have direct access to/from Main South Road. This will make it convenient for drivers to enter the site from the passing traffic stream and it will allow drivers to exit directly onto Main South Road and avoid the need to add extra traffic volumes to the local roads and nearby intersection.

As discussed earlier, the access design will aim to maximise visibility for exiting drivers to westbound through traffic and drivers turning left out of the site will be able to select safe gaps in the westbound traffic stream.

12.5 Rule 5.5.1.1 Rolly Inn Car Parking Supply

A minimum car parking supply requirement of 46 spaces has been calculated for the Rolly Inn. This has been based on a split of 'retail' (bottle store) and 'food and beverage' (restaurant and bar) activities on the existing ground floor and a proposed function room on the first floor being assessed as a 'place of assembly'. This was considered the appropriate method for calculating a minimum car parking requirement. **Appendix C** contains a summary of the calculations carried out by 4Sight Consulting. Alternative methods for calculating the minimum parking requirement, resulting in possible requirements of 41 and 56 spaces, are also outlined in Appendix C.

The Rolly Inn is proposed with 27 car parking spaces on-site and eight spaces to the south of the service station shop. The provision of a total of 35 parking spaces (plus some short-term parking in the drive-through) for the Rolly Inn has been assessed as non-compliant and an assessment of the appropriateness of the car parking supply follows.

A car parking survey was carried out at the Rolly Inn across the week of 15-21 June 2018. A maximum car parking occupancy of 20 vehicles was recorded at 7:00pm on the Saturday night. Across the rest of the week, the maximum number of cars recorded on-site was 13 during lunchtime on the Wednesday.

With parking demands for the existing ground floor operations being up to approximately 20 vehicles, there will be more than enough parking supply on-site to accommodate this and the District Plan required minimum provision for the proposed first floor 'place of assembly' (nine spaces). The additional parking spaces (over and above the 29 spaces) will provide flexibility for occasional peaks in parking demands for the ground-floor activities and/or the first-floor activity. It is noted that the proposed first-floor function room is only forecast to be used on average twice a month and its use may not even coincide with the busiest times at the pub.

It is considered that the proposed supply of 35 spaces will be sufficient to accommodate most, if not all, car parking demands across the year. Ordinarily, it is not considered an efficient use of resources to provide on-site car parking to meet maximum parking demands on the very busiest days/nights of the year. It is noted that there would be short-term parking available in the drive-through and kerbside car parking available in front of the Rolly Inn and also in front of the service station. It has been estimated that approximately 10 kerbside parking spaces could be available, on the basis that the no-stopping lines currently in front of the Rolly Inn remain in place.

12.6 Rule 5.5.1.1 Car Parking Area Location

This rule requires that all car parking for an activity is located on the same site as the activity. As outlined, eight parking spaces for Rolly Inn staff and associated vehicles are proposed to the south of the service station shop.

Staff members will be familiar with the site and the preferred pedestrian route to the Rolly Inn, expected to be along the Brookside Road footpath.

12.7 Rule 5.5.1.2 Loading and Manoeuvring

The rule requires that loading does not block car parking or pedestrian access. The shop loading area will block the footpath from Brookside Road to the shop. It is expected there will be a low pedestrian volume using the footpath and it will be infrequent that there is a small truck in the shop loading area. If a truck is present, pedestrians will need to walk around the truck which is acceptable in a service station environment, where pedestrians and vehicular traffic are regularly interacting.

The preferred location for the car wash vehicle queuing, if there are more than two or three vehicles waiting, would be along the eastern boundary of the site. This may not be possible if the tanker is in the filling position. However, it is expected that the tanker would visit the site outside of the busiest times for the car wash. Even if the tanker was present and there was a queue for the car wash, it is considered there is plenty of space next to the car care facility or possibly next to the tanker for extra vehicles to wait for the car wash.

12.8 Rule 5.5.1.2 Rolly Inn Car Park Manoeuvring

Due to the angles and shape of the car park, a small number of spaces e.g. spaces 11 and 15 may require a reverse manoeuvre on entry and/or a second reverse manoeuvre on exit for large cars. This is considered acceptable given the nature of the activity and the low turnover of the parking spaces expected and therefore the negligible effect the additional manoeuvring would have on the safe and efficient operation of the car park. There will be no effect on Brookside Road given any additional manoeuvring would occur well into the site.

12.9 Rule 5.5.1.2 Rolly Inn Queuing Space

No queuing space is proposed at the Rolly Inn car park entrance. Vehicles reversing out of the spaces nearest the entrance would momentarily block entering vehicles. In practice, there will be room an inbound vehicle to wait, clear of Brookside Road through traffic, for the short time needed for the vehicle to be reversed out of the parking space. Any queuing would be momentary, and it would be expected to have a negligible effect on the safe operation of the low-volume Brookside Road.

12.10 Rule 5.5.1.4 Service Station Mobility Parking

One mobility parking space is required for 1-10 parking spaces and then an additional one is required for every additional 50 parking spaces or part thereof. Technically for 12 parking spaces for the service station, two mobility parking spaces are required to be provided. However, only one is proposed in front of the shop entrance and this is expected to meet mobility parking demand. It is noted that the parking space on the other side of the shared strip could easily be converted into a mobility space if there ends up being higher than expected demand for mobility parking.

12.11 Rule 5.5.1.7 Rolly Inn Cycle Parking

No cycle parking is provided currently at the Rolly Inn and none is proposed to be added as part of the car park formalisation. There is no change to the activity on-site and accordingly there is no adverse effect from the applicant not providing cycle parking for the Rolly Inn.

13. Conclusion

As is typical for service stations, most traffic generated by the proposed service station would already be on the road network and passing the site. This means that traffic volume increases on Brookside Road and at the nearby intersections, as the result of diverted and primary trips, would be small. The surrounding road network, including the Main South Road / Brookside Road and Brookside Road / Byron Street intersections, is operating safely and efficiently. The small increases in traffic volumes generated by the service station would not be expected to affect this.

Although a number of matters of District Plan non-compliance across the service station site and the Rolly Inn site have been identified, these are not expected to generate any adverse effects on the transport network. Overall, it has been concluded that the access arrangements to both sites are appropriate and can operate safely and efficiently. Furthermore, NZTA have been consulted with through the Main South Road access design development and have not raised any concerns to date. The service station has more than enough car parking to meet the District Plan minimum provision, while the Rolly Inn will be provided with enough car parking to more than meet its parking demands during most days/times of the year.

It is concluded that the proposed development can be supported from a transport perspective.

Appendices



Appendix A NZTA Main South Road Scheme Plans

NOTES

1. REFER SK-01 FOR GENERAL NOTES.

NEW SIGN TO REPLACE EXISTING SIGN 400m EAST OF ROLLESTON DRIVE INTERSECTION ON SH1.

Rolleston
1 Timaru
BROOKSIDE RD
TENNYSON ST
ROLLESTON DR
Town Centre
Lincoln
HOSKYNS RD
Industrial Area

ROLLESTON DR

MARRY TO EXISTING KERB

MARKING TO BE REMOVED

75m

BROOKSIDE RD
TENNYSON ST

ROLLESTON DRIVE

MARKING TO BE REMOVED

JOINLINE - SEE DRAWING SK-03

3m

4m

NEW CHEVRON MARKINGS

RELOCATED LIGHT STANDARD

NEW KERB 100m

LEGEND

- NEW CONTINUITY LINE
- NEW ADVANCED WARNING LINE
- ROAD MARKING TO BE REMOVED
- NEW EDGE LINE
- NEW CHEVRON MARKINGS
- NEW KERB LINE
- NEW SIGN
- NEW KERB CROSSING
- NEW SPEED TABLE
- NEW TRAFFIC ISLAND
- PARCEL BOUNDARY
- STREET LIGHT TO BE RELOCATED
- RELOCATED STREET LIGHT

PRELIMINARY AND UNCHECKED

REV	DATE	DRAWN	REV'D	APP'D	REVISION
A	05/06/12	JIMF			

DRAWING NUMBER | REFERENCE DRAWING TITLE

NZ TRANSPORT AGENCY WAKA KOTAHI

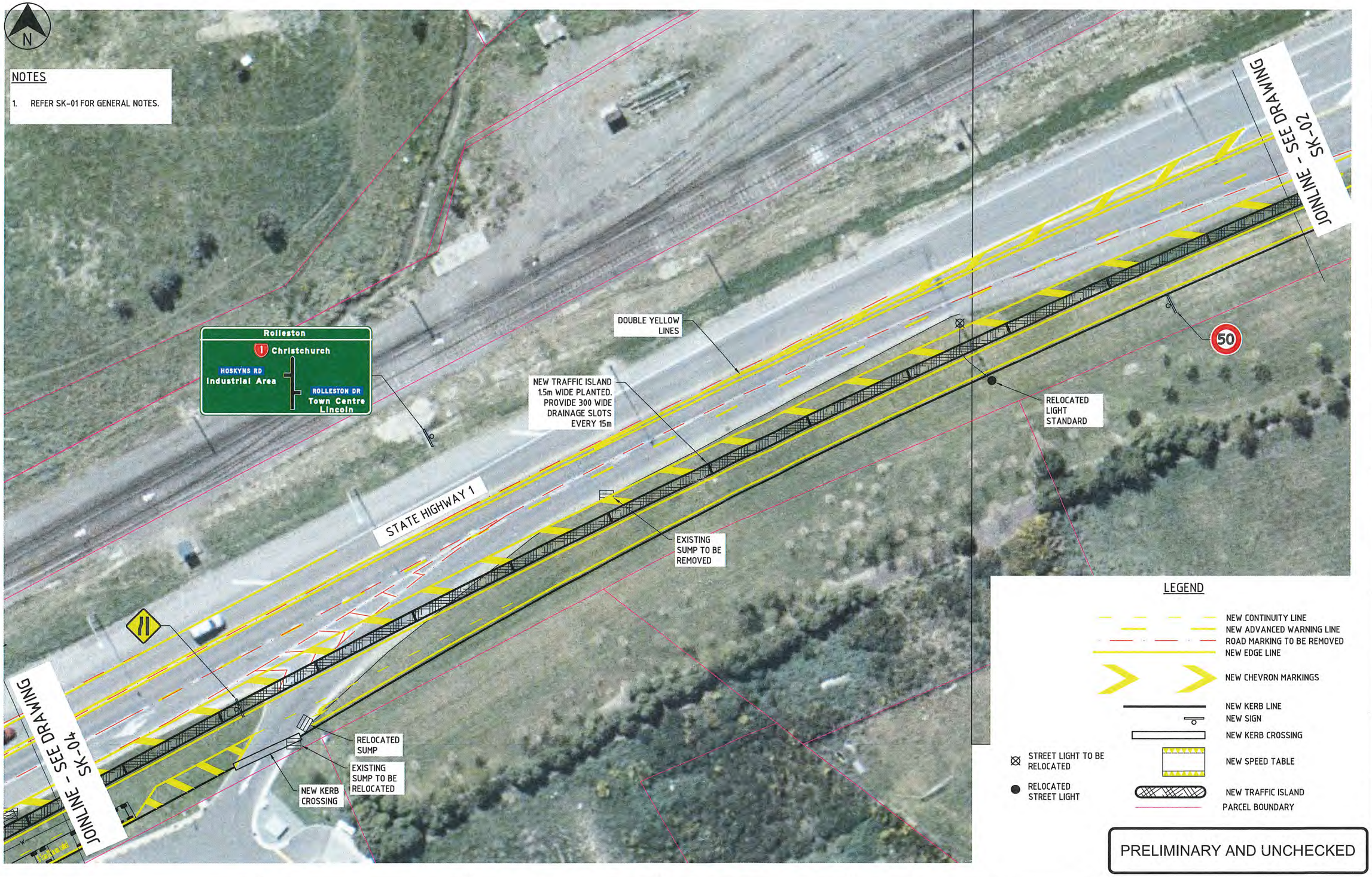
SKM
Sinclair Knight Merz
Level 3
86 Customhouse Quay
WELLINGTON 6011
NEW ZEALAND
Tel: +64 4 473 4265
Fax: +64 4 473 3369
Web: www.globalskm.com

CLIENT: NEW ZEALAND TRANSPORT AGENCY
PROJECT: TENNYSON STREET SCHEME DESIGN
DRAWN: JIMF | DRAWING CHECK | REVIEWED | APPROVED
DESIGNED: GR | DESIGN REVIEW: AJML | DATE | DATE

TITLE: DETAIL - 1
SCALE: 1:250 (A1)
DRAWING No: ZB01266-ECC-DG-002
REV: A

A1

DATE: 8/06/2012 10:18:31 AM LOGIN NAME: FORSYTH, JAMES (SKM)
LOCATION: I:\ZBFIWP\Projects\ZB01266\Deliverables\Drawings\CIVIL\ZB01266-ECC-DG-002.dwg



PRELIMINARY AND UNCHECKED

REV	DATE	DRAWN	REVD	APPD	REVISION
A	05/06/12	JIMF			

DRAWING NUMBER | REFERENCE DRAWING TITLE

NZ TRANSPORT AGENCY WAKA KOTAHI

SKM
Sinclair Knight Merz
Level 3
86 Customhouse Quay
WELLINGTON 6011
NEW ZEALAND
Tel: +64 4 473 4265
Fax: +64 4 473 3369
Web: www.globalskm.com

CLIENT: NEW ZEALAND TRANSPORT AGENCY			
PROJECT: TENNYSON STREET SCHEME DESIGN			
DRAWN: JIMF	DRAWING CHECK	REVIEWED	APPROVED
DESIGNED: GR	DESIGN REVIEW: AJML	DATE	DATE

TITLE: DETAIL - 2

SCALE	DRAWING No	REV
1:250	ZB01266-ECC-DG-003	A

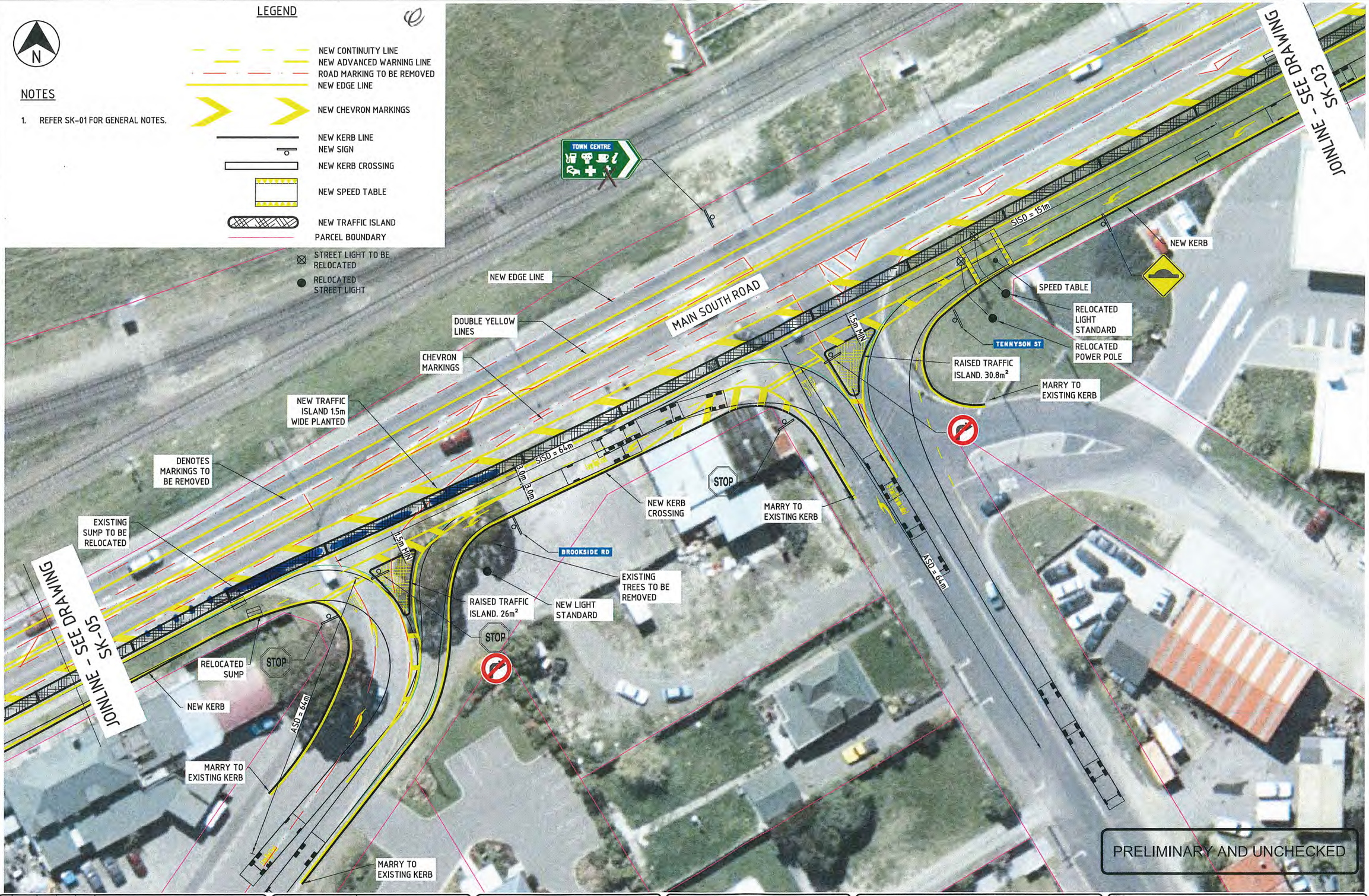
DATE: 8/07/2012 10:17:28 AM LOGIN NAME: FORSYTH, JAMES (SKM)
LOCATION: I:\ZB\WP\Projects\ZB01266\Deliverables\Drawings\CIVIL\ZB01266-ECC-DG-003.dwg

LEGEND

- NEW CONTINUITY LINE
- NEW ADVANCED WARNING LINE
- ROAD MARKING TO BE REMOVED
- NEW EDGE LINE
- NEW CHEVRON MARKINGS
- NEW KERB LINE
- NEW SIGN
- NEW KERB CROSSING
- NEW SPEED TABLE
- NEW TRAFFIC ISLAND
- PARCEL BOUNDARY
- STREET LIGHT TO BE RELOCATED
- RELOCATED STREET LIGHT

NOTES

1. REFER SK-01 FOR GENERAL NOTES.



PRELIMINARY AND UNCHECKED

REV	DATE	DRAWN	REV'D	APP'D	REVISION
A	05/06/12	JIMF			

DRAWING NUMBER	REFERENCE DRAWING TITLE

NZ TRANSPORT AGENCY
WAKA KOTAHI

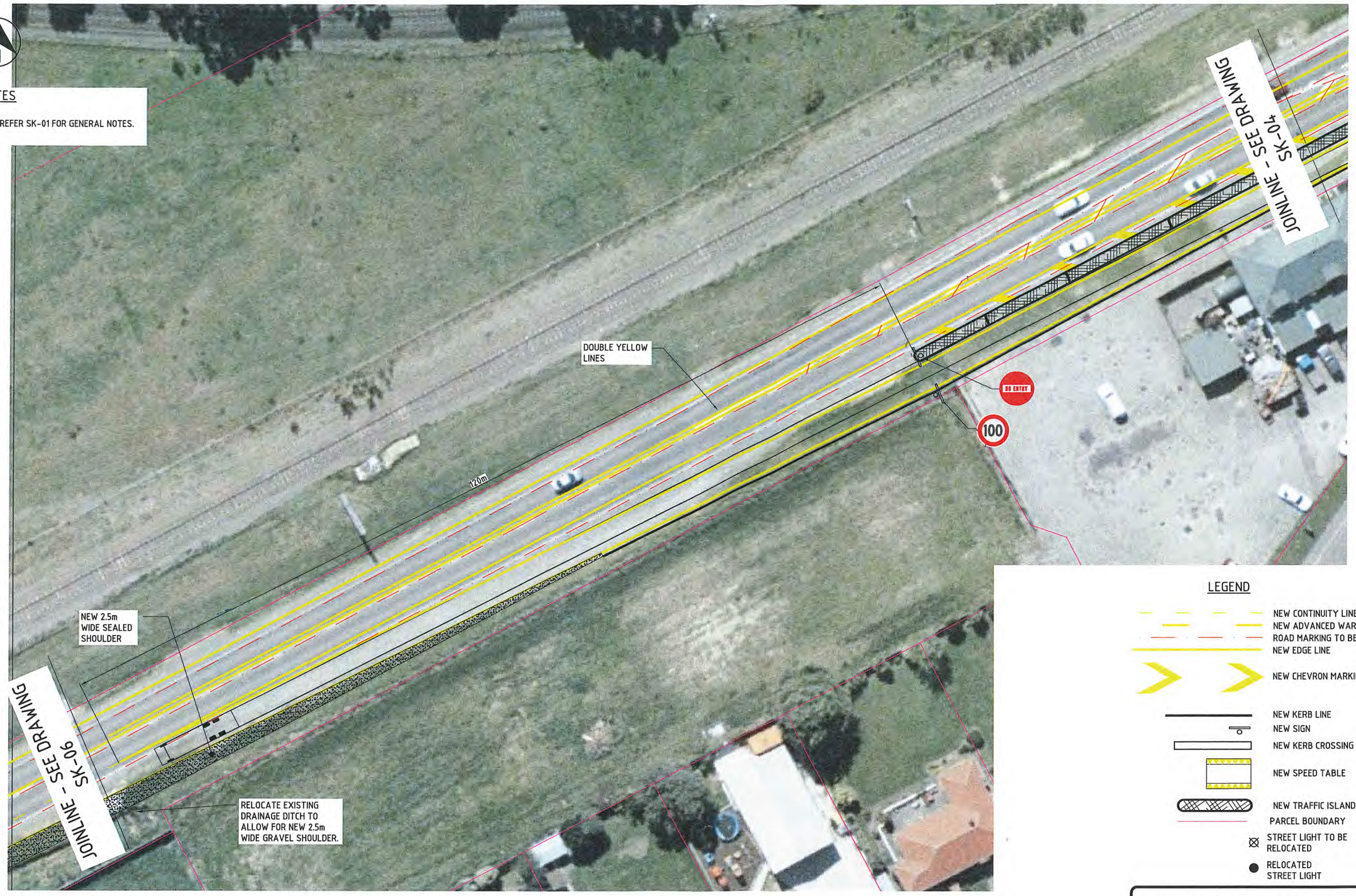
SKM
Sinclair Knight Merz
Level 3
86 Customhouse Quay
WELLINGTON 6011
NEW ZEALAND
Tel: +64 4 473 4265
Fax: +64 4 473 3369
Web: www.globalskm.com

CLIENT	NEW ZEALAND TRANSPORT AGENCY		
PROJECT	TENNYSON STREET SCHEME DESIGN		
DRAWN JIMF	DRAWING CHECK	REVIEWED	APPROVED
DESIGNED GR	DESIGN REVIEW AJML	DATE	DATE

TITLE: DETAIL - 3

SCALE	DRAWING No	REV
1:250	ZB01266-ECC-DG-004	A

DATE: 8/06/2012 10:16:40 AM LOGIN NAME: FORSYTH, JAMES (SKM)
LOCATION: I:\ZB\PWP\projects\ZB01266\Deliverables\Drawings\CIVIL\ZB01266-ECC-DG-004.dwg



PRELIMINARY AND UNCHECKED

REV	DATE	DRAWN	REVD	APPD	REVISION
A	05/06/12	JIMF			

DRAWING NUMBER | REFERENCE DRAWING TITLE

NZ TRANSPORT AGENCY WAKA KOTAHI

SKM
Sinclair Knight Merz
Level 3
86 Customhouse Quay
WELLINGTON 6011
NEW ZEALAND
Tel: +64 4 473 4265
Fax: +64 4 473 3369
Web: www.globalskm.com

CLIENT: NEW ZEALAND TRANSPORT AGENCY
PROJECT: TENNYSON STREET SCHEME DESIGN

DRAWN	DRAWING CHECK	REVIEWED	APPROVED
JIMF			
DESIGNED	DESIGN REVIEW	DATE	DATE
GR	AJML		

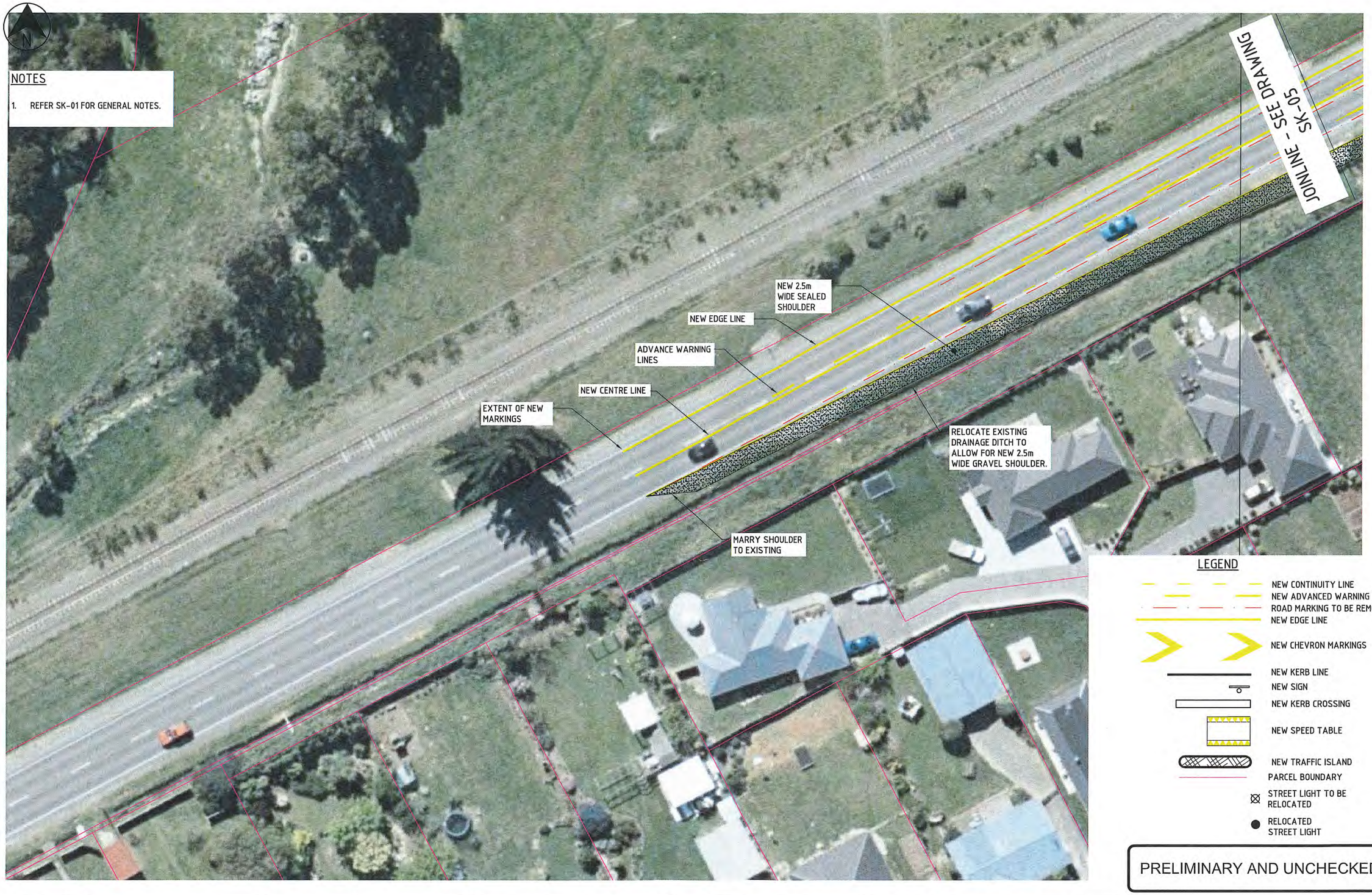
TITLE: DETAIL - 4

SCALE	DRAWING No	REV
1:250	ZB01266-ECC-DG-005	A

DATE: 8/06/2012 10:18:52 AM LOGIN NAME: FORSYTH, JAMES (SKM)
LOCATION: I:\ZB\FW\Projects\ZB01266\Deliverables\Drawings\CM\ZB01266-ECC-DG-005.dwg

NOTES

1. REFER SK-01 FOR GENERAL NOTES.



LEGEND

- NEW CONTINUITY LINE
- NEW ADVANCED WARNING LINE
- ROAD MARKING TO BE REMOVED
- NEW EDGE LINE
- NEW CHEVRON MARKINGS
- NEW KERB LINE
- NEW SIGN
- NEW KERB CROSSING
- NEW SPEED TABLE
- NEW TRAFFIC ISLAND
- PARCEL BOUNDARY
- STREET LIGHT TO BE RELOCATED
- RELOCATED STREET LIGHT

PRELIMINARY AND UNCHECKED

REV	DATE	DRAWN	REV'D	APP'D	REVISION
A	05/06/12	JIMF			

DRAWING NUMBER | REFERENCE DRAWING TITLE

NZ TRANSPORT AGENCY WAKA KOTAHI

SKM
Sinclair Knight Merz
Level 3
86 Customhouse Quay
WELLINGTON 6011
NEW ZEALAND
Tel: +64 4 473 4265
Fax: +64 4 473 3369
Web: www.globalskm.com

CLIENT: NEW ZEALAND TRANSPORT AGENCY
PROJECT: TENNYSON STREET SCHEME DESIGN

DRAWN	DRAWING CHECK	REVIEWED	APPROVED
JIMF			
DESIGNED	DESIGN REVIEW	DATE	DATE
GR	AJML		

TITLE: DETAIL - 5

SCALE	DRAWING No	REV.
1:250	ZB01266-ECC-DG-006	A

DATE: 8/06/2012 10:09:32 AM LOGIN NAME: FORSYTH, JAMES (SKM)
LOCATION: I:\ZB\WP\Projects\ZB01266\Deliverables\Drawings\ACM\ZB01266-ECC-DG-006.dwg

A1

Appendix B District Plan Roading Rules Compliance

Clause	Requirement	Provided	Compliance
5.3 Vehicle Crossings			
Rule 5.3.1.1 and 5.3.1.3	The vehicle crossing is formed to the relevant standards in Appendix E13.2.2, E13.2.3, E13.2.4 and E13.2.5	As outlined below	
E13.2.2	**Distance of Vehicle Crossings from Intersections** No part of any vehicle crossing shall be located closer to the intersection of any roads than the minimums specified in Table E13.5. Main South Road (80km/hr state highway): 100m to the intersection of a local road. Brookside Road (80km/hr local road): 75m to the intersection of a state highway. Brookside Road (50km/hr local road): 25m to the intersection of a state highway.	Service station Main South Road entry vehicle crossing approximately 70m from Brookside Road Rolly Inn Brookside Road vehicle crossings approximately 22m and 55m from Main South Road.	No, see Section 12.1 for assessment of non-compliance
E13.2.3	**Sight Distances from Vehicle Crossings** For 80km/h state highway- 203m For 80km/h local road in living zone- 115m For 50km/h local road in living zone- 45m	Sightlines comply	Yes
E13.2.4	**Vehicle Crossing Design** For all sites in a Living Zone, there shall be a maximum of one vehicle crossing per site The spacing and width of any vehicle crossing shall comply with Table E13.7. In Living Zones, less than 1m or greater than 7m between vehicle crossings on same side of road. For non-residential activities within living zones, crossings shall be between 4m and 7m in length.	Four vehicle crossings for the service station across two frontages. Two vehicle crossings for the Rolly Inn. More than 7m spacings between all vehicle crossings. Tanker entry and exit vehicle crossing widths exceed 7m	No, see Sections 12.2 and 12.3 for assessments of non-compliance related to number of vehicle crossings and vehicle crossing widths
E13.2.5	**Standard of Vehicle Crossings** Heavy duty vehicle crossings shall be provided where more than 100vpd accommodated.	All new vehicle crossings will be constructed as heavy duty vehicle crossings	Yes
Rule 5.3.1.4	The site does not have access directly on to a State Highway or arterial road unless the speed limit on that part of the road to which access is gained is 70km/h or less	Access from Main South Road (80km/h speed limit)	No, see Section 12.4 for assessment of non-compliance
5.5 Vehicle Parking and Cycle Parking			
Rule 5.5.1.1	The number of car parks provided complies with the relevant requirements for the activity as listed in Appendix E13.1.1, E13.1.2, E13.1.3, E13.1.12.	As outlined below	
E13.1.1.1	**Parking Spaces to be Provided** The minimum number of car parking spaces shall comply with table E13.1. <u>Service Station</u> Service station: 1 space beside each booth or facility except carwash facilities which should be provided with 5 stacked parking spaces per facility Retail activities: 4.5 spaces per 100m2 GFA. 11 spaces for 245m2 shop. <u>Rolly Inn</u> A minimum car parking supply of 46 spaces has been calculated. See Section 12.5 for explanation.	Service station: 12 car parking spaces plus fuelling positions. Room for queuing for carwash within site. Rolly Inn: 35 spaces Car parking space widths comply and combined length and aisle widths exceed requirements.	No, see Section 12.5 for assessment of non-compliance re Rolly Inn car parking supply

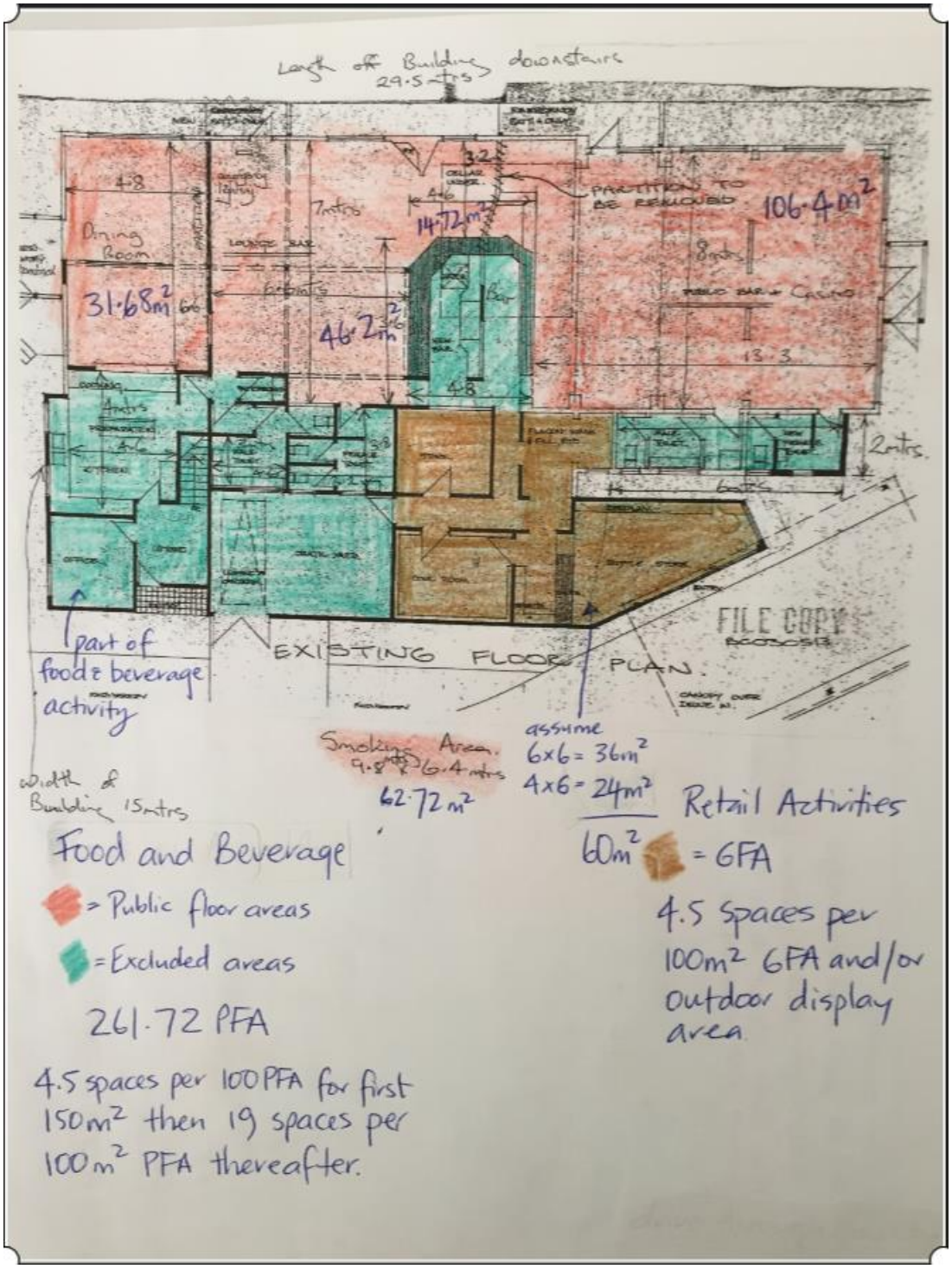
Clause	Requirement	Provided	Compliance
	Car park dimensions shall comply with Table E13.2. Short term parking- 2.6m wide by 5.4m deep with 5.5m two-way aisle. Disabled spaces 3.2m wide.		
E13.1.2	**Availability of Parking Spaces** Any area required for on-site parking or loading shall be available at all times for staff and visitors.	Parking and loading shall comply	Yes
E13.1.3.1	**Parking Area Location** All parking and loading areas shall be located on the same site as the activity for which the parking is required.	All service station parking spaces on the same site. Eight car parking spaces for the Rolly Inn proposed to the south of the service station shop	No, see Section 12.6 for assessment of non-compliance re Rolly Inn staff parking
E13.1.12.1	**Surface of Parking and Loading Areas** The surface of any parking, loading, and associated access areas shall be formed, sealed and drained with the parking spaces permanently marked	Parking spaces will be formed, sealed, drained and marked	Yes
Rule 5.5.1.2	All car parking spaces and vehicle manoeuvring areas are designed to meet the criteria set out in Appendix E 13.1.5.2, E13.1.6, E13.1.7, E13.1.8, E13.1.9, E13.1.10 and E13.1.11.	As outlined below	
E13.1.5.2	**Loading and Manoeuvring** No loading zone shall obstruct any on-site car parking spaces or pedestrian access.	Shop loading space will not obstruct car parking but will obstruct footpath from Brookside Road to shop front. Tank filling will not obstruct pedestrian access but could affect car wash queuing. Rolly Inn loading will not affect car parking or pedestrian access.	No, see Section 12.7 for assessment of non-compliance related to pedestrian access and car wash queuing
E13.1.7	**Gradient for Parking Areas** The gradient for any on-site parking surface shall be no more than: At 90 degree to the angle of parking (1:16) Parallel to the angle of parking (1:20)	Site is relatively flat- no reason for non-compliance	Yes
E13.1.8	**Maximum Gradients for Access** The maximum average gradient of any access shall be 1 in 6.	Site is relatively flat- no reason for non-compliance	Yes
E13.1.9	**On-site Manoeuvring** On-site manoeuvring shall be provided to ensure that no vehicle is required to reverse either onto or off a site that has access to a state highway. Parking spaces shall be located to ensure that no vehicle is required to carry out any reverse manoeuvre when entering any required space Vehicles shall not be required to undertake more than one reverse manoeuvre when exiting a space	No vehicle will need to reverse onto or off either site Parking space dimensions mean manoeuvring requirements will be met on service station site. Some additional manoeuvring may be necessary on Rolly Inn site	No, see Section 12.8 re manoeuvring on Rolly Inn site
E13.1.10	**Queuing Spaces** A queuing space shall be provided on-site for all vehicles entering or exiting a parking or loading area. The length of such queuing spaces shall be in accordance with Table E13.3 (10.5m where 21-50 spaces provided on site)	Approximately 20m queuing space at Main South Road entrance and queuing space available at Brookside Road driveways too	No, see Section 12.9 re Rolly Inn queuing space non-compliance

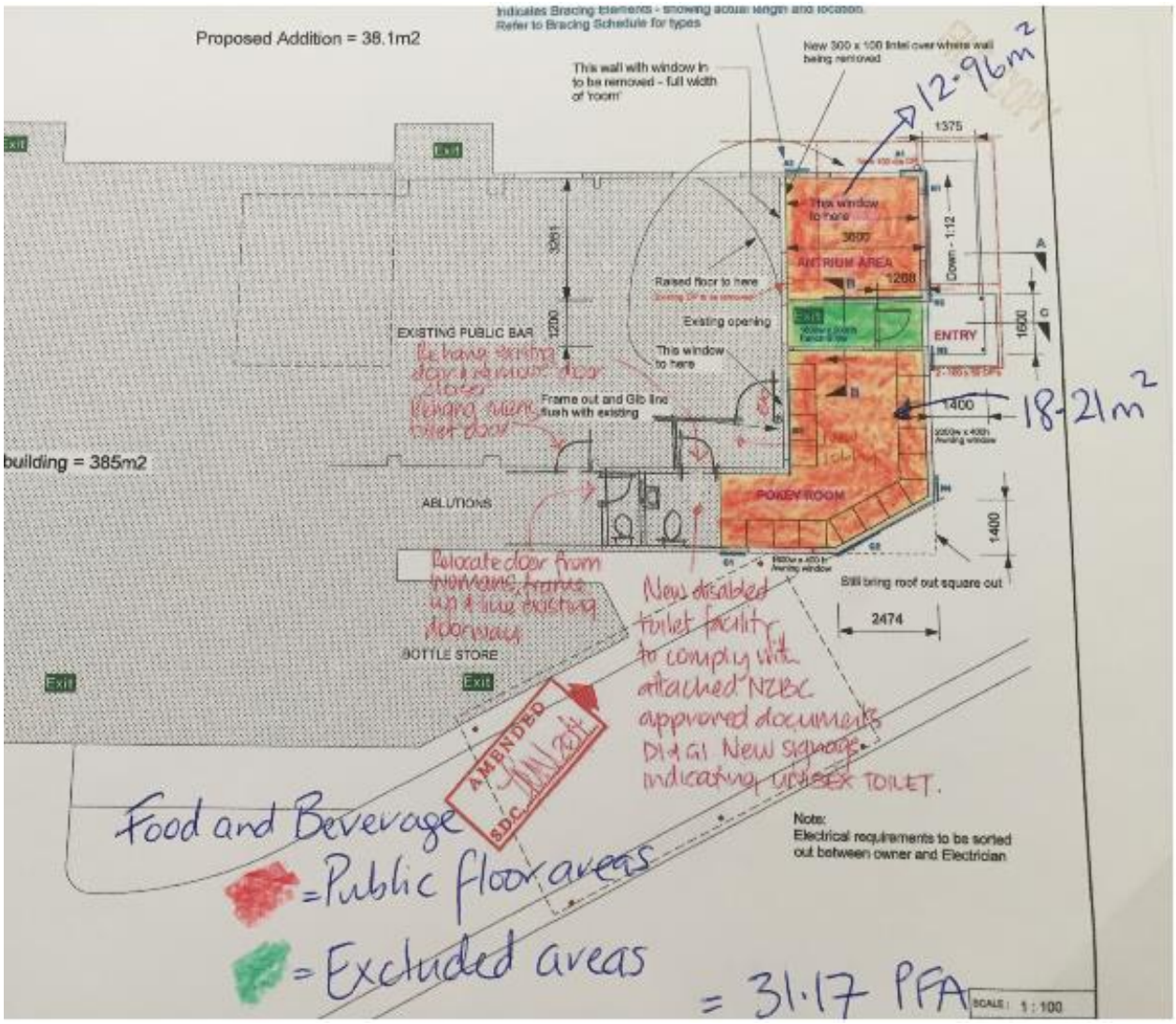
Clause	Requirement	Provided	Compliance
		No queuing space available at Rolly Inn car park	
E13.1.11	**Illumination** Any parking and loading areas which are required at night shall be illuminated to a minimum maintained level of 2 lux, with high uniformity, during the hours of operation.	Lighting not part of this assessment- no reason for non-compliance	Yes
Rule 5.5.1.3	**Loading** One on-site loading space. All loading and manoeuvring shall be carried out on-site and designed to accommodate at least the design truck as detailed in the Council's Engineering Code of Practice.	Loading space at southern end of shop. Medium rigid truck will be able to manoeuvre into the space as per requirements. Rolly Inn loading will continue to occur in drive-through	Yes
Rule 5.5.1.4	Each site which is accessed from a state highway is designed so that a motor vehicle does not have to reverse onto, or off, the state highway	No need to reverse onto or off the state highway	Yes
Rule 5.5.1.5	Each non-residential site has one car parking space for mobility impaired persons for up to 10 car parking spaces provided, and one additional car park space for a mobility impaired person for every additional 50 car parking spaces provided or part there-of	One mobility space in front of service station shop Two mobility spaces on Rolly Inn site	No, see Section 12.10 re service station mobility parking supply non-compliance
Rule 5.5.1.6	Car parking spaces for mobility impaired persons are: (a) Sited as close to the entrance to the building or to the site of the activity as practical, and (b) Sited on a level surface, and (c) Clearly marked for exclusive use by mobility impaired persons	Mobility spaces in front of shop and at restaurant and bar entries, will be marked and flat	Yes
Rule 5.5.1.7	Cycle parking spaces are provided in accordance with the standards in Appendix E13.1.4	As outlined below	
E13.1.4	**Cycle Parking** Any activity is to provide cycle parking at a rate of minimum of 2 cycle space and then at a rate of 1 cycle space for every 5 car parking spaces required. Cycle parking shall be provided as close as practicable to the building main entrance and comply with the Engineering Code of Requirements for cycle parking rack systems.	Two cycle rails providing four cycle parking spaces proposed at service station No cycle parking proposed at Rolly Inn	No, see section 12.111 re Rolly Inn cycle parking non-compliance

Appendix C 4Sight Rolly Inn Car Parking Calculations

Rolly Inn = Ground Floor

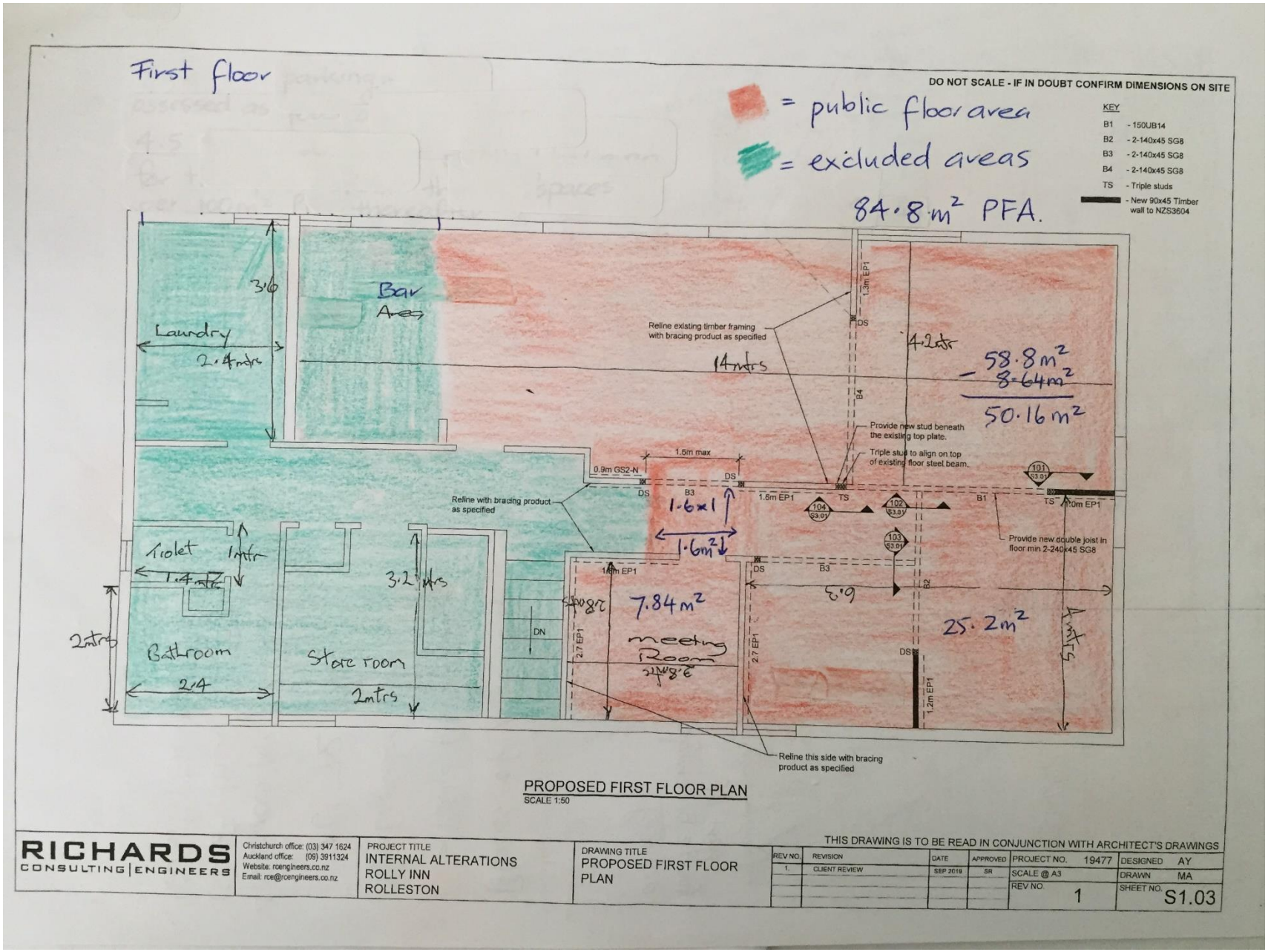
Activity	Requirement	Ground Floor	Notes
Bottle Store ***Retail Activity***	**Retail activities** = 4.5 spaces per 100m^2 GFA and/or outdoor display area	GFA = 60m^2 therefore requires 3 spaces.	***Gross Floor Area (GFA):*** *means the sum of the total area of all floors of any building. It shall be measured from the exterior faces of the exterior walls or from the centre line of any wall separating adjoining buildings. For the purpose of calculating parking requirements GFA shall exclude any required parking and loading areas provided within a building.* 5 queuing spaces for "drive through" not required as that serves a short-term parking function rather than a delivery to the car function. Irregular portion assumed as regular. 60m^2 = 2.7 spaces (note 65m^2 = 3 spaces so additional 5m^2 leeway)
Restaurant and Bar ***Food and Beverage:*** *means a retail activity involving the sale of food and, or beverages prepared for immediate consumption on or off the premises including restaurants, taverns, cafes and takeaway bars but does not include supermarkets, dairies or bottle stores.*	***Food and Beverage:*** 4.5 spaces per 100m^2 PFA for the first 150m^2 then 19 spaces per 100m^2 PFA thereafter.	PFA = 292.89m^2 therefore requires 34 spaces	***Public Floor Area (PFA):*** *means the sum of all floor areas or outdoor area available for the use of the general public in association with an activity, but excludes lift wells, stairwells, toilets, bathrooms and parking areas.* First 150m^2 = 6.75 spaces; and Balance 142.89 = 27.15 spaces; total 33.9 spaces


Length of Building downstairs
29.5 mtrs
Dining Room
31.68m²
7mtrs
14.72m²
PARTITION TO BE REMOVED
106.4m²
8mtrs
PUBLIC BAR & CASINO
13.3
46.2m²
2mtrs
6mtrs
FILE COPY
EXISTING FLOOR PLAN.
part of food & beverage activity
Width of Building 15mtrs
Smoking Area
9.8 x 6.4 mtrs
62.72m²
assume
6x6 = 36m²
4x6 = 24m²
60m²
Food and Beverage
= Public floor areas
= Excluded areas
261.72 PFA
4.5 spaces per 100 PFA for first 150m² then 19 spaces per 100m² PFA thereafter.
Retail Activities
= GFA
4.5 spaces per 100m² GFA and/or outdoor display area.


Proposed Addition = 38.1m2
Indicates Bracing Elements - showing actual length and location.
Refer to Bracing Schedule for types
This wall with window in to be removed - full width of 'room'
New 300 x 100 lintel over where wall being removed
12.96m²
1375
This window to here
3600
ATRIUM AREA
1288
Down - 1:12
Raised floor to here
Existing opening
EXISTING PUBLIC BAR
3261
1200
This window to here
ENTRY
1600
Frame out and Gib line flush with existing
1400
18.21m²
building = 385m2
ABLUTIONS
POKEY ROOM
1400
Still bring roof out square out
2474
Relocate door from doorway frame up 1 line existing doorway
BOTTLE STORE
Exit
AMENDED
SDC
New disabled toilet facility to comply with attached NZBC approved documents D1 & G1 New signage indicating UNISEX TOILET.
Food and Beverage
=Public floor areas
=Excluded areas
= 31.17 PFA
Note:
Electrical requirements to be sorted out between owner and Electrician
SCALE: 1:100

Rolly Inn = First Floor

Activity	Requirement	Ground Floor	Notes
Restaurant and Bar ***Food and Beverage:*** *means a retail activity involving the sale of food and, or beverages prepared for immediate consumption on or off the premises including restaurants, taverns, cafes and takeaway bars but does not include supermarkets, dairies or bottle stores.*	***Food and Beverage:*** 4.5 spaces per 100m^2 PFA for the first 150m^2 then 19 spaces per 100m^2 PFA thereafter.	PFA = 84.8m^2 therefore requires 4 spaces	***Public Floor Area (PFA):*** *means the sum of all floor areas or outdoor area available for the use of the general public in association with an activity, but excludes lift wells, stairwells, toilets, bathrooms and parking areas.* First 100m^2 = 3.82 spaces
OR: As a Place of Assembly: ***Place of Assembly:*** *means any land and building used for gathering of people. It does not include residential accommodation or places of work.*	***Place of Assembly:*** 10 spaces per 100m^2 public area or 1 space per 10 seats, whichever is greater	PFA = 84.8m^2 therefore requires 9 spaces.	First 100m^2 = 8.48 spaces


First floor
DO NOT SCALE - IF IN DOUBT CONFIRM DIMENSIONS ON SITE
= public floor area
= excluded areas
84.8 m² PFA.
KEY
B1 - 150UB14
B2 - 2-140x45 SG8
B3 - 2-140x45 SG8
B4 - 2-140x45 SG8
TS - Triple studs
- New 90x45 Timber wall to NZS3604
Bar Area
Laundry
2.4mtrs
3.6
Reline existing timber framing with bracing product as specified
14mtrs
4.2mtr
58.8m²
8.64m²
50.16m²
Provide new stud beneath the existing top plate.
Triple stud to align on top of existing floor steel beam.
1.5m max
0.9m GS2-N
Reline with bracing product as specified
1.6x1
1.6m²
Toilet
1mtr
1.4mtrs
Bathroom
2.4
3.2mtrs
State room
2mtrs
2mtrs
7.84m²
meeting Room
3.8mtrs
3.9
25.2m²
4mtrs
Provide new double joist in floor min 2-240x45 SG8
Reline this side with bracing product as specified
PROPOSED FIRST FLOOR PLAN
SCALE 1:50
RICHARDS CONSULTING | ENGINEERS
Christchurch office: (03) 347 1624
Auckland office: (09) 3911324
Website: rceng ineers.co.nz
Email: rce@rcengineers.co.nz
PROJECT TITLE
INTERNAL ALTERATIONS
ROLLY INN
ROLLESTON
DRAWING TITLE
PROPOSED FIRST FLOOR PLAN
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS
REV NO. 1. REVISION CLIENT REVIEW DATE SEP 2019 APPROVED SR
PROJECT NO. 19477
SCALE @ A3
REV NO 1
DESIGNED AY
DRAWN MA
SHEET NO. S1.03

Total Requirement for the Rolly Inn

Alternative Calculations:

1. Assuming that the first-floor activity is assessed as food and beverage and separately to the ground floor activity, because it is a 'function room' and therefore a separate, though similar, activity to the bar / restaurant on the ground floor = **41 spaces**.
2. Assuming that the first-floor activity is assessed as food and beverage and combined with the ground floor activity, because the spaces are both 'food and beverage' despite being independent of each other = **56 spaces[1].**
3. Assuming that the first-floor activity is assessed as a place of assembly and/or recreational activity because it is a function room and so is different to a tavern (gathering of a group of people for a particular occasion or purpose, where food and drinks are sold or served) **= 46 spaces.**

It is considered that the most appropriate basis for calculation is alternative 3, generating a requirement for 46 spaces.

If the calculation is not made on the basis of alternative 3, then it is considered alternative 1 is more appropriate. We do not consider it appropriate to calculate parking on the basis set out in alternative 2, because it assumes that the activities on the first and second floor are interrelated in the way they operate, which they are not.

[1] If the Food and Beverage Activity on both floors are totalled (ie: assumed to be a single activity, which clearly it isn't) then the PFA is 377.69m^2, with a requirement for 52.76 spaces for food and beverage activity, plus the 3 for the retail activity = 56 spaces in total.

Total Requirement for Service Station

Shop = Retail activities = 4.5 spaces per 100m^2 GFA and/or outdoor display area = Service Station Retail = 245m^2 plus 25m^2 of outdoor display area (immediately outside of the shop frontage; conservative estimate) = 270m^2 = 12.15m^2 or a requirement for **12 spaces.**

1 space beside each booth or facility except car wash facilities which shall be provided with 5 stacked parking spaces per facility = **1 space at each of the pump, vacuum and air spaces; and 5 stacked parking spaces per carwash.**

Christchurch
Hazeldean Business Park, 6 Hazeldean Road
Addington, Christchurch 8024
PO Box 13-052, Armagh
Christchurch 8141
Tel +64 3 366 7449
Fax +64 3 366 7780

Please visit **www.stantec.com** to learn more about how Stantec design with community in mind.

Stantec

PROPERTY ECONOMICS



Z ROLLESTON DEVELOPMENT

ECONOMIC OVERVIEW

Client: Z Energy

Project No: 51865

Date: January 2020

W: www.propertyeconomics.co.nz E: info@propertyeconomics.co.nz P: 09 479 9311 A: 1/44D Constellation Drive, Rosedale 0632

1. INTRODUCTION

Property Economics have been engaged by Z Energy to provide a high-level economic overview of the proposed development of a Z petrol station at 2 Brookside Road, Rolleston.

This overview focuses specifically on the potential for the proposal Z petrol station to generate adverse retail distribution effects on the Rolleston Town Centre to the point of causing any retail economic concerns in the context of the RMA.

2. PROPOSED DEVELOPMENT

The subject site is situated on 2 Brookside Road, adjacent to SH1 and in close proximity to the Rolleston Town Centre zone. The subject site is currently occupied by the Rolly Inn Tavern with the proposed development of Z petrol station being added to the existing activity on the site. The proposed development, with a total site area of circa 3,630sqm, is proposed to include,

- a Forecourt
- a Highway Shop (245sqm)
- a Car Washing Facility
- 8 x Pump Stations

The site is located in the Selwyn District Plan's Living 1 Zone. Appendix 1 provides a more detailed concept plan of the proposed development giving more complete information about the proposal.

The proposed Z petrol station once operational is likely to predominantly service SH1 traffic in addition to providing convenience service to the local Rolleston residents.

3. OPERATIVE DISTRICT PLAN (ODP)

The Selwyn District Plan gives recognition to the objectives within in the Greater Christchurch Urban Development Strategy (UDS). One of the key objectives pertaining to growth in the UDS is *"Ensures the viability and vitality of town and village centres in Selwyn and Waimakariri Districts, and where possible encourage growth that will make these centres more self-sufficient".*

This section briefly outlines some of the more relevant policies of the District Plan from an economic standpoint relating to retail and commercial centres within which to consider the proposed development against.

Policy B4.3.11:

> *"Provide Neighbourhood and Local Centres, as shown in operative Outline Development Plans, to satisfy the more localised and convenience needs of people and communities, whilst recognising that neighbourhood and local centres are to complement Key Activity*

Centres which shall remain the primary focus for commercial, social and community activity within that Township".

Explanation and Reasons

Whilst the Business 1 Zone Objectives, Policies and Rules also apply to neighbourhood and local centres shown on the ODP, the services and facilities provided for such centres are generally to have a more localised area of influence due to their limited range of activities and accessibility, and accordingly need to complement existing Town Centres, and not compete with them in terms of being a substantial business or retail destination at a strategic level.

In Property Economics opinion, the proposed Z petrol station is a 'convenience' store type, predominantly satisfying a specific convenience need of vehicles passing through Selwyn along SH1. As such the proposed development is likely to complement rather than compete with activities in the Rolleston Town Centre and therefore not adversely affect the role, function and amenity of the Town Centre as a whole.

Objective B4.3.8

"Commercial growth is primarily focused within the Key Activity Centres of Rolleston and Lincoln in a way and at a rate that:

(1) Meets the economic needs of commercial businesses, provides for their communities with convenient access to goods and services, and ensures opportunities for employment and social interaction: and

(2) Ensures an adequate supply of land to meet commercial and community demands".

The Rolleston Town Centre (Core Retail and Retail Fringe precincts) have no profile or access to SH1 and therefore unsuitable to accommodate a Z station designed to primarily service SH1 traffic.

Petrol stations have quite specific location requirements with traffic volumes being an obvious critical attribute. Their location options are not simply transferrable to a commercial zone off a main arterial, i.e. traffic flows influence their location choices.

While the proposed Z location is not within the Rolleston KAC, it is situated within circa 50m of the KAC with other similar traffic driven activities. As such the proposal is considered to satisfy B4.3.8 (1) by meeting commercial business needs, provides the community convenient access and offers employment opportunities and social interaction given its high frequency use.

4. CURRENT ENVIRONMENT

This section considers the geospatial extent and composition of the Rolleston Town Centre Zone and the centre's role and function within Rolleston in order to identify any potential economic implications resulting from the proposed development.

An aerial showing the geospatial extent of the Rolleston Town Centre in context with the location of the proposed development is shown in Figure 1.

FIGURE 1: PROPOSED Z PETROL STATION SITE AND THE ROLLESTOWN TOWN CENTRE KAC



Source: Property Economics, SDC District Plan and Google Maps

The Rolleston Town Centre is the main commercial centre in Selwyn District. It has a significantly larger commercial provision than any other centre within the District with a range of store types engaged in retail, community, commercial and professional services.

Rolleston Town Centre has a diverse mix of small speciality stores, fundamental store types such as cafes, restaurants and takeaways to provide heightened community amenity, clothing and personal accessories retailing, pharmaceutical retailing along with some Large Format Retail (LFR) stores.

The LFR provision in the Rolleston KAC includes some of New Zealand's leading national banner brands such as The Warehouse, Countdown, Noel Leeming, and New World which service the entire township and surrounding rural environs. All these store types a petrol station would not compete directly with and therefore any potential economic threat from trade diversion is significantly muted.

The Town Centre also has a burgeoning non-retail store presence in terms of commercial services (banks, real-estate services, health services) and community facilities which further underpins the broader role and function of Rolleston Town Centre.

Once operational the proposed Z petrol station would predominantly compete with the existing BP petrol station located east of the subject site on SH1 & also Z Hornby. Some short-term consequential trade competition effects in terms of sales diversion are likely to arise but nothing consequential that would threaten the role, function and viability of either the BP Rolleston (or Z Hornby) or the Rolleston Town Centre as a whole.

Overall, the Rolleston Town Centre is considered to be in a fairly robust state with many retail and commercial tenancies well established and in good condition. Furthermore, there is significant private and public sector investment planned for the Rolleston Town Centre with proposed developments including a cinema, town square, and a retail area including restaurants and cafes[1]. This will broaden the centre's economic base further and strengthen the Rolleston Town Centre's position in the market and wider District network. The proposed Z petrol station has no influence on any of these developments being realised or being sustainable on an ongoing basis.

5. TRADE COMPETITION VS DISTRIBUTION EFFECTS

In terms of assessing potential retail economic effects under the RMA there is first a need to differentiate between trade competition effects and flow-on retail distribution effects. By themselves, trade competition effects are not justification for declining a retail consent application under the RMA, unless they are of a level that generates significant adverse flow-on retail distribution effects on the existing centre network of the area. It is within this broader context that the relative merits of the application need to be considered.

It is accepted caselaw that Councils should have regard to significant effects on the amenity of the public caused by any reductions in the viability or vitality of the commercial centres that arise as a consequence of trade competition, i.e. often termed " distributional" or " consequential" effects.

Retail distribution effects are generated by, and are the result of, consequential trade competition and retail activity disbenefit effects. These effects can range across the spectrum (positive and negative) depending on the level of effects generated, which are heavily dependent on the scale, type and location of the proposed activity, among other attributes.

[1] https://www.stuff.co.nz/the-press/news/mid-canterbury-selwyn/102316980/rolleston-town-centre-development-given-green-light – *The article is attached in Appendix 2 for completeness.*

Where the patterns of support and retail activity within an existing centre would not change dramatically within a locality as a consequence of a proposed activity, then the retail distribution effects are not considered to be significant.

Justice Randerson J[2] stated *"The key point of distinction between the adverse effects of trade competition on trade competitors and adverse effects which may properly be considered under the RMA, is that trade competition effects focus specially on the impacts on individual trade competitors. In contrast, where a proposal is likely to have a more general effects on the wider community, then the RMA permits consideration of those effects"*.

The Supreme Court in the Discount Brands decision[3] stated *"An important matter which the Council's Regulatory and Hearings Committee needed to inform itself upon was the effect which the activity proposed might have on the amenity values of the existing centres – on the natural or physical qualities and characteristics of those areas that contributed to people's appreciation of their pleasantness, aesthetic, coherence and cultural and recreational attributes. Such effects on amenity values would be those which had a greater impact on the people and their communities than would be caused simply by trade competition"*.

Collectively, those decisions emphasise and establish that where trade competition produces social and economic effects that are not significant and are not beyond the effects ordinarily associated with trade competition, those effects are to be disregarded when assessing an application.

Put another way, retail distribution effects would occur where a new business (or cluster of businesses) affects an existing centre to such a degree that it would erode a centre's viability, causing a decline in its function and amenity, and disenabling the people and communities who rely upon those existing (declining) centres for their social and economic wellbeing.

Retail distributional effects are differentiated from the effects of trade competition on trade competitors, which are to be disregarded pursuant to s104 (3)A of the RMA when considering resource consent applications. Although retail distributional effects are a relevant consideration for a consent authority, it should be noted that Environment Court case law has made it clear that those effects must be significant[4] (but not necessarily ruinous) before they could properly be regarded as going beyond the effects ordinarily associated with trade competition.

---

[2] *Northcote Mainstreet vs Discount Brands Limited (High Court, CIV-2003-404-5292), paragraph 60*

[3] *Discount Brands Limited v Westfield (New Zealand) Limited (2005) 2 NZLR 597 (SC) also reported as Westfield (NZ) Ltd v North Shore CC [2005] NZSC 17; [2005] NZRMA 337 (SC).*

[4] *Northcote Mainstreet vs Discount Brands Limited (High Court, CIV-2003-404-5292), Randerson J stated: "In regard to shopping centres, I would not, with respect, subscribe to the view that the adverse effects of some competing retail development must be such, as to be ruinous before they could be considered. But they must, at the least, seriously threaten the viability of the centre as a whole with on-going consequential effects for the community served by that centre."*

6. SUMMARY

The scale and location of the proposed Z petrol station development is such that it is considered to have the capacity to generate only non-consequential trade competition effects on the existing petrol station (BP) along SH 1. These trade competition impacts have no potential, which by themselves are not relevant effects under the RMA as outlined by the caselaw in the previous section, to flow over into wider retail distribution effects on the Rolleston Town Centre.

The proposed Z petrol station along with a standard 'Highway Shop' seen in all petrol stations around the country offers minor stock levels of everyday items such as snack foods, confectionery, drinks, toiletries, newspapers and magazines, and car products and accessories, in addition to meeting the refuelling needs of passing vehicles on SH1.

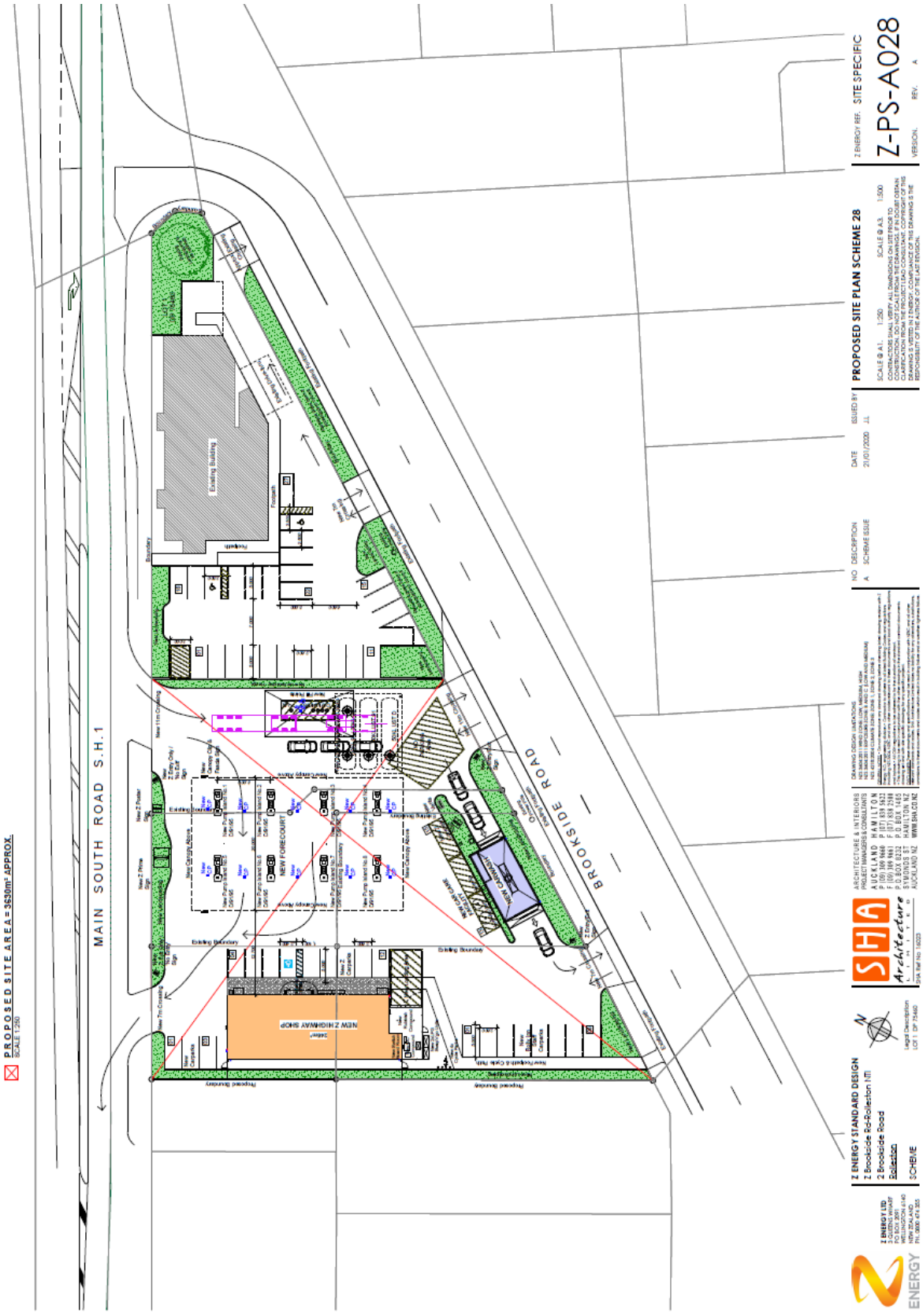
The proposed Z petrol station and the wider Town Centre offers different product types, servicing different requirements and customer base and as such local consumers, even if they use the Z petrol station, are still likely to visit the Town Centre for their retailing requirements, i.e. there is unlikely to be any consequential loss of sales or trade diversion from the Town Centre to the proposed Z station.

As such, the ability of a petrol station to generate significant adverse effects on the Rolleston Town Centre bears no commercial reality. A fuel station cannot generate the level of annual non-fuel retail sales that would cause large scale trade diversion from the Town Centre. The proposed development therefore could not adversely affect in the Rolleston Town Centre, in any meaningful capacity under the RMA.

In reality the new petrol station would provide an opportunity to capture additional opportunistic drive by sales to Selwyn that might not have otherwise occurred. In this regard the Z proposal represents an economic injection into Rolleston with a flow over benefit of ongoing additional employment opportunities for locals.

Given there is unlikely to be any retail distribution effects, the role and function of the proposed Z petrol station will play a complementary rather than competitive role to the Rolleston Town Centre. Therefore, the proposed development will not detract a level of consumer spend away from the Rolleston Town Centre that will cause any RMA concerns in relation to retail economic matters.

APPENDIX 1: PROPOSED DEVELOPMENT SITE PLAN



APPENDIX 2: ROLLESTON TOWN CENTRE DEVELOPMENT (ARTICLE)

Rolleston town centre development given green light

Matthew Salmons - 16:41, Mar 16 2018



ALDEN WILLIAMS/STUFF

Rolleston Reserve, in the foreground, will become the town's new centre.

Rolleston residents are a step closer to getting their own silver screen and restaurant district.

The Selwyn District Council unanimously approved the location and next stages of planning and design for the new Rolleston town centre on Wednesday – after more than 10 years of work.

The development will sit in a large area of Rolleston Reserve, running along Tennyson St between Moore St and Rolleston Ave. It will include the new Rolleston Library and Community Centre, a cinema, town square, retail area, restaurants, cafes and transport services.



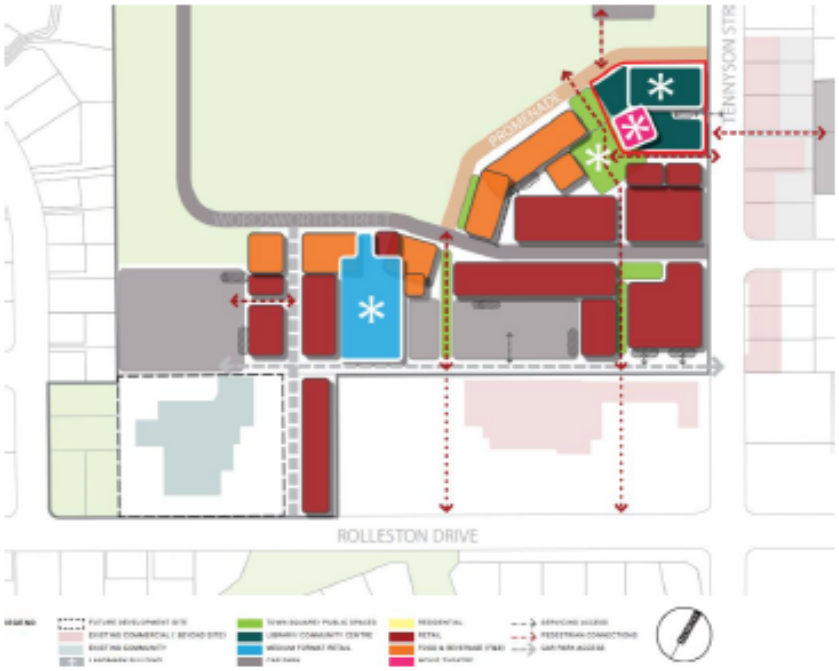
SUPPLIED/GOOGLE MAPS

Rolleston's Town Centre development will be on land taken from Rolleston Reserve behind the New World supermarket.

"The focus of the development is to create a new heart, a feeling that Rolleston has its own space," he said.

ADVERTISEMENT
Stuff

"We imagine it will be a large project phased over many years."



The library and community centre will be the anchor project of the development. Work is estimated to begin later this year and be completed in 2019.

"It's about enhancing our community space, so it takes priority," Reid said.

The overall design will incorporate the area's cultural heritage in some way, with designs capturing a uniquely Rolleston look.

Retail in the area would likely be boutique shopping, with the potential for laneways to encourage people to stay in the centre longer, he said.

Plans also include an extension to Wordsworth St to run from Moore St to Tennyson St – as in the town's original masterplan – and the creation of a promenade between the community centre and green space.

The proposal approved by the council this week said several had already been completed, such as a nearby roundabout, Foster Park development, and policies designating the town centre as a key project and enabling redevelopment of part of Rolleston Reserve.

The council's design team, led by architects Warren and Mahoney, developed the plans in consultation with a working group of councillors and staff. It incorporated elements from community feedback, including recent consultation on the library and community centre.

Reid said there would be ongoing consultation throughout development to confirm which aspects needed to be prioritised.

Stuff